M&E Metcalf & Eddy
An Air & Water Technologies Company

April 11, 1994

ENTERED

Q134
TA-49

Ms. Barbara Driscoll
U.S. EPA, Region 6
RCRA Branch, 6H-PN
1445 Ross Avenue
Dallas, TX 75202-2733

LIBRARY COPY

Re: TES X Work Assignment No. R06031 - Los Alamos National Laboratory
Unvalidated Data - Technical Area 49

Dear Ms. Driscoll:

Please find enclosed unvalidated split sample data package from Accutest laboratories. These split samples were obtained at the Los Alamos National Laboratory (LANL) Technical Area 49 between March 10 through 22, 1994, by Metcalf & Eddy (M&E) oversight personnel. M&E has not conducted data validation of this data under this Work Assignment (Task 2.7 of Work Plan) since the TES X Contract with EPA will has expired.

A list of split sample and corresponding LANL sample numbers are provided in M&E's oversight report dated March 31, 1994.

Please call me if you have any questions regarding this unvalidated data package.

Sincerely,

Andrew B. Ellison

Andrew B. Ellison
Contract Project Manager

/abe

enclosure

xc: RPMO File

OD0494.11

3968

1845 Woodall Rodgers Fwy., Suite 1620, LB 23, Dallas, TX 75201
214-754-8725 FAX 214-871-1035

Environmental Protection Agency
Technicacl Enforcement Support
at Hazardous Waste Sites

TES X

Contract No. 68-W9-0007
Work Asignment No. R06031

Field Oversight Report

Los Alamos National Laboratory
Los Alamos, New Mexico

for

Field Oversight Activities
November 16, 1993 through November 24, 1993
and
February 28, 1994 through March 22, 1994

U.S. EPA Region 6

Metcalf & Eddy, Inc.
Project No. 163031.0001

Work Performed by:

Metcalf & Eddy, Inc.
1845 Woodall Rodgers Freeway, Suite 1620

Dallas, Texas 75201

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LOS ALAMOS NATIONAL LABORATORY
SUMMARY SAMPLING OVERSIGHT ACTIVITY
TES X CONTRACT - U.S. EPA REGION 6
WORK ASSIGNMENT NO. R06031

Metcalf & Eddy (M&E), Inc., under the TES X Contract with U.S. EPA in Region 6, provided field oversight and conducted split soil sampling at the Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico. The field oversight activities and sampling events took place from November 16, 1993 through November 24, 1993 and February 28, 1994 through March 22, 1994. During the site trips the oversight personnel documented the activities and observed the field work performed by the Department of Energy contractors. Metcalf & Eddy also coordinated with a non-CLP Laboratory (Accutest) to provide analysis of the split soil samples for the parameters outlined in the Statement of Work. A Data Validation Report, covering the November 1993 sampling event, was provided to the EPA on February 9, 1994. Daily summaries of sampling activities are located in Attachment A. Descriptions of daily activities recorded in field log books are provided in Attachment B. Results of the field radiation screening of collected soil samples are contained in Attachment C.

Metcalf & Eddy personnel observed the collection of soil sample from boreholes by the LANL contractors (ERM/Golder) at LANL Technical Areas 54 and 49 (TA-54 and TA-49). Once samples were removed from the borehole they were field screened for volatiles and radiation. M&E personnel collected split samples from ERM personnel following procedures outlined in M&E's Quality Assurance Project Plan. Samples collected by ERM were turned over to LANL personnel for detailed radiochemistry screening (gross alpha/beta; gamma spectrometry; tritium; and moisture content) to determine if samples were safe to ship to, and be handled by, analytical laboratories for analysis. Split samples were retained in the custody of M&E personnel. Radiation screening results were provided to M&E to determine if M&E's split samples were safe. None of the split samples collected by M&E were rejected for shipping and analysis due to elevated levels of radioactivity.

Metcalf & Eddy collected 31 split soil samples during the course of oversight activities. A total of 16 split samples were collected from TA-54 for analysis of; RCRA Appendix IX volatiles, semi-volatiles, and metals; pesticides; PCBs; and cyanide. Four samples were collected from TA-49 for analysis of RCRA metals. Appropriate quality assurance/quality control samples (i.e., duplicates, matrix spike, matrix spike duplicates, and field blanks, and trip blanks) were also obtained. All samples were analyzed using the analytical methods specified in the EPA CLP Statement of Work for Organic Analysis, Document No, OLM01.8, 1991 and EPA CLP Statement of Work for Inorganic Analyses, Document No. ILM02.1, 1991 by Accutest Laboratory, the subcontracted laboratory. The chain-of-custody documents

are provided in Attachment E. Summaries of the M&E sample numbers and the corresponding LANL sample numbers follow on Tables 1.0 and 2.0 for split samples obtained from TA-54 and TA-49.

Photographs and video camera recorded field sampling activities. Photographs obtained by M&E personnel are provided in Attachment D. LANL personnel allowed only polaroid photographs of field activities at TA-54. A video tape of split sampling activities at TA-49 was recorded by ERM personnel. A copy of this video tape will be provided as a separate attachment to this report.

Both LANL contractors and M&E personnel adhered to safety requirements required by LANL. To conduct the onsite requirements for this Work Assignment, Metcalf & Eddy personnel attended the Los Alamos National Laboratory required General Employee Training and the Radiation Worker, Level II classes. Radiation dosimeter badges, respiration equipment, and fittings were provided by LANL. Health and safety tailgate meetings were held daily by both LANL and ERM personnel. Drilling was stopped on one occasion for explosive levels which exceeded safe levels within a borehole. The borehole was allowed to vent and drilling resumed. On two occasions, weather (i.e., rain or snow) prevented field health and safety radiation screening resulting in work stoppage.

TABLE 1.0
Split Samples Soil - Collected November 16 through 24, 1993
Technical Area 54 (TA-54)

M&E Sample Number	LANL Sample Number
93ME70-S01	AAA7417
93ME70-S02	AAA7397
93ME70-S03	AAA7407
93ME70-S04	AAA7402 and AAA7416
93ME70-S05	AAA7403
93ME70-S06	AAA7399
93ME70-S07	AAA7413
93ME70-S08	AAA7405
93ME70-S09	AAA7422
93ME70-S10	AAA7422 and AAA2400 Duplicate of S09
93ME70-S11	AAA7398
93ME70-S12	AAA7419
93ME70-S13	AAA6035
93ME70-S14	AAA6036
93ME70-S15	AAA7424 and AAA7408
93ME70-S16	AAA7420
93ME70-S17	AAA7420 Duplicate of S16
93ME70-S18	AAA7421
93ME70-B01	M&E Field Blank
93ME70-B02	M&E Trip Blank
93ME70-B03	M&E Trip Blank
93ME70-B04	M&E Field Blank
93ME70-B05	M&E Trip Blank

TABLE 2.0
Split Samples Soil - Collected March 10, 15, 17 and 22, 1994
Technical Area 49 (TA-49-2)

M&E Sample Number	LANL Sample Number
94ME25-S01	AAA4627 Includes MS/MSD
94ME25-S02	AAA4628 Duplicate of S01
94ME25-S03	M&E Field Blank
94ME25-S04	AAA4635
94ME25-S05	AAA4614
94ME25-S06	AAA4644 Duplicate of S05
94ME25-S07	M&E Field Blank
94ME25-S08	AAA4606

ATTACHMENT A

SUMMARIES - FIELD ACTIVITIES

Tuesday, November 16, 1993

- Field Screening: Radioactivity: Background levels
  Organics: Background to 50 ppm
- Samples were collected by ERM for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), and for VOAs.
- Ron Thomas of ERM gave Pam Jones and Andrew Ellison of M&E a tailgate safety briefing.
- Began drilling boring TA54-1009 and drilled to 80 feet.
- Split soil samples were collected by M&E for analysis of VOAs, SVOAs, RCRA metals, cyanide, pesticides,and PCBs.

Wednesday, November 17, 1993

- Field Screening: Radioactivity: Background levels
  Organics: 6.8 to 12.2 ppm
- Samples were collected by ERM for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), and for VOAs.
- Continued drilling TA54-1009. Drillers pulled augers out of borehole and replaced the drilling bit. Drilling was completed from 80 feet to 150 feet, then terminated. Backfilling of the borehole was initiated.
- Split soil samples were collected by M&E for analysis of parameters listed above.
- Larry Hersman of LANL had Stewart Drilling collect a sample for microbiological analysis.

Thursday, November 18, 1993

- Field Screening: Radioactivity: Background levels
  Organics: Background to 16.2 ppm
- Samples were collected by ERM for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), and for VOAs.
- Hollow stem augers were decontaminated.
- Backfilling of TA54-1009 was completed and drilling at boring TA54-1008 was initiated. Drilling was completed to 25 feet.
- Split soil samples were collected by M&E for analysis of parameters listed above.
- Pam Jones of M&E received results for radiation screening from Cindy Kruger of ERM. Pam phoned Michael Dennis of M&E and reported the results, and Michael phoned Accutest Analytical Laboratory to provide the results to them.

Friday, November 19, 1993

- Field Screening: Radioactivity: Background levels
  Organics: 36 to 1800 ppm
- Samples were collected by ERM for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), and for VOAs.
- Two personnel from HS-5 installed personal air sampling pumps on three field personnel for Stewart Drilling; A. Chavez, S. White and V. Rhodes. They were monitoring for silica. This action was in response to soil samples having a powder-like consistency.
- Drilling continued at TA54-1008 from 25 feet to 125 feet, where the boring was terminated.
- Split soil samples were collected by M&E for analysis of VOAs, SVOAs, RCRA metals, cyanide, pesticides,and PCBs.

Monday, November 22, 1993

- Field Screening: Radioactivity: Background levels
  Organics: Background to 35 ppm
- Samples were collected by ERM for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), and for VOAs.
- Began drilling of boring TA54-1007 and drilled to 45 feet.
- Split soil samples were collected by M&E for analysis of parameters listed above.

Tuesday, November 23, 1993

- Field Screening: Radioactivity: Background levels
  Organics: 40 ppm
- Samples were collected by ERM for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), and for VOAs.
- Continued drilling TA54-1007 from 45 feet to 75 feet. Due to explosive levels exceeding safe levels, drilling was stopped in mid-afternoon for the day.
- Split soil samples were collected by M&E for analysis of parameters listed above.

Wednesday, November 24, 1993

- Field Screening: Radioactivity: Background levels
  Organics: NA
- Samples were collected by ERM for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), and for VOAs.
- Continued drilling TA54-1007 from 75 feet to 80 feet. Written permission to raise the action level of the LEL from 10% to 20% was granted by V. Smith.
- Split soil samples were collected by M&E for analysis of parameters listed above.

Monday, February 28, 1994

- Field Screening: Radioactivity: Background levels
  Organics: 9-25 ppm
- Samples were collected by ERM/Golder for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma spectrometry, total uranium, isotopic plutonium, and RCRA metals), and geotechnical analyses (hydrogeologic, geochemical, and archival).
- Bennie Martinez (LANL) requested that C. Wurm and B. Chávez attend the health and safety tailgate meeting at TA-49.
- Met with ERM/Golder and LANL personnel at TA-49.
- ERM/Golder will continue drilling borehole 49-2-150-1, starting at 9.3'.
- Drilled to 20.5 feet today.
- During the reaming of the borehole, prior to setting casing, air pressure lifted the asphalt pad approximately 4 inches within a 10 feet - 15 feet radius of the borehole. In order to seal the voids, the borehole was pressure grouted to the surface. The borehole will be reamed and the casing set on Tuesday.
- B. Chávez and C. Wurm talk with Susan Alexander (LANL) concerning respirator fit test scheduling and issuance of our dosimeter badges.
- Talk with George Brooks concerning the screening of M&E split samples by the LANL radiation van.

Tuesday, March 1, 1994

- TA-49
  Field Screening: Radioactivity: Background levels
  Organics: N/A
- B. Chávez and C. Wurm are successfully fit-tested on MSA APRs (air purifying respirators).
- Virginia Rey issues temporary dosimeters to B. Chávez and C. Wurm.
- The grout which was pressured into borehole 49-2-150-1 on 02/28/94 did not harden enough to allow for reaming (poor return) and setting of casing. Air pressure from the drill rig (as low as 10 psi) continued to lift the asphalt pad. On 03/02/94, 14 inch diameter casing will be driven into the soil underlying the asphalt pad to help prevent loss of air circulation. The borehole will then be reamed to 20 feet and the casing set.

Wednesday, March 2, 1994

- Field Screening: Radioactivity: Background levels
  Organics: N/A
- At borehole 49-2-150-1, 14 inch diameter casing was driven to a depth of 9 feet to help prevent the loss of air circulation and the lifting of the asphalt pad during reaming. The borehole was then reamed with a 12 1/4 inch bit to 17 feet (20 feet was the projected depth). Problems during drilling were the result of moist conditions (i.e., poor return, clogged cutting hoses) and resulted in delays which did not allow the projected depth to be reached.

Thursday, March 3, 1994

- Field Screening: Radioactivity: Background levels
  Organics: N/A
- The remaining 3 feet will be reamed, the 14 inch diameter casing removed, and the surface casing inserted to 20 feet and grouted in place.
- Borehole 49-2-150-1 was reamed from 17.0-20.0 feet with a 12 1/4 inch bit.
- The 14 inch diameter casing was removed.
- Surface casing (8 5/8 inch O.D.) was inserted to a 20 feet depth and grouted.
- The drill rig was prepared for continuous air rotary coring with a 5 feet core barrel.
- Drilling will resume on 03/07/94. ERM will not work Friday 03/04/94; reason being, to allow the grout to set up.

Monday, March 7, 1994

- Field Screening: Radioactivity: Background levels
  Organics: 2-3 ppm

- Starting Depth: 20.3 feet
  Ending Depth: 40.3 feet
- Samples were collected by ERM/Golder for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma Spectrometry, total uranium, isotopic plutonium, and RCRA metals), and geotechnical analyses (hydrogeologic, geochemical, and archival).
- Borehole 49-2-150-1 was cored from 20.3 feet-40.3 feet.
- Core consisted of dry tuff.
- The drill rig was prepared for the installation of ODEX casing to 40.3 feet on Tuesday, March 8, 1994.

Tuesday, March 8, 1994

- No work due to light/moderate snowfall.
- The snowfall did not allow for alpha screening by the RCT.
- The drillers fueled all equipment and the drill rig was set up for installation of ODEX casing on Wednesday, March 9, 1994.

Wednesday, March 9, 1994

- Field Screening: Radioactivity: Background levels
  Organics: N/A
- ODEX casing advanced to 40.3 feet.
- The drill rig was converted over to continuous air-coring.
- Light snow flurries in the afternoon prevented the resumption of coring, i.e., could not screen for alpha radiation.

Thursday, March 10, 1994

- Field Screening: Radioactivity: Background levels
  Organics: N/A
- Starting Depth: 40.3 feet
  Ending Depth: 60.0 feet
- Samples were collected by ERM/Golder for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma spectrometry, total uranium, isotopic plutonium, and RCRA metals), and geotechnical analyses (hydrogeologic, geochemical, and archival).
- Split samples were collected by M&E for analysis of RCRA metals, including mercury (borehole 49-2-150-1).
  Interval #1: 40.5 feet - 42.3 feet
  Time: 1100 (reg, MS, MSD, Field Blank)
  1120 (Duplicate)
  Reg AAA4627, 94ME25S01
  MS AAA4627, 94ME25S01
  MSD AAA4627, 94ME25S01
  Dup AAA4628, 94ME25S02
  Field Blank preserved w/HNO_3, 94ME25S03
- Cored from 40.3 feet - 60.0 feet
- Installed ODEX casing to 60.0 feet.
- The drill rig was converted over for the resumption of continuous air-coring on 3/11/94.
- The core consisted of mostly dry welded tuff; a moisture welded interval was observed from 44.5 feet - 48 feet, with no apparent structural pathways, such as fractures or joints.
- Core recovery ranged from 60% - 90%.

Friday, March 11, 1994

- Field Screening: Radioactivity: Background levels
  Organics: 2-11 ppm
- Starting Depth: 60.0 feet
  Ending Depth: 100.0 feet
- Samples were collected by ERM/Golder for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma spectrometry, total uranium, isotopic plutonium, and RCRA metals)l, geotechnical analyses (hydrogeologic, geochemical, and archival), and volatile/semi-volatile analyses.

- Cored from 60.0 feet - 80.0 feet.
- Installed ODEX casing to 80.0 feet.
- Cored from 80.0 feet - 100.0 feet.
- The core consisted of mostly dry slightly to moderately cohesive tuff.
- Core recovery was generally 100%, although recovery in less cohesive tuff was from 25% - 50%.

Monday, March 14, 1994

- Field Screening: Radioactivity: Background levels
  Organics: ND
- Samples were collected by ERM/Golder for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma spectrometry, total uranium, isotopic plutonium, and RCRA metals), and geotechnical analyses (hydrogeologic, geochemical, and archival).
- Borehole 49-2-150-1 activities on 3/14/94 consisted of:
  1. Installation of ODEX casing from 80.0 feet to 100.0 feet.
  2. Coring from 100.0 feet to 116.0 feet. Air coring will resume tomorrow.
- Core recovery ranged from 75% to 100%, although core recovery in one run was 33%.
- The tuff was dry, slightly to very cohesive, and slightly to moderately welded.

Tuesday, March 15, 1994

- Field Screening: Radioactivity: Background levels
  Organics: ND
- Starting Depth: 116.0 feet
  Ending Depth: 150.0 feet
- Samples were collected by ERM/Golder for Los Alamos for field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma spectrometry, total uranium, isotopic plutonium, and RCRA metals). and geotechnical analyses (hydrogeologic, geochemical, and archival).
- Borehole 49-2-150-1 activities on 3/15/94 consisted of:
  1. Coring from 116.0 feet to 150.0 feet (TD).
  2. Installing ODEX to 150.0 feet (TD).
- Core recovery generally ranged from 33% to 100%.
- The tuff was dry, and varied from slightly to very cohesive, and slightly to moderately welded (upper portion) to non-cohesive and non-welded (lower portion).
- Activities for Wednesday, March 16, 1994 will consist of moving to borehole 49-2-150-2 and initiating drilling and sampling activities.
- M&E split sample obtained: (Borehole 49-2-150-1) Interval #2 - 116.0 feet to 117.0 feet. Time: 0850. Reg AAA4635, 94ME25S04, analyzed for RCRA metals including mercury.

Wednesday March 16, 1994

- Field Screening: Radioactivity: Background levels
  Organics: ND
- Starting Depth: Surface
  Ending Depth: 12.5 feet.
- Samples were collected by ERM/Golder for Los Alamos field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma spectrometry, total uranium, isotopic plutonium, and RCRA metals), and geotechnical analyses (hydrogeologic, geochemical, and archival).

- Borehole 49-2-150-2 activities on 3/16/94 consisted of:
  1. Coring from the surface to 12.5 feet. Approximately 2 inch of asphalt was cored, which was mostly underlain by mostly wet to slightly moist clayey sand.
- Core recovery was 100%.
- The fill/tuff interface was encountered at 8.9 feet.
- Following the completion of drive sampling, the drill rig was converted over to the air rotary system and coring was initiated.
- Approximately 2.5 feet of the tuff was cored and the core was left in the borehole to be collected the following day.
- Activities on Thursday, March 17, 1994 will consist of coring to 20 feet followed by setting of surface casing.

Thursday, March 17, 1994

- Field Screening: Radioactivity: Background levels
  Organics: 1 ppm
- Starting Depth: 11.5 feet
  Ending Depth: 20 feet.
- Samples were collected by ERM/Golder for Los Alamos field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma spectrometry, total uranium, isotopic plutonium, and RCRA metals), and geotechnical analyses (hydrogeologic, geochemical, and archival).
- Borehole 49-2-150-2 activities on 3/17/94 consisted of:
  1. Coring from 11.5 feet to 20 feet.
- Core recovery was 100%
- The soil/fill underlying the pad was removed using a 14 inch casing. The borehole was removed from the soil/tuff interface to 20.0 feet.
- Surface casing will be set and grouted tomorrow.
- Split samples were collected by M&E for analysis of RCRA metals, including mercury (49-2-150-2).

  Interval 12.5 feet to 16.5 feet
  Time: 1028 (REG, MS, MSD, FB)
  1628 (DUPLICATE)

REG	AAA4614	94ME25SO5
MS	AAA4614	94ME25SO5
MSD	AAA4614	94ME25SO5
DUP	AAA4644	94ME25SO6
FB	Preservative HNO_3	94ME25SO7

Friday, March 18, 1994

- Field Screening: Radioactivity: Background levels
  Organics: ND
- At borehole 49-2-150-2 activities on 3-18-94 consisted of:
  1. Setting surface casing to 20.0 feet, grouting, and moving drill pipe from the equipment area to the exclusion zone.
- The cement was allowed to cure until Monday morning.
- No samples collected

Monday, March 21, 1994

- Field Screening: Radioactivity: Background levels
  Organics: ND
- Starting Depth: 20.0 feet
  Ending Depth: 51.0 feet
- Samples were collected by ERM/Golder for Los Alamos field screening (gross alpha/beta, gamma spectrometry, tritium, and moisture content), analytical analyses (gamma spectrometry, total uranium, isotopic plutonium, and RCRA metals). and geotechnical analyses (hydrogeologic, geochemical, and archival).
- Cored from 20.0 feet to 51.0 feet.
- Core recovery N 56%.
- Installed ODEX casing to 40.0 feet.

Tuesday, March 22, 1994

- Split samples were collected by M&E for analysis of RCRA metals, including mercury (borehole 49-2-150-2).
  Interval # 2: 53.3 feet - 54.2 feet
  Time: 0916
  Reg. AAA4606, 94ME25SO8
- Cored to 60.0 feet
- Departed Los Alamos at 1230 for Albuquerque.

ATTACHMENT B

FIELD LOG BOOKS

CONTENTS

PAGE NO.	REFERENCE	DATE

11/16/93

0810 PJones & A Ellison arrived at TA-54. Weather: Sunny, ~21°F M&E personnel signed in at 34-37 and entered site.

ERM personnel and subcontractors: Wendy Lutts, Valerie Rhodes Cindy Kruger, Ron Thomas (SSO)

Stewart Drilling personnel: Albert Chavez, Luther Garcia, Shane White, Stanley Johnson

All personnel are setting up - drilling/sampling has not begun yet.

0825 R. Thomas gave PJones & A. Ellison tailgate safety breifing.

0837 Began drilling at 54-1009

0845 Drilled through asphalt cover. Waiting for methanol to arrive to decon sampling equipment to begin sampling.

Pamela W. Jones 11/16/93

0947 Finished decomming - began drilling
Vince Trujillo arrived at drilling operations. He is the LANL waste coordinator
R. Thomas taking real time readings for organic vapors with an HNu

Soil samples being collected in 5 ft long split barrel samplers
54-1009
Run 1, 1.0-5.0', moisture only
Top 6" clayey fill material. Remaining light gray consolidated tuff, with crystalline structures. R. Thomas scanned w/ HNu & Alpha meter

1015 Drill bit on rig not cutting through the tuff. Drillers called to have another drill bit brought out. V. Trujillo will find out if M&E personnel can have a camera onsite

1036 of Stewart Drilling arrived with a replacement drill bit.

1047 Began drilling again.

Pamela D. Jones 11/16/93

1056 Pulled sample 5-10'
LANL samples collected. Sample for VOCs collected in brass liner, and capped in the field. LANL collected samples for full suite of analyses. Remainder of sample core stored in core box.

Run 2, 5.0-8.5
Top ~ 1.5' unconsolidated tuffo material. Remainder, ~~con~~ light gray consolidated tuffo, with crystalline structures. R. Thomas scanned sample w/ HNu.

1115 Pulled sample 10-15'
Run 3, 10-15', moisture only
Reddish gray, consolidated tuffo, w/ crystalline structure.
R. Thomas scanned w/ HNu & alpha meter.

1127 Pulled sample 15-20'
Run 4, -19.5'
VOA 16.5-17.0' M&E split VOA at

Pamela D. Jones 11/16/93

Date	Time	M&E Sample #	LANL Sample #	Matrix	Analyses	Remarks
11/17/93	1135	93ME70-501	AAA 7417	Soil	2@2oz VOA	54-1009 (15-20')
16					1@500ml metals,	
100					Cn, Pest/PCB,	
					ABNs	54-1009 (45-50')
	1429	93ME70-502	AAA 7397	Soil	2@2oz VOA, 1@500ml metals, Cn, P/PCB, ABNs	
	1400	93ME70-~~B03~~ B01	—	H_2O	2@40ml VOA, 2@1L P/PCB, 2@1L ABNs,	
					1@1L metals, 1@1L Cn	
11/12/93	1400	93ME70-B02	—	H_2O	lab supplied trip blank	
11/17/93	~~1045~~ 1040	93ME70-503	AAA 7407	Soil	2@2oz VOA, 1@500ml metals, Cn, P/PCB ABNs	
						54-1009 (75-80')
	1335	93ME70-504	~~AAA 7402~~ AAA 7416	Soil		54-1009 (95-100')
	1430	93ME70-505	AAA 7403	Soil		54-1009 (~~95~~ 115-120')
	1540	93ME70-506	AAA 7399	Soil		54-1009 (135-140')
11/12/93	1400	93ME70-B03	—	H_2O	lab supplied trip blank	
11/18/93	1530	93ME70-607	AAA 7413	Soil	2@2oz VOA, 1@500ml metals, Cn, P/PCB, ABNs	
		Fed Exed on 11/18/93 w/ samples		collected	11/17/93 (field rad pending)	54-1008 (5-10')
11/19/93	0835	93ME70-508	AAA 7405	Soil	2@2oz VOA, 1@500ml metals, Cn, P/PCB, ABNs	
					MS/MSD VOAs, MS/MSD ABNs	
						54-1008 (35-40')
	0850	93ME70-B04	—	H_2O		
-	1015	93ME70-509	AAA 7422	Soil	54-1008 (55-60')	MS/MSD Cn
	1130	93ME70-510	Dup of 509			
-	1340	93ME70-511	AAA 7398	Soil	54-1008 (85.5-86.5)	MS/MSD P/PCB
-	1535	93ME70-512	AAA 7419	Soil	54-1008 (125.5-126)	MS/MSD mercury ~~of metal~~ and metals

Date	Time	M&E Sample #	LANL #	Matrix	Analyses
11/22/93	1330	93ME70-513	AAA 6035	soil	VOA, Metals, ABN, P/PCB, Cn MS/MSD VOA Sample 15.0 - 15.5
	1425	93ME70-514	AAA 6036	soil	VOA, Metals, ABN, P/PCB, Cn MS/MSD ~~PCB~~ Sample 36.0 - 36.5
~~11/23/93~~		~~93ME70-515~~			
11/23/93	1140	93ME70-515	AAA 7424	soil	
			AAA 7408		Sample 61.5 - 62.0'
?	1220	93ME70-516	AAA 7420	soil	
	1400	93ME70-517	Dup of 516	soil	Sample 68 - 69.8'
11/24/93	1055	93ME70-518	AAA 7421	soil	Sample 75.5 - 77.0'

17.0 Ft., M&E collected sample for metals, Cn, P/PCB, ABN, (LAN) full suite
Sample - Reddish gray consolidated tuff

1141 Pulled sample 20-25'
Run 5 (all), moisture content same as above

1150 Pulled sample 25-30'
Run 6 (25.0 - 27.8'), full suite same as above

1210 All personnel offsite for lunch

1300 M&E personnel return to site
Run 7 (30-35'), moisture content
Photo

1345 Run 8 (35-40'), full suite
Reddish gray consolidated tuff w/ crystalline structures, pumice clasts
Photo

Pamela D. Jones 11/16/93

1400 Pulled sample 40-45' moisture content
Run 9 (all) same as above, Photo

1412 Sample 45-50'
Run 10 (all) full suite same as above, Photo - no scanning

The lamp on the HNu is malfunctioning, a new part will be brought out.

1430 V. Trujillo arrived with the replacement lamp for the HNu

It was not the right kind of lamp. R. Thomas order replacement parts and he has the HNu working temporarily.

1520 Began drilling again

1525 Pulled Sample 50-55'
Run 11 (All) moisture content

Pamela D. Jones 11/16/93

Same as above, less reddish coloration
HNu reading go on sample up to
9.5 ppm, dissipated rapidly.

1535 Pulled sample 55-60
Run 12 (all) HNu readings between
brass liners up to 395 ppm at
sample. Remains at back ground
in the breathing zone.
LANL sample #AAA 7412, full suite
Same as above

1545 Pulled sample 60-65' moisture content
Run 13 (all) Same as above,

1555 Pulled sample 65-70' full suite
Run 14 (65.0-66.0')
Same as above, HNu: 20 ppm
~~no~~ Photo

1610 Sample 70-75', moisture
Run 15 (70.0-70.5')

1613 Sample 75-80'
Run 16 - no recovery

1635 Offsite

Pamela D. Jones 11/16/93

11/17/93

0715 PJones & A. Ellison arrived at
TA 54, signed in.
Weather: Cloudy, breezy, ~30°F

ERM personnel and subs: C. Kruger,
V. Rhodes, W. Litts, R. Thomas

Stewart Drilling personnel: A. Chavez,
S. White, S. Johnson

ERM & Stewart personnel are
setting up.

0735 The drillers left to go get their
300 lb. hammer to drive the
sampler.

0740 B. Gilkeson, ERM project manager,
arrived onsite.

0800 PJones left site, while waiting
for drillers.

0845 A. Ellison reported to PJones that
drillers had arrived and tried a

Pamela D. Jones 11/17/93

2.5 ft run of the sampler but got no recovery. The drillers are going to take all of the augers out of the hole to put a different bit on the lead auger.

0940 PJones returned to drilling area. Drillers are running augers back down the hole, no sampling has been performed

1022 Drillers began drilling/sampling at ~~80~~ 82.5 ft. Performing 2.5 ft runs.

1045 Sample #8 82.5-85.0
Run 18 (82.5-84.5) full suite
HNu = 12.2 ppm at sample
Gray, slightly pink, ash flow tuff, very crumbly, not as much crystalline structure
samples 83.3 - 84.5 ft.

Pamela D. Jones 11/17/93

1055 Larry Hersman of LANL is having the drillers collect 2@ 2.5 ft. samples of subsurface material for microbiological analysis. The samples will be analyzed to determine what microorganisms are present in the subsurface.

1125 Finished taking microbiological samples

1130 Break for lunch

1235 M&E personnel return to site. Preparing samples for shipment

Pamela D. Jones 11/17/93

1315 Sample 90-95'
Run 21 (all) moisture content
Less consolidated gray, slightly pink tuff
HNu = 12.0 ppm at sample
HNu = 6.8 down the borehole
(1st hit at borehole)

1330 Sample 95-98'
Run 22 (-97.5) full suite
same as above

1342 Sample 98-100'
Run 23 (all) same as above
- completes 95-100' interval
no samples (Photo)

1348 Sample 100-105'
Run 24 (all) moisture content
same as above

1400 Sample 105-110'
Run 25 (all) moisture content
same as above

Pamela D. Jones 11/17/93

1411 Sample 110-115'
Run 26 (all) moisture content
Friable ash flow material large pieces of organic material (wood) caught in the matrix, pinkish gray matrix

1430 Sample 115-120'
Run 27 (115.5-117') full suite
Friable ashflow material, pinkish gray matrix, lithics,

1455 Sample 117-120'
Run 28 (117-119.5') moisture
same as above

1505 Sample 120-125'
Run 29 (all) moisture content

1513 Sample 125-130'
Run 30 (all) moisture content
Pink-orange friable ashflow material

1520 Sample # 130-137.5'
Pamela D. Jones 11/17/93

Run 31 moisture contents
same as above, little more orange

1528 Sample 132.5-135'
Run 32
same as above,

1540 Sample 135-137, full suite
Run 33
same as above, very dense

1550 Sample 137-140', moisture
Run 34
1600 Sample 140-145'
Run 35 (all) moisture content

1603 Sample 145-147
Run 36 (145-147.5) moisture
very crumbly, powdery

1607 Sample 147.5-150
Run 37 moisture

Pamela D. Jones 11/17/93

same as above

1615 Drillers began backfilling the boring with the drill cuttings and pulling augers out.

1625 M&E personnel left site

Pamela D. Jones 11/17/93

11/18/93

0820 P Jones & A. Ellison arrived onsite Weather: P. Cloudy, ~32°F

ERM and subs: C. Krueger, W. Litts, V. Rhodes, R. Thomas

Stewart personnel: S. White, A. Chavez, S. Johnson

Stewart personnel are backfilling the boring at 54-1007. They are pouring the cuttings into the augers as the augers are pulled out.

ERM personnel are moving their equipment to the next drilling location (54-1008)

0830 John Kelly, Section Leader, arrived at boring location 54-1007, he is concerned about the storage of the drilling derived waste.

Pamela D. Jones 11/18/93

PDJ
0940 V. Rhodes told M&E personnel that after the drillers finish backfilling the boring, then they will decon the augers and other equipment. They do not expect to start drilling at the next boring location until after lunch.

0908 M&E personnel gave C. Kruger their mobile phone # and left site.

1245 M&E personnel returned to TA-54 C. Kruger told P Jones that drillers had not begun decoming the augers yet. They will probably not be able to begin drilling until 1400. P. Jones & C. Kruger checked on Rad field screening results for yesterday's samples. The results were not ready.

1345 P Jones got rad screening results

Pamela D. Jones 11/18/93

Q samples from Cindy Krueger and phoned the results to Michael Dennis in Columbus. These are the results for the samples collected 11/16/93. M. Dennis will phone the results to Accutest, the analytical lab for the Los Alamos project.

1457 Began drilling at 54-1008

1510 Sample 0-2.5'
Run 1 (all) moisture content
Top 1ft sandy clay fill material
Remainder gray, slightly pink
Consolidated tuff with
crystalline structures.

1517 Sample 2.5-5'
Run 2 (all)
Same as above
HNu = 14.2 at ~4.5'

Pamela D. Jones 11/18/93

1530 Sample 5.0-6.5'
Run 3 (all) full suite, very hard
same as above, sample 5.0-6.3'

1534 Sample 6.0-7.0'
Run 4 (all)
very hard, same as above

1539 Sample 7.0-10'
Run 5 (all
Same as above, not as hard
photo

1545 M&E personnel Offsite to take samples to Fed Ex in Santa Fe

Pamela D. Jones 11/18/93

11/19/93

0720 PJones arrived onsite. Weather: Clear, breezy, ~27°F

ERM and subs personnel: V. Rhodes C. Kruger, W. Litts, R. Thomas

Stewart Drilling personnel: S. White, S. Johnson, A. Chavez

Drilling has not begun yet.

V. Rhodes told PJones that ERM drilled to 25 ft. yesterday in boring 54-1008! (see photos)

0747 Began drilling

0757 Sample 25-26.5'
Run 10 (all) full suite
light gray ash material very powdery, ~~little consolidation~~ firmly packed inside brass sleeves.

0804 Sample 26.5'-30'
Run 11 (all) same as above, more clasts, some consolidation.

0805 Two men from HG-5 came to put personal air sampling pumps on 3 of the field personnel. One pump was put on A. Chavez (driller) one pump on S. White (drillers helper), one pump on V. Rhodes (core logger). Sampling is for silica.

~~0819 HG-5 personnel left site~~

0819 Sample 30-35'
Run 12 (all) moisture content
HNu = 36 ppm
Same as above, very powdery

0820 HG-5 personnel left site

0830 Sample 35-40'
Run 13 (35-39.0') full suite, split
Same as above

Pamela D. Jones 11/19/93

Pamela D. Jones 11/19/93

0845 Sample 40-45'
Run 14 (all) moisture content
same as above

0850 PJones collected field Blank

0920 Driller taking break to warm up.
DT Boring at 50'

0945 Drilling began again
0956 Sample 50-55'
Run 17 (? all) moisture
HNu = 65.4 ppm
same as above (light gray ash material
very powdery, clasts)

1005 Sample 55-60'
Run 18 (all) full suite
HNu = 68 ppm
same as above, large pieces of
pumice
samples 55.5-57.5

1020 Sample 60-65'
Run 19 (all) moisture
HNu = 161 ppm, same as above

Pamela D. Jones 11/19/93

1032 Sample 65-68
Run 20 (all) full suite
same as above

1038 Sample 68-70
Run 21 (all)
same as above

1046 Sample 70-75'
Run 22 (all) moisture
same as above, less lg pumice
HNu = 94.1 ppm

1059 Sample 75-79'
Run 23 ( )
same as above

1100 The drillers lost the core barrel
down the hole (at 80'), will
have to fish out.

1118 PJones to lunch
1310 PJones returned to site
Drillers have fished the core barrel

Pamela D. Jones 11/19/93

out of the hole and are preparing to begin drilling.
ERM & subs: B. Gilkeson, W. Litts, R. Thomas
Stewart personnel: P. Garcia, S. White, S. Johnson, A. Chavez

1320 V. Rhodes arrived
Drilling began

Depth 79-80' drilled out, no core
1333 Sample 80-85'
Run 24 ( ) moisture
same as above

1340 Sample 85-87.5'
Run 25 (85.5-87.5) field data

1347 Sample 87.5-90'
Run 27 (all)

1400 Sample 90-95'
Run 28 (all)

Pamela D. Jones 11/19/93

HNu = 1700-1800 ppm
same as above
1420 Sample 95-100
Run 29 (all) moisture
HNu = 30 ppm

PDD
1530S Collected split sample at 125.5-126'

1549 P Jones left site to package samples and take samples to Santa Fe for shipment for Saturday delivery to lab.

Pamela D. Jones 11/19/93

11/22/93

0820 PJones arrived at TA54, Area G, signed in, watched 10 min. H&S Bite specific video. Weather: mostly cloudy, breezy, ~ 32°F.

ERM and subs: B. Gilkeson, R. Thomas ~~Florey~~ Florie Caporuscio

Stewart Drilling personnel: P. Garcia, A. Chavez, S. White, S. Johnson

All personnel are setting up at boring location 54-1007

1104 Began drilling at 54-1007

1114 Sample 0-5'
Run 1 (all)
Much caliche and tuff and clay

Pamela W. Jones 11/22/93

1200 lunch

1300 Return from lunch

1320 Began drilling again

1330 Sample 15-17.5'
Run 5 (all) full suite
~~split sample~~

1420 Sample 35-37.5 full suite
Run 8 (all)
HNu = 35 ppm
split sample

1445 ERM personnel told drillers to take a break

1500 Drillers returned to boring location. ERM personnel collecting rinse blank and field blank samples. There was confusion about what ~~samples~~ bottles to use for the rinse blank and

Pamela W. Jones 11/22/93

field blanks samples.

The drilling appeared to be following a clay filled fracture in the ashflow tuff. There was much clay in the samples to approximately 35 ft.

1600 ERM told the drillers ~~to~~ that drilling was finished for the day.

1610 PJones went to Area G gate to leave. The ice chest carrying the split samples did not pass the initial swipe samples. The ice chest was decanned and swiped again. The ice chest passed the second swipe sample

1630 PJones offsite

Pamela D. Jones 11/22/93

11/23/93

0705 PJones arrived at TA 54. Weather: overcast, raining, ~40°F

Because of the rain ERM moving sample logging & sample collection equipment to a field trailer approx. 1/2 mile from drilling location.

1005 Began drilling - no sample recovery at 45-47.5'

1023 Sample 47.5-50'
Run 15 (all) full suite, no split
soft pinkish gray ashflow tuff with pumice

Sample 50-55'
Run 16 (all) moisture

Sample 55-57.5'
Run 17 - no recovery

Pamela D. Jones 11/23/93

Sample 57.5-~~60~~60'
Run 18 (~~58.5-60'~~)(57.5-59)

Sample 60-62.5
Run 19 (all) full suite, split

Sample 62.5-65'
Run 20 - no recovery

1140 B. Gilkeson sent drillers to lunch

1200 PJones to lunch

1300 Return from lunch

1340 Sample 65-67.5'
Run 21 (all)

Sample 67.5-70'
Run 22 (all) full suite
HNu = 40 ppm split

Sample 70-75'
Run 23 (all) moisture

Pamela D. Jones 11/23/93

HNu = 40 ppm
B. Gilkeson told PJones & ERM personnel The readings on the explosimeter were above the safety limit so drilling has shut down to let the bore hole vent

1500 ERM personnel collecting field blank and rinse blank samples at drilling location 54-1007.

1520 B. Gilkeson told PJones that drilling will not continue today. The explosive gas levels in the boring are still too high. He suggested that they may have to derate the boring in order to continue drilling. The other option is to stop drilling and back fill the boring.

1550 PJones offsite to take samples to Fed Ex in Santa Fe.

Pamela D. Jones 11/23/93

11/24/93

0740 PJones arrived at TA54.

D. Krier, B. Gilkeson, R. Thomas at the gate office of Area G. The LEL at in the boring is still at 9%, the O_2 level is ~18.5%

D. Krier & B. Gilkeson are awaiting written permission to proceed with drilling because this is a somewhat O_2 deficient environment.

V. Rhodes, F. Caporuscio arrived at gate office.

The present stop work LEL is 10%, they want to raise the LEL to 20%.

0755 D. Krier

0930 R. Thomas received written permission from V. Smith to raise the action level of the LEL to 20%, so drilling will proceed.

1035 Began drilling

1045 Sample 75-77.5
Run 24 (all) full suite, split

Sample 77.5-80.0
Run 25 (all) no samples

Mon, February-28-94 1

M&E personnel: B. Chavez
C. Wilkerson

0730 Phone call to B. Martinez
- Bernie wants us to meet him at 0800 at TA-54 parking lot. There will be a meeting at 0830 w/ TA-49 personnel (ERM Holder)

0830 Attend very brief tail-gate meeting. ERM is at 10'-
- objective for the day → core/sample to 20'; set ODEX casing.
- thus far, no Rad. contamination has been detected.

CMW

2-28-94

2-28-94

1000 C. Winn & B. Chavez depart TA-49 to talk w/ S. Alexander.

ISSUES:
- Check on resp. fit test.
- " " dosimeter badges.
- give S. Alexander updated 8 hr. refresher documents
- talk to H. Brooks concerning the screening of M&E samples by the Rad. Van.

Findings:
1.) Our resp. fit test is at 8:30 a.m. 3/1.
2.) Dosimeter Badges - contact Virginia Ray
3.) Left a message w/ H. Brooks.

- Not able to contact V. Ray or H. Brooks.

2-28-94 CMW

CMW

Will do my 1st thing in the morning after our fit-test.
- B. Chavez & C. Winn back to hotel to call A. Ellison to inform him of status.
- receive our coolers from M&E and Accutest.

C. Winn
2-28-94

2-28-94

3-1-94 (Tuesday)

0830 B. Chavez & C. Wren go to fit-test. Once there, we are informed that we are scheduled for the 1:30pm session.

0900 Back to hotel to talk w/ Michael Dennis.

Phone call to Columbus

1.) Verify w/ M. Dennis that if our samples have a value greater than or equal to the following, that we should call M. Dennis.

- Alpha 150 pCi/g
- Beta 75 pCi/g
- Gamma 25 pCi/g

* Note: Call Michael if these

3-1-94

emw

actual values are reached, ignore the + or - factor.

2. For sampling for the 8 RCRA metals, including mercury, only 1 bottle will need to be filled.

1 bottle for: regular
" " " : Duplicate
" " " : MS
" " " : MSD

3. From each 150' boring, collect only one field dup., MS/MSD & field blank.

Hole #1
- interval 1: reg, dup, ms, msd, FB
- interval 2: reg

Hole #2
- interval 1: reg, dup, ms, msd, FB
- interval 2: reg

emw 3-1-94

6

A. Ellison joins conf. call attn's here

3-1-94

4. George Brooks / Rad. screening.

- per M. Dennis & A. Ellison we only need a copy of ERM's rad. screening results since our samples are a split of theirs.
- we should use the prelim. rough draft in deciding if the samples are suitable for release & shipment to the lab (ACCUTEST)
- per B. Brookes we should receive the final draft of results in 1-3 weeks.

→ SEAN PORTMAN, Rad. van operator, will sign off on the rough draft.

3-1-94

CMW

1330 Get resp. fit-tested.

- OSHA has granted LANL a waiver → contact lenses have been approved for use w/ resp. & SBA use. "At LANL, you can wear contact lenses w/ a respirator."

~ Don Trujillo (resp. fit tester)

1450 Get dosimeters from V. Rey.

1510 Depart for TA-49 to check on progress

- No one comes to gate to let us in.

1545 Arrive at HS-5 to see if we can find out what's

CMW

3-1-94

going on.
- Talk w/ George Marino. George explains that work was shut-down because the air-pressure from the rig was lifting the asphalt pad. ERM will have a 14" casing driven into the soil to help contain the air pressure...
- George told B. Chaing & C. Warm that work would not resume until Thursday at the earliest. Told me not to report to work Wed., but to call around noon

3-1-94 emw

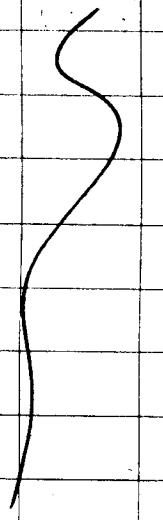
to see if we would be working on Thursday.
- Called to update A. Ellisen.

3-1-94
C. W

3-1-94.

10 3-2-94 (Wed.)

<NO WORK TODAY>



C. Wm
3-2-94

- call & leave message for G. Marino. – are we working tomorrow?
- G. Marino returns call → no work on Thursday.

3-2-94 CMW

11 3-3-94 (Thurs.)

<NO WORK TODAY>

- C. Wm & B. Chavez visit TA-49 to see what exactly is going on.
- Talk w/ Becca (ERM) & George Marino (LANL).
- Inquire about what is going on & if we will work tomorrow.
  - Becca said that 14" casing was driven to 9.0'.
  - 8" casing (surface) was grouted in place to 20.0'.
  - 6" ODEX casing will be used to t.d. of 150'.

→ the 14" casing will be used to help contain the air pressure.

CMW 3-3-94

→ Per Becca, no work will be conducted on Friday.

- The grout used for the 7" surface casing will be left to harden over the week-end & work will resume Monday morn.
  → coring from 20-40' on Mon.
- C. Warm & B. Chavez trying to reach John Williams (ERM's field team manager) to get a clearer picture of the situation at TA-49. To date, we are somewhat uncertain of the full picture. Leave a message for J. Williams to return call. We would like an update from him.

3-3-94 CMW

- Call Bennie Martinez to see if we can get a copy of ERM's daily summaries on Monday. (B. Martinez said he would be happy to supply us w/ these summaries.)
- pick up respirator cards from D. Trujillo
- left a note for D. Brooks in his office concerning rad. screening of our samples. Stated in the note that we only need a copy of ERM's rad. screening data. Asked him to call me in Col. if there was a problem.

b/c our samples are split.

CMW • Called A. Ellison to give update 3-3-94 3-3-94

e.w.

3-4-94 (Friday)

- Travel back to Columbus
  - No work today -

- Supposed to leave Albuquerque at 4:00pm
- called Rosenbluth to get earlier flight.
- Depart Albuquerque at 0927.

- Call A. Ellison from St. Louis Airport to give him an update.

C. Wu 3-4-94

3-4-94 CMW

3-7-94 (Monday)

M&E personnel: C. Wu

ERM: Rick Zapata

Waste cond. sampler: Jami Wiggins

Sampler: Dyan Foss

Geologist: Rebecca Brown

ASI ERM RCT: Ron Thomas

Tonto Drillers: John Eddy → Driller
Tom Austin
Larry Thoren
Daryl Kalamas → helpers

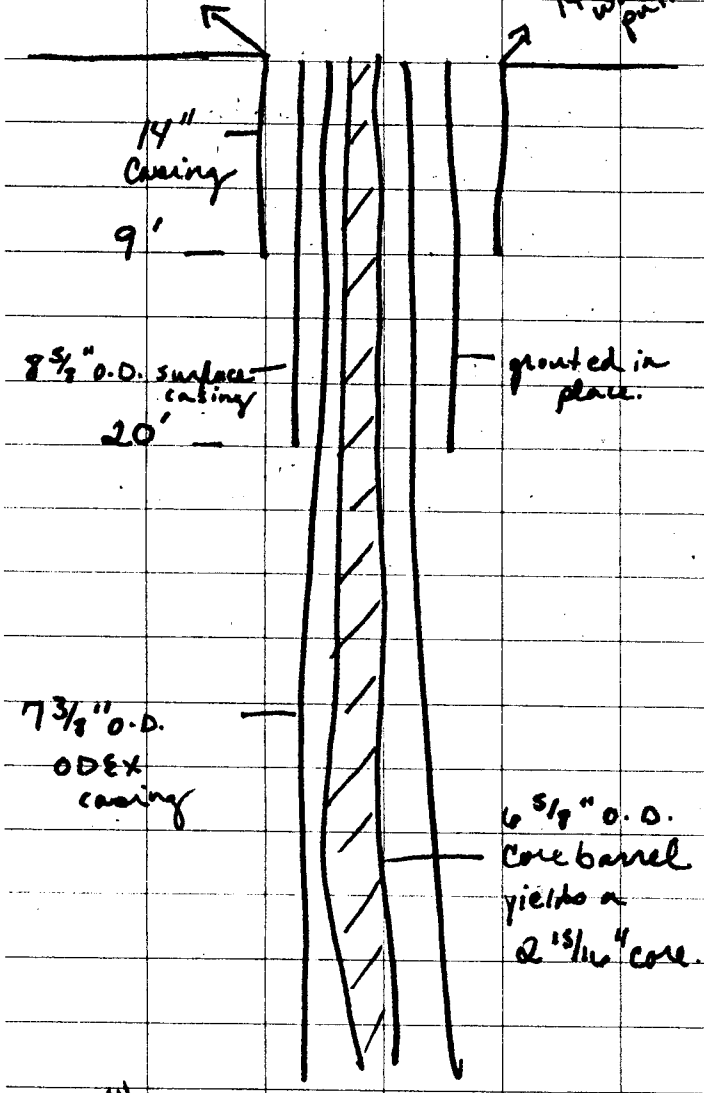
S.S.O. (LANL) George Marino.

0700 C. Wu at site gate.

- Talk w/ Becca Brown - ask her to walk me through (diagram) the set-up at TA-49 (w/ casing & core barrel, etc.)
  - see p. 16 for diagram

CMW 3-4-94

3-7-94



3-7-94 CMW CMW

0815 Tailgate meeting →
today's objective: Core from 20-40' and advance casing.

Phone Conversation w/ M. Dennis

1.) use 950ml plastic for field blank and preserve w/ HNO_3 to < 2.
2.) In taking field blank, pour lab H_2O into the plastic bottle & preserve. (No need to let it sit open.)
3.) Use the same alpha/beta/gamma values for the duplicate.

Phone Conversation w/ A. Sillman

1.) Put Statement ("This package conforms to...") on chain &

3-7-94

on the side of the cooler.

2. In labelling the samples use the following nomenclature.

94ME2550(1) → only this # will change.

3. Regular Sample → 501

MS → 501

MSD → 501

Dup. → 502

FB. → 503

Hole #1 Cindy's

501 } interval #1
502 }
503 } interval #2
504 }

Hole #2 Becky's

505 } interval #1
506 }
507 } interval #2
508 }

3-7-94

4. For sample #, use both ERM AAA # & M&E nomenclature. Correlate the two.

5. For the duplicate sample, make up a triple A(AAA)# & document this in the field book - we are submitting it blind.

6. put depths (intervals) of samples in logbook.

7. Where to take samples?

- Detonation zone 40'-80' → try to take 1 sample here.
- Try to take one beneath this zone to see if there is any migration.

3-7-94

3-7-94

1300 Workers out of exclusion zone.

- C. Wurm has bottles ready to give to samplers.
- Per B. Brown, all sampling has been completed for the day. Will sample first thing Tues. morn.
- Will now drive casing (ODEX) from 20-40'.

1430 • C. Wurm departs site to get coolers & packing materials.

- R. Zepeda informed C. Wurm to be on-site 3-8-94 at 0730.

3-7-94 C. Wurm (CWW)

M&E personnel: C. Wurm

ERM/Holder: Rick Zepeda - field team leader
Tami Wiggins - waste coord./sample documentation
Ryan Foos - sampler ASI
Rebecca Brown - Geologist
Ron Thomas - RCT

Layto Drillers: John Eddy - driller
Tom Austin
Larry Thoren } helpers
Daryl Kadrmas

LAND: George Marino - 550.

0700 R. Zepeda calls to inform C. Wurm that it is too cold to work w/ respirators - please call field trailer at 0900.

(too wet also, rained the night before)

CWW

3-8-94

3-8-94

0900 C. Wurm calls field trailer R. Zepeda says the weather is still the issue. Please call at 1100. (light snow)

1100 C. Wurm calls field trailer. R. Zepeda says that work will be cancelled for the day due to weather (snow.)

Note: Cannot work when it is raining or snowing. The alpha radiation cannot be detected. H&S reasons.

→ The ODEX casing was not advanced this afternoon CMW 3-8-94

→ Will advance casing 1st thing Wed. morn. Told C. Wurm to call at 0900.

C. Wurm 3-8-94.

3-8-94 CMW

3-9-94 (Wednesday)

M&E: C. Wurm

ERM/GOLDER: R. Zepeda
B. Brown
D. Foss
R. Thomas

Tonto: J. Eddy
Tom Gustin
Larry Thoren
Daryl Kadrmas

LANL: H. Marino.

0900 C. Wurm calls field trailer R. Zepeda informs C. Wurm that it is too cold to work w/ resp. Please call back at 1000.

1000 C. Wurm talks w/ H. Marino.

1000 CMW 3-9-94

1000 cont. R. Zepeda is out of the trailer. C. Wurm asks for R. Zepeda to phone back.

1045 C. Wurm departs hotel for site.

1100 • Talk w/ R. Zepeda. Drillers are advancing casing to 40.0'.

1200 Lunch on-site

1300 H&S tailgate discussing what to do if contamination is encountered from 40-60'.

1330 Light snow – RCT deciding if work should commence.

1400 No work due to snow • Will begin 1st spring thurs. morn. coring from 40-60'.

3-9-94 CMW

1400 – cont. ERM has M&E bottles for reg, dup, MS, MSD & FB.

• B. Brown informs C. Wurm that there might not be enough sample to split – they have been having poor recovery.

1430 C. Wurm departs site to phone A. Ellison.

1.) • Asks Andrew if there is sample priority (due to the poor rec.).

Andrew said ① reg. sample
② Dup
③ MS
④ MSD
(can combine these in one bottle if not enough.)

CMW 3-9-94

C. Wurm 3-9-94

3-9-94

2.) Informed Andrew of ACCUTEST $75.- cooler charge if not returned in 30 days.
- Andrew said to inform M. Dennis.

C. Wurm
3-9-94

3-9-94 CMW

M&E: C. Wurm

ERM/GOLDER: R. Zepeda
T. Wiggins
B. Brown
D. Foss
R. Thomas

Tonto: J. Eddy
T. Justin
L. Thoren
D. Kadrmas

LANL: G. Marino

0800 C. Wurm on-site.
Talk w/ Becca Brown.
1.) the sample must be a split w/ ERM's
2.) even though you have been

CMW 3-10-94

3-10-94

2.) cont. having poor recovery, please take the same a-s-a-p.

3.) sample priority: 1.) reg sample
2.) dup.
3.) MS
4.) MSD

4.) videotape - Bec will videotape all 4 M&E sampling events.

0830 #4 & 5 tail-gate meeting.

Note: V. beautiful day, sunny skies - should be no weather delays today.

0900 Begin coring from 40-60'.

3-10-94

CNW

Things to Do list

1.) get video-tape (blank)

✓2.) get camera

✓ 3.) get daily summaries from ERM. (J. Williams) ← Becky mon 3-14-94

4.) call Camille Morrison 7-5723 - make sure all paperwork is in line.

5.) Re-store coolers at hotel.

6.) call Fed. Ex. - Santa Fe - Albuquerque

✓7.) call M. Dennis - #4 & 5. - cooler change.

8.) call Rosenbluth

9.) " Andrew - update.

10.) temperature blank

11.) larger coolers.

12.) custody seals & pH paper

CNW 3-10-94

3-10-94

- Hole #1 (150') → 49-2-150-1

0945 Drillers out of exclusion zone - had another meeting.

1030 Begin coring from 40-60'

1115 C. Winn off-site to get quick lunch & to make phone calls. (M. Dennis, D. Gray)

1245 C. Winn back on-site.

1325 Samplers out of exclusion zone. Becca & Dyan were able to get the split sample.

- Down to 60'.
- Will now advance ODEX casing from 40-60'.

* 49-2-150-1 *

3/10/94, Interval #1: 40.5'-42.3'

all samples analyzed for RCRA metals including mercury

reg: AAA4627, 94ME25501

MS: AAA4627, 94ME25501

MSD: AAA4627, 94ME25501

* dup: AAA4628, 94ME25502

HNO_3 → preservative FB: Field Blank, 94ME25503

Temp. Blank included also.

Times for all but dup: 1100

Time for duplicate: 1120

Interval #2

reg. AAA4635, 94ME25504

116-117'

32

3-10-94

Note: R. Thomas screened the outside of the cooler & found that there was only BKgn. levels of rad.

C. W
3-10-94.

3-10-94 CMW

33

3-11-94 (Friday)

0645 Travel back to Columbus.

1300 Call field trailer from St. Louis.

- Cored from 60-80'.
- will now advance ODEX.
- would like to have 49-2-150-1 completed Mon. 3-14-94.

- Call A. Ellison & B. Chavez to update.

C. W
3-11-94.

3-15-94 (Tuesday)

Personnel onSite

M&E: Becky Chavez

ERM/GOLDER:

geologist: Becca Brown

Rick Zepeda

sampler: Dyan Foss - ASI

rad van: Sean Portman

TOTTO DRILLING:

Larry Thoren, Tom Justin

John Eddy

Daryl Kadrmas

LANL:

Greg Gardiner, Clarita Trujillo

ASI!

Ron Thomas (RCT)

3.15.94

BAE

3.15.94 (Tuesday)

0700 leave hotel.

0715 Arrive onsite; have H&S

0745 meeting given by Greg Gardiner (LANL).

0750 All personnel inside exclusion area & support zone go in to change into Anti-C's.

CONVERSATION

* I talked with Dyan Foss and asked her to take a sample (metals) at the first interval possible; She informed me that she would.

0830 Rig started up at 116.0'

Casing is at 100.0'

Sample taken @ 116.0'-117.0' interval.

BAE

3.15.94

Weather:

Sunny, ≈50°F
winds from SW ≈ 5 mph.

Planned Activities

Finish drilling to total depth of 150 ft.; to take correlating samples.

H:S meeting highlights

- Not using respitory protection any longer
- Workers are not to touch their faces even though they are able to.
- Slip, Trip; fall in the excivation

3-15-94 BAE BAE

zone.

0921 John Williams: site health; Safety officer arrive on site to do short overview of site operations.

0926 Noticed that a driller had to climb partway up derrik; he had a safety harness ON!!

0927 Notified that they are at 125'.

0945 Joe Guido (LANL) arrives onsite.

1117 left site for lunch; to make phone calls.

3-15-94

1248 Arrive back on site.
1306 Personnel is still suiting up but... drillers are pulling a core barrel.
Drillers are still at 135' having trouble getting recovery from hole.

1348 Becca radioed back to Rick that a piece of core had gotten stuck in sampling tube; ground away ≈ 4' of sample.
135 ? 140'

3·15·94 BAE

1402 no recovery from 140'-145'—

1449 pulled last core from hole

1523 Unloading ODX casing from truck; then will be putting it to a total depth of 150'.

1535 Begin pushing ODX casing.

1600 Becca; Dyer are out of exclusion zone.

BAE 3·15·94

3·15·94 (jms)

1005 Still pushing ODX casing.

1650 at ≈ 120' with ODX casing.

715 Casing down to 150.0'; drillers coming out of exclusion zone & I left @ ≈ 1730.

49·2·150·1
interval = (116.0' - 117.0')
reg: AAA463S, 94MEZ5S04

BAE. 3·15·94

3·15·94

BAE BAE

3·15·94 jms.

SUMMARY

Today we started out at (116.0'); we took a sample from (116.0'-117.0') it's being screened today; won't be sent to Accutest until Wed. afternoon for priority delivery Thurs. morning. ERM was able to core to 150'. Sampling every 5'. Only from 135'-145' there was only ≈ 2' of recovery, at all other intervals there was at least 70% recovery. The casing was driven to 150.0'.

3·15·94

42

3·16·94 (Wednesday)

0715 Arrive on site; wait for gate to be opened.

H&S meeting given by George Marino.

attendees: Becky Chavez: M&E
Rick Zepeda
Becca Brown } ERM/Golder
Dyan Foss
Ron Thomas — ASI
John Eddy
Tom Justin
Larry Thoren } TONTO
Daryl Radmas Drilling.

* It was decided that for mobilizing to next location it was modified "C" and to start borehole it was level "C"

3·16·94 BAR

43

3·16·94 (Wednesday)

Weather

Sunny ≈ 50°F
winds < 5 mph from SE.

Planned Activities

To mobilize to next 150.0' boring; to drive casing; begin sampling.

0820 Workers in exclusion zone.

▲ C1 - 0825 photo by: B. Chavez photo of drillers in exclusion zone at TA-49 BH#1-150.0'.

▲ C1 - 0825 photo by: B. Chavez photo of contamination reduction zone at TA-49 BH#1-150.0'.

BAR 3·16·94

▲ C1 [0828] photo by: B. Chavez of Sampling trailer at TA-49-BH#1-150.0'.

CONVERSATION

This morning I spoke with Becca (geologist) about sampling the new hole. I asked Becca to sample (split) at a location above the detonation zone & at a location within the detonation zone. She was given bottles for a reg, ms, msd, dup. Also containers for a

3·16·94 DAR

field blank.

0850 Mobilizing to second bh.

0936 Drillers still mobilizing to new location.

Talked with Becca to make sure they were still video-taping our (EPA) splits; she has informed me that they are.

0945 ▲ C1 photo by: B. Chavez of moving drums (full) to temp. drum storage area.

▲ C1 [0945] photo by B. Chavez SAME AS ABOVE. DAR 3·16·94

3·16·94 (Wednesday)

1019 Still mobilizing to new borehole.

1045 OFFSITE for lunch & errands

1115 Finished mobilizing to new location.

1200 Back onsite

▲ 1235 C1 photo by: B. Chavez of 1st boring at TA-49-150.0'

▲ C1 1235 photo by: B. Chavez of new (2nd boring at TA-49-150.0')

1238 Drillers & other personnel are suiting up to go into exclusion zone.

3·16·94 BAL

3·16·94 (Wednesday)

While gone for lunch I was able to FedEx sample 94ME25S01 to Accutest for priority next morning.

WEATHER

Sunny 65°F winds 5-10 mph out of the SW.

1311 All workers are inside exclusion zone. Tonto is starting to ~~set 14" casing to~~ core to 9'

1411 Process still underway.

3·16·94 BAL

3·16·94

3.16.94 (Wednesday)

1419 ≈ 9ft. interface w/ Tuff material.

1433 logged 7-9' interval.

1500 Begin coring into TUFF MATERIAL tomorrow.

1540 workers out of exclusion zone.

1600 Left site

SUMMARY

Today we mobilized to new location ≈ 40' to the NW. & able to core to 9'. Will set 14' casing Thursday.

3.16.94

3.17.94 (Thurs)

0700 left hotel

0715 arrive at gate

0745 gate opened ~ everyone gathered for H&S meeting.

Personnel on-site.

Becky Chavez – M&E
Becca Brown – ERM
Dyan Foss – ~~ERM~~ ASI
Rick Zepeda – ERM
George Marteso – LANL
Larry Shoren – TONTO
Daryl Kadrmas – TONTO
Jon Justus – TONTO
John Eddy – Tonto
Tami Wiggins – ERM
Ron Thomas – ASI

3.16.94

3.17.94 (Thurs)

* Toluene is "one more" compound found out here. - Per George Marino -

PLANNED ACTIVITIES

Core to 20' & set ODX to 20.'

Weather Conditions

Sunny 45°F @ 0803 winds ~5

0805 Complete H&S meeting & works move to get into protective clothing.

0826 Sean Portman arrives on site.

0831 Workers are still suiting up to go into exclusion zone.

3-16-94 BRE

3.17.94 (Thurs)

0920 Drillers are still deconing equipment to put 14" temp casing into hole.

0945 Spoke w/ Andrew Ellison & updated him on our progress & spoke w/ Cinde Niirm to also update her.

1042 Spoke with Sean Portman about sampling & screening. if we don't get radiochemistry results then he will fax or call me w/ results for the laboratory.

1103 14.5-16.5' Sample taken. →

BAL 3.17.94

3·17·94 (Thurs.)

Since sample has been taken should get radio chemistry results by tomarrow when I leave for home.

3/17/94 | 49-2-150-2

Interval #2: 14.5'-16.5'

all samples analyzed for RCRA Metals incl. mercury. HNO_3

reg: AAA4614, 94ME255Ø5

ms: AAA4614, 94ME255Ø5

msd: AAA4614, 94ME255Ø5

dup: AAA4644, 94ME255Ø6

FB: Fuld blank, 94ME255Ø7

1136 Drillers are now chipping away at asphalt to begin setting 14" surface casing.

3·17·94 BR PK

1145 Leave site for lunch; phone call etc.

1311 Arrive back on site workers starting to suit up for exclusion zone. Cool looking cloud. →

1311 Drill rig through fence by B. Chavez.

1400 C1 photo by B.C. of 14" casing being cleaned out so that it can be put in hole again to bring up more soil.

WEATHER

Sunny ≈ 65°F winds 5-10 mph from the SW.

3·17·94

3-17-94 (Thurs)

1430 Finished putting 14" ~~OD~~ (surface casing) into hole will now have to clean out hole.

1508 8 5/8" OD casing is now being run to a depth of 20'. They are just reaming the hole so they can set the surface casing to 20'.

1700 Left site. Once I got results from lab; it was decided that tomorrow they might be done reaming the hole; concreting in the surface casing.

3-17-94

3-17-94 (Thurs.)

SUMMARY

Today we were able to sample at 49-2-150-~~2~~ 1 at the interval 14.5'-16.5'. ~~Then~~ We also cored to ±20.0'; then put in 8 5/8 casing & reamed. 14" casing is set in the hole to 8' bgs. at this time the casing to 20' is not set.

By Bryan Delaney 3-17-94

56 Mon. 3-21-94

0730 C. Nurm calls field trailer. J. Williams said that ERM was having a meeting & that they would begin suiting up in N ½ hr.

- C. Nurm makes several phone calls
  - B. Chiang
  - Rosenbluth
- Get cooler from hotel storage

0930 Depart hotel for site.

- Talk to J. Williams upon arriving on-site.
- He said the detonation gave for 49-2-150-2 was between 55' and 60'. ∴ the detonation zone is 250-ft.

3-21-94 CMW

3-21-94 CMW

3-21-94 57

Talked to B. Chiang about:

✓ 1.) Bill Shanding
Analyze are are SDG w/ C-O-C # ____

✓ 2.) only had Mon. report summary. ✓ have R & F. J. Williams is getting T & W.

✓ 3.) Ryan Foss & Ken Thomas, ASI

✓ 4.) video-tape from Becon.

1230 Workers begin coming out of the exclusion zone for lunch.

- C. Nurm gives B. Brown the last sample bottle

3-21-94 CMW

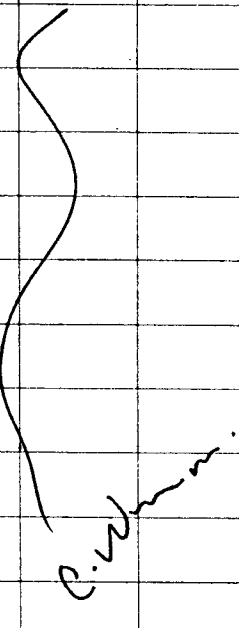
58 3-21-94

- ERM may sample to 50.0' today.

1615 ERM is down to 45.0

1700 " down to 51.0.

— M&E sample not taken.



C.Warren

3-21-94 CMW

Tuesday, 3-22-94 59

0715 Depart hotel

0730 At Gate

0745 H&S tail-gate

- nasal swipes have come back clean - no problems.
- Will continue drilling to 60.0' - & then will ODEX

0800 Personnel getting dressed.

M&E: C. Warren

LANL: George Marino

ASI: Ron Thomas

Dyan Foss

ERM/Golder: Becca Brown

John Williams

Tonto: Larry Thoren

Daryl Kadrmas

Tom Gustin

John Eddy

CMW 3-22-94

GO 3-22-94 Col

* 49-2-150-2 *

Interval #2 (1, 300ml bottle analyzed for RCRA metals, including mercury.

Depth: 53.3'-54.2'

- Reg: AAA4606
  94ME2550&
  Time: 0916

- Pack sample for Fed. Ex.
- 1230 - Depart site.

3-22-94 CMW

3-22-94 CMW

ATTACHMENT C

RADIATION FIELD SCREENING RESULTS

AAA7407	Alpha	35.10	+/- 63.1	pCi/gram
	Beta	12.20	+/- 23.8	pCi/gram
	Gamma	3.50	+/- 4.4	pCi/gram
	Tritium	0.69	+/- 1.00	pCi/gram
	Moisture	3.63	+/- 1.00	percent

503

AAA7416	Alpha	46.80	+/- 63.1	pCi/gram
	Beta	13.20	+/- 23.8	pCi/gram
	Gamma	3.10	+/- 4.4	pCi/gram
	Tritium	0.45	+/- 1.00	pCi/gram
	Moisture	2.40	+/- 1.00	percent

AAA7457	Moisture	5.45	+/- 1.00	percent
AAA7458	Moisture	5.60	+/- 1.00	percent
AAA7459	Moisture	4.74	+/- 1.00	percent
AAA7461	Moisture	3.83	+/- 1.00	percent
AAA7462	Moisture	5.02	+/- 1.00	percent
AAA7464	Moisture	6.29	+/- 1.00	percent
AAA7465	Moisture	5.72	+/- 1.00	percent
AAA7425	Moisture	6.19	+/- 1.00	percent
AAA7452	Moisture	2.92	+/- 1.00	percent
AAA7455	Moisture	3.69	+/- 1.00	percent
AAA7460	Moisture	2.54	+/- 1.00	percent
AAA7463	Moisture	2.44	+/- 1.00	percent

EM-9 Radiochemisty Screening Results
TA-54 MRAL II

****

Date _11/18/93__ **Comments** __ **Moisture**__
Owner: ___Don Krier _____

Analyst __K.S. KS

506

Sample #	Analyte	Result	Uncertainty	Units
AAA7399	Alpha	0.00	+/- 63.1	pCi/gram
	Beta	-9.80	+/- 23.8	pCi/gram
	Gamma	7.00	+/- 4.4	pCi/gram
	Tritium	0.35	+/- 1.00	pCi/gram
	Moisture	6.08	+/- 1.00	percent
AAA7426	Moisture	5.59	+/- 1.00	percent
AAA7454	Moisture	6.44	+/- 1.00	percent
AAA7456	Moisture	8.38	+/- 1.00	percent
AAA7467	Moisture	10.67	+/- 1.00	percent
AAA7468	Moisture	4.22	+/- 1.00	percent
AAA7469	Moisture	3.77	+/- 1.00	percent

EM-9 Radiochemisty Screening Results
TA-54 MRAL II

****

Date _11/19/93__ **Comments** __ **Moisture**__
Owner: ___Don Krier _____

Analyst __K.S. KS

Sample #	Analyte	Result	Uncertainty	Units
AAA7400	Alpha	11.70	+/- 63.1	pCi/gram
54-1008 21-33'	Beta	-4.60	+/- 23.8	pCi/gram
11/18/93 16:34	Gamma	1.40	+/- 4.4	pCi/gram
	Tritium	0.84	+/- 1.00	pCi/gram
	Moisture	0.99	+/- 1.00	percent

S08	AAA7405	Alpha	0.00	+/- 63.1	pCi/gram
	54-1008 35'-39'	Beta	-4.20	+/- 23.8	pCi/gram
	11/19/93 8:30	Gamma	3.30	+/- 4.4	pCi/gram
		Tritium	1.60	+/- 1.00	pCi/gram
		Moisture	0.59	+/- 1.00	percent

S07	AAA7413	Alpha	-11.70	+/- 63.1	pCi/gram
	54-1008 5.5-6.0	Beta	-14.70	+/- 23.8	pCi/gram
	11/18/93 15:30	Gamma	1.60	+/- 4.4	pCi/gram
		Tritium	0.98	+/- 1.00	pCi/gram
		Moisture	7.14	+/- 1.00	percent

AAA7418	Alpha	35.10	+/- 63.1	pCi/gram
54-1008 25-26.3	Beta	20.60	+/- 23.8	pCi/gram
	Gamma	2.00	+/- 4.4	pCi/gram
	Tritium	0.42	+/- 1.00	pCi/gram
	Moisture	0.69	+/- 1.00	percent

AAA7423	Alpha	11.70	+/- 63.1	pCi/gram
41-1008 45.2-46.2	Beta	-8.10	+/- 23.8	pCi/gram
	Gamma	4.7	+/- 4.4	pCi/gram
	Tritium	0.94	+/- 1.00	pCi/gram
	Moisture	0.49	+/- 1.00	percent

15.0-15.3	AAA7427	Moisture	5.13	+/- 1.00	percent
11.2-11.5	AAA7428	Moisture	5.29	+/- 1.00	percent
31.1-31.7	AAA7429	Moisture	0.39	+/- 1.00	percent
31.1-31.7 (Dup)	AAA7430	Moisture	0.56	+/- 1.00	percent
41.0-41.3	AAA7432	Moisture	0.51	+/- 1.00	percent
1.9	AAA7466	Moisture	7.86	+/- 1.00	percent

EM-9 Radiochemisty Screening Results
TA-54 MRAL II

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Date _11/20/93__ Comments _____
Owner: ___Don Krier _____

Analyst __B.L.__

Sample #	Analyte	Result	Uncertainty	Units
AAA7398	Alpha	70.20	+/- 63.1	pCi/gram
	Beta	49.00	+/- 23.8	pCi/gram
	Gamma	4.00	+/- 4.4	pCi/gram
	Tritium	0.80	+/- 1.00	pCi/gram
	Moisture	1.28	+/- 1.00	percent

S11

AAA7411	Alpha	0.00	+/- 63.1	pCi/gram
	Beta	38.60	+/- 23.8	pCi/gram
	Gamma	2.90	+/- 4.4	pCi/gram
	Tritium	0.66	+/- 1.00	pCi/gram
	Moisture	3.82	+/- 1.00	percent

AAA7414	Alpha	70.20	+/- 63.1	pCi/gram
	Beta	36.30	+/- 23.8	pCi/gram
	Gamma	4.20	+/- 4.4	pCi/gram
	Tritium	0.64	+/- 1.00	pCi/gram
	Moisture	0.60	+/- 1.00	percent

S12

AAA7419	Alpha	35.10	+/- 63.1	pCi/gram
	Beta	31.90	+/- 23.8	pCi/gram
	Gamma	3.80	+/- 4.4	pCi/gram
	Tritium	0.37	+/- 1.00	pCi/gram
	Moisture	6.65	+/- 1.00	percent

505

AAA7422	Alpha	23.40	+/- 63.1	pCi/gram
	Beta	37.20	+/- 23.8	pCi/gram
	Gamma	4.10	+/- 4.4	pCi/gram
	Tritium	3.40	+/- 1.00	pCi/gram
	Moisture	0.45	+/- 1.00	percent

AAA7445	Alpha	0.00	+/- 63.1	pCi/gram
	Beta	54.10	+/- 23.8	pCi/gram
	Gamma	5.00	+/- 4.4	pCi/gram
	Tritium	1.00	+/- 1.00	pCi/gram
	Moisture	2.72	+/- 1.00	percent

AAA7448	Alpha	11.70	+/- 63.1	pCi/gram
	Beta	36.80	+/- 23.8	pCi/gram
	Gamma	3.60	+/- 4.4	pCi/gram
	Tritium	2.20	+/- 1.00	pCi/gram
	Moisture	0.42	+/- 1.00	percent

AAA6017	Alpha	0.00	+/- 63.1	pCi/gram
	Beta	5.60	+/- 23.8	pCi/gram

AAA6018	Alpha	0.00	+/- 63.1	pCi/gram
	Beta	7.00	+/- 23.8	pCi/gram

AAA6019	Alpha	46.80	+/- 63.1	pCi/gram
	Beta	19.50	+/- 23.8	pCi/gram

AAA7431	Moisture	0.85	+/- 1.00	percent

AAA7433	Moisture	0.61	+/- 1.00	percent

AAA7434	Moisture	0.82	+/- 1.00	percent

AAA7435	Moisture	3.80	+/- 1.00	percent

AAA7436	Moisture	0.78	+/- 1.00	percent
AAA7437	Moisture	5.17	+/- 1.00	percent
AAA7438	Moisture	2.34	+/- 1.00	percent
AAA7439	Moisture	1.71	+/- 1.00	percent
AAA7440	Moisture	1.19	+/- 1.00	percent
AAA7441	Moisture	13.13	+/- 1.00	percent
AAA7443	Moisture	3.69	+/- 1.00	percent
AAA7444	Moisture	5.99	+/- 1.00	percent
AAA7453	Moisture	6.23	+/- 1.00	percent

CST-9 Radiochemisty Screening Results
TA-54 MRAL II

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Date _11/23/93__ **Comments** ___GROSS ALPHA/BETA/GAMMA__
Owner: ___Don Krier _____

Analyst __S.P.__ SP

Sample #	Analyte	Result	Uncertainty	Units
AAA7408	Alpha	23.40	+/- 63.1	pCi/gram
	Beta	46.30	+/- 23.8	pCi/gram
	Gamma	3.40	+/- 4.4	pCi/gram
	Tritium	1.10	+/- 1.00	pCi/gram
	Moisture	1.07	+/- 1.00	percent
AAA7409	Alpha	0.00	+/- 63.1	pCi/gram
	Beta	4.90	+/- 23.8	pCi/gram
	Gamma	2.80	+/- 4.4	pCi/gram
	Tritium	0.96	+/- 1.00	pCi/gram
	Moisture	2.23	+/- 1.00	percent
AAA7424	Alpha	35.10	+/- 63.1	pCi/gram
	Beta	43.10	+/- 23.8	pCi/gram
	Gamma	3.40	+/- 4.4	pCi/gram
	Tritium	1.10	+/- 1.00	pCi/gram
	Moisture	1.13	+/- 1.00	percent
AAA6034	Alpha	35.10	+/- 63.1	pCi/gram
	Beta	12.90	+/- 23.8	pCi/gram
	Gamma	1.07	+/- 4.4	pCi/gram
	Tritium	0.70	+/- 1.00	pCi/gram
	Moisture	9.87	+/- 1.00	percent

513

AAA6035	Alpha	23.40	+/- 63.1	pCi/gram
	Beta	14.70	+/- 23.8	pCi/gram
	Gamma	2.10	+/- 4.4	pCi/gram
	Tritium	0.00	+/- 1.00	pCi/gram
	Moisture	10.88	+/- 1.00	percent

514

AAA6036	Alpha	35.10	+/- 63.1	pCi/gram
	Beta	3.80	+/- 23.8	pCi/gram
	Gamma	2.90	+/- 4.4	pCi/gram
	Tritium	1.64	+/- 1.00	pCi/gram
	Moisture	7.44	+/- 1.00	percent

AAA7415	Alpha	23.40	+/- 63.1	pCi/gram
	Beta	-0.10	+/- 23.8	pCi/gram
	Gamma	3.60	+/- 4.4	pCi/gram
	Tritium	0.97	+/- 1.00	pCi/gram
	Moisture	4.01	+/- 1.00	percent

AAA7472	Moisture	1.43	+/- 1.00	percent

AAA7475	Moisture	0.90	+/- 1.00	percent

AAA7485	Moisture	1.34	+/- 1.00	percent

AAA7489	Moisture	1.02	+/- 1.00	percent

AAA7474	Moisture	9.22	+/- 1.00	percent

AAA7476	Moisture	12.22	+/- 1.00	percent

AAA7477	Moisture	6.86	+/- 1.00	percent

AAA7478	Moisture	13.18	+/- 1.00	percent

CST-9 Radiochemisty Screening Results
TA-54 MRAL II

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Date _11/24/93__ **Comments** ___GROSS ALPHA/BETA/GAMMA__
Owner: ___Don Krier _____

Analyst __S.P.__ S.P.

Sample #	Analyte	Result	Uncertainty	Units
AAA7420	Alpha	0.00	+/- 63.1	pCi/gram
	Beta	0.70	+/- 23.8	pCi/gram
	Gamma	4.90	+/- 4.4	pCi/gram
	Tritium	0.00	+/- 1.00	pCi/gram
	Moisture	2.93	+/- 1.00	percent

516

AAA7421	Alpha	35.10	+/- 63.1	pCi/gram
	Beta	17.10	+/- 23.8	pCi/gram
	Gamma	4.70	+/- 4.4	pCi/gram
	Tritium	6.90	+/- 1.00	pCi/gram
	Moisture	1.22	+/- 1.00	percent

518

FACSIMILE

ERM/GOLDER ASSOCIATES LOS ALAMOS PROJECT TEAM

To: Pam Jones FAX: (713) 690-4868

From: Cyndy Kruger/(505) 662-3700

Date: November 24, 1993 Total Pages (including this page) 3

Regarding: **RAD VAN RESULTS**
SAMPLES AAA7420 AND AAA7421

Attached is a copy of the Rad Van report for samples AAA7420 and AAA7421. Per your request this afternoon, these results have also been facsimiled to Michael Dennis (614) 890-7421. Attached is a copy of the cover page sent to Mr. Dennis.

If you have any questions, please call. Thank you so much for your assistance and patience.

cc: PROJECT FILE 19341

FACSIMILE

ERM/GOLDER ASSOCIATES LOS ALAMOS PROJECT TEAM

To: Michael Dennis **FAX:** (614) 890-7421

From: Cyndy Kruger/(505) 662-3700

Date: November 24, 1993 **Total Pages (including this page)** 2

Regarding: **RADIOLOGICAL SCREENING RESULTS SAMPLES AAA7420 AND AAA7421**

Per Pam Jones of Metcalf and Eddy, attached are radiological screening results for two samples shipped to you today via Federal Express.

If you have any questions, please call.

cc: PROJECT FILE 19341

FAX SENT

ERM/GOLDER ASSOCIATES Los Alamos Project Team

CST-9 Radiochemistry Screening Results
TA-49 MRAL I

****

Date _3/10/94_ **Comments** _____

_____

Analyst _S.P._ **(*) Uncertainty is MDA**

Sample #	Analyte	Result	Uncertainty	Units
AAA4622	Alpha	-6.90	+/- 101.39*	pCi/g
	Beta	-23.46	+/- 58.69*	pCi/g
	Gamma	-0.94	+/- 2.52*	pCi/g
	Tritium	10.58	+/- 1.00	pCi/g
	Moisture	10.06 %	+/- 1.00	

AAA4627	Alpha	-20.66	+/- 112.36	pCi/g
40.5'-42.3'	Beta	-39.78	+/- 60.00	pCi/g
	Gamma	-0.32	+/- 2.52*	pCi/g
	Tritium	11.32	+/- 1.00	pCi/g
	Moisture	10.35 %	+/- 1.00	

AAA9962	Alpha	34.44	+/- 145.06	pCi/g
	Beta	-17.34	+/- 58.69*	pCi/g
	Gamma	-1.33	+/- 2.52*	pCi/g
	Tritium	5.21	+/- 1.00	pCi/g
	Moisture	11.23 %	+/- 1.00	

AAA9965	Alpha	6.94	+/- 101.39*	pCi/g
	Beta	-31.62	+/- 58.69*	pCi/g
	Gamma	-0.84	+/- 2.52*	pCi/g
	Tritium	10.14	+/- 1.00	pCi/g
	Moisture	10.59 %	+/- 1.00	

AAA9966	Alpha	-6.90	+/- 101.39*	pCi/g
	Beta	-43.86	+/- 63.00	pCi/g
	Gamma	-2.22	+/- 2.52*	pCi/g
	Tritium	14.48	+/- 1.09	pCi/g
	Moisture	10.23 %	+/- 1.00	

AAA9961	Moisture	9.70 %	+/- 1.00	

AAA9963	Moisture	9.35 %	+/- 1.00	

AAA9967	Moisture	9.57 %	+/- 1.00	

AAA9968	Moisture	6.45 %	+/- 1.00	

CST-9 Radiochemistry Screening Results
TA-49 MRAL I

****

Date _3/15/94_ **Comments** _____

_____

Analyst _S.P._ **(*) Uncertainty is MDA**

Sample #	Analyte	Result	Uncertainty	Units
AAA4621	Alpha	20.66	+/- 112.36	pCi/g
	Beta	-8.16	+/- 58.69*	pCi/g
	Gamma	-1.29	+/- 2.52*	pCi/g
	Tritium	1.17	+/- 1.00	pCi/g
	Moisture	2.12 %	+/- 1.00	
AAA4633	Alpha	-27.55	+/- 129.74	pCi/g
	Beta	20.40	+/- 58.69*	pCi/g
	Gamma	-1.33	+/- 2.52*	pCi/g
	Tritium	0.74	+/- 1.00	pCi/g
	Moisture	1.56 %	+/- 1.00	
AAA4634	Alpha	-27.55	+/- 129.74	pCi/g
	Beta	-14.28	+/- 58.69*	pCi/g
	Gamma	-1.33	+/- 2.52*	pCi/g
	Tritium	1.20	+/- 1.00	pCi/g
	Moisture	2.26 %	+/- 1.00	
AAA4635	Alpha	-55.10	+/- 183.49	pCi/g
94ME25S04	Beta	10.20	+/- 58.69*	pCi/g
116.0-117.0'	Gamma	-0.79	+/- 2.52*	pCi/g
	Tritium	0.84	+/- 1.00	pCi/g
	Moisture	2.21 %	+/- 1.00	

AAA9986	Alpha	-20.66	+/- 112.36	pCi/g
	Beta	4.08	+/- 58.69*	pCi/g
	Gamma	-1.65	+/- 2.52*	pCi/g
	Tritium	1.68	+/- 1.00	pCi/g
	Moisture	3.05 %	+/- 1.00	

AAA9988	Alpha	-20.66	+/- 112.36	pCi/g
	Beta	-44.88	+/- 63.73	pCi/g
	Gamma	0.16	+/- 2.52*	pCi/g
	Tritium	1.34	+/- 1.00	pCi/g
	Moisture	3.32 %	+/- 1.00	

AAA9992	Alpha	-13.80	+/- 101.39*	pCi/g
	Beta	-2.04	+/- 58.69*	pCi/g
	Gamma	-1.48	+/- 2.52*	pCi/g
	Tritium	1.40	+/- 1.00	pCi/g
	Moisture	2.08 %	+/- 1.00	

AAA9995	Alpha	-55.10	+/- 183.49	pCi/g
	Beta	-42.84	+/- 62.26	pCi/g
	Gamma	-2.42	+/- 2.52*	pCi/g
	Tritium	2.15	+/- 1.00	pCi/g
	Moisture	6.86 %	+/- 1.00	

AAA9984	Moisture	3.10 %	+/- 1.00	

AAA9987	Moisture	4.02 %	+/- 1.00	

AAA9989	Moisture	2.36 %	+/- 1.00	

AAA9994	Moisture	2.08 %	+/- 1.00	

AAA9999	Moisture	3.02 %	+/- 1.00	

CST-9 Radiochemistry Screening Results
TA-49 MRAL I

****

Date _3/17/94_ **Comments** _____

_____

Analyst _S.P._ SP **(*) Uncertainty is MDA**

Sample #	Analyte	Result	Uncertainty	Units
AAA4602	Alpha	0.00	+/- 101.39*	pCi/g
	Beta	-44.88	+/- 63.73	pCi/g
	Gamma	-2.45	+/- 2.52*	pCi/g
	Tritium	1.05	+/- 1.00	pCi/g
	Moisture	37.86 %	+/- 1.00	
AAA4614	Alpha	0.00	+/- 101.39*	pCi/g
14.5'-16.5'	Beta	-20.40	+/- 58.69*	pCi/g
	Gamma	-1.80	+/- 2.52*	pCi/g
	Tritium	0.46	+/- 1.00	pCi/g
	Moisture	18.13 %	+/- 1.00	
AAB0005	Alpha	-27.55	+/- 129.74	pCi/g
	Beta	-46.92	+/- 65.16	pCi/g
	Gamma	-2.27	+/- 2.52*	pCi/g
	Tritium	0.00	+/- 1.00	pCi/g
	Moisture	15.59 %	+/- 1.00	
AAB0019	Alpha	-27.55	+/- 129.74	pCi/g
	Beta	-30.60	+/- 58.69*	pCi/g
	Gamma	-1.73	+/- 2.52*	pCi/g
	Tritium	0.66	+/- 1.00	pCi/g
	Moisture	19.29 %	+/- 1.00	

AAB0006	Moisture	8.59 %	+/- 1.00	
AAB0007	Moisture	21.28 %	+/- 1.00	
AAB0008	Moisture	26.48 %	+/- 1.00	
AAB0009	Moisture	37.83 %	+/- 1.00	
AAB0010	Moisture	40.49 %	+/- 1.00	
AAB0013	Moisture	27.10 %	+/- 1.00	
AAB0014	Moisture	26.25 %	+/- 1.00	
AAB0015	Moisture	24.32 %	+/- 1.00	
AAB0016	Moisture	25.72 %	+/- 1.00	
AAB0017	Moisture	20.42 %	+/- 1.00	
AAB0018	Moisture	18.74 %	+/- 1.00	
AAB0020	Moisture	19.07 %	+/- 1.00	
AAB0021	Moisture	19.71 %	+/- 1.00	
AAB0023	Moisture	18.30 %	+/- 1.00	
AAB0024	Moisture	25.57 %	+/- 1.00	

CST-9 Radiochemistry Screening Results
TA-49 MRAL I

****

March 22, 1994_ **Comments __GROSS ALPHA/BETA/GAMMA_____**

Analyst _S.P.__ **(*) Uncertainty is MDA**

Sample #	Anality	Result	Uncertainty	Units
AAA4606	Alpha	27.55	+/-129.74	pCi/g
	Beta	-3.06	+/- 58.69*	pCi/g
	Gamma	-2.37	+/- 2.52*	pCi/g

53.3'
54.2'
Time 0916
$ 50
AAA4606

EM-9 Radiochemisty Screening Results
TA-54 MRAL II

****

Date _11/17/93__ **Comments** __ **Moisture**__
Owner: ___Don Krier _____

Analyst __B.L__

Sample #	Analyte	Result	Uncertainty	Units
AAA7397 (S01)	Alpha	93.60	+/- 63.1	pCi/gram
(S02)	Beta	44.00	+/- 23.8	pCi/gram
	Gamma	3.80	+/- 4.4	pCi/gram
	Tritium	0.00	+/- 1.00	pCi/gram
	Moisture	5.01	+/- 1.00	percent
AAA7401	Alpha	93.60	+/- 63.1	pCi/gram
	Beta	37.70	+/- 23.8	pCi/gram
	Gamma	3.30	+/- 4.4	pCi/gram
	Tritium	0.00	+/- 1.00	pCi/gram
	Moisture	4.96	+/- 1.00	percent
AAA7404	Alpha	105.30	+/- 65.0	pCi/gram
	Beta	65.40	+/- 23.8	pCi/gram
	Gamma	4.70	+/- 4.4	pCi/gram
	Tritium	0.00	+/- 1.00	pCi/gram
	Moisture	4.91	+/- 1.00	percent
AAA7406	Alpha	46.80	+/- 63.1	pCi/gram
	Beta	68.70	+/- 23.8	pCi/gram
	Gamma	2.80	+/- 4.4	pCi/gram
	Tritium	0.01	+/- 1.00	pCi/gram
	Moisture	5.37	+/- 1.00	percent

ATTACHMENT D

PHOTOGRAPHS

ATTACHMENT E

CHAIN-OF-CUSTODY

Metcalf & Eddy

No 1287

CHAIN-OF-CUSTODY RECORD

TESXM06 163031.001 RP 8008

CUSTODY SEAL NO.

PROJECT NUMBER	PROJECT NAME / LOCATION
163031	Los Alamos

SAMPLERS: (Signature) Pamela [illegible] / Chad / D. B. [illegible]

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB.	STATION LOCATION	MATRIX: SOIL	MATRIX: WATER	MATRIX:	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P - G)	PARAMETER: Volatiles	PARAMETER: Semivolatiles	PARAMETER: Pesticides	PARAMETER: PCBs	PARAMETER: Metals	PARAMETER: Cyanide	PARAMETER:	PRESERVATIVE (Type)	REMARKS
S01	11/16/93	1135		X	AAA7417	X			2x 2oz	G	X								
~~S02~~	↓	~~1429~~	X		↓	↓			1x 500ml	G		X	X	X	X	X			
B01		1400		X	Field Blank		X		2x 40ml	G	X								
↓		↓		↓	↓		↓		2x 1L	G		X							
									2x 1L	G			X	X					
									1x 1L	P					X				1 INCH
↓		↓		↓	↓		↓		1x 1L	P						X			No. 011
S02		1429		X	AAA73977	X			2x 2oz	G	X								
↓	↓		X			↓			1x 500ml	G		X	X	X	X	X			
B02	11/17/93	1400		X	Trip Blank		X		2x 40ml	G	X								

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Pamela [illegible]	11/17/93 1400	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) / Date/Time

Sample Sent To: Sample Custodian
Lab: Accutest
Address: 2235 Route 130
Dayton NJ 08810
Phone: (908) 329-0200
Freight Co.: Fed Ex
Air Bill No.: 9963222220

Remarks:
No gamma radiation. Alpha & beta results not yet available, not suspected to be present

Send results to: Attn: Michael Dennis
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

White: (Original) Accompanies Shipment
[illegible]: Returns With Report
[illegible]ler's Copy

For Questions about samples, contact Pam Jones, (sampler's name) at (field phone) 713 825-3179

73MC 70 - 7

M&E Metcalf & Eddy

No 1288

CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL NO.

93ME90-7

PROJECT NUMBER: 163031

PROJECT NAME / LOCATION: Los Alamos

SAMPLERS: (Signature) Pamela W. Jones / D.B. Ellison

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB.	STATION LOCATION	MATRIX: SOIL	MATRIX: WATER	MATRIX	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P - G)	Volatiles	Semivolatiles	Pest / PCB	Metals	Cyanide				PRESERVATIVE (Type)		REMARKS
503	11/17/93	1040		X	AAA 7407	X			2-4oz	G	X										alpha 35.10 ± 13.1 pCi/gm
↓	↓	↓	X		↓	↓			1@500ml	G		X	X	X	X						beta 12.20 ± 23.8
504	↓	1335		X	AAA 7402	↓			2-4oz	G	X										gamma 3.50 ± 4.4
↓	↓	↓	X		↓	↓			1@500ml	G		X	X	X	X						alpha = [illegible] ± [illegible]
505	↓	1430		X	AAA 7403	↓			2-4oz	G	X										beta = 15.0 ± [illegible]
↓	↓	↓	X		↓	↓			1@500ml	G		X	X	X	X						gamma = 4.0 ± 4.4
506	↓	1540		X	AAA 7399	↓			2-4oz	G	X										alpha = [illegible] ± 60.10
↓	↓	↓	X		↓	↓			1@500ml	G		X	X	X	X						beta = [illegible]
B03	11/12/93	1400		X	Trip Blank		X		2@40ml	G	X										gamma = [illegible] ± 4.4
507	11/18/93	1530	X		AAA 7413	X			1@500ml	G		X	X	X	X						alpha = pending
↓	↓	↓		X	↓	↓			2-4oz	G	X										beta = pending
																					gamma = pending
																					alpha = pending
																					beta = pending
																					gamma = pending

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Pamela W. Jones	11/19/93 1700		
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time

Sample Sent To: Sample Custodian

Lab: Analytest

Address: 2235 Route 130
Dayton NJ 08810

Phone: (908) 329-0200

Freight Co.: Fed Ex

Air Bill No.: 9963221940

Remarks:

Send results to: Attn: Michael Dennis
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Distribution: White: (Original) Accompanies Shipment!
Pink: Returns With Report
Yellow: Sampler's Copy

For Questions about samples, contact Pam Jones (sampler's name) at (field phone) (713) 825-3179

Metcalf & Eddy

No. 1289

CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL NO.

PROJECT NUMBER	PROJECT NAME / LOCATION
163031	Los Alamos

SAMPLERS: (Signature) Pamela W. Jones

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB	STATION LOCATION	MATRIX: SOIL	MATRIX: WATER	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P - G)	PARAMETER: Volatiles	Semivolatiles	PCB's	metals	cyanide	PRESERVATIVE (Type)	REMARKS
508	11/19/93	0835		X	AAA7405	X		2x40ml	G	X						
			X					1x500ml	G		X	X	X	X		
B04		0850		X	Field Blank		X	2x40ml	G	X						
				↓				2x1L	G		X					
								2x1L	G			X				
								1x1L	P				X			HNO3
				↓				1x1L	P					X		NaOH
509		1015		X	AAA7422	X		2x40ml	G	X						
			X					1x500ml	G		X	X	X	X		
510		1130			AAA2400			2x40ml	G	X						dup of 509
								1x500ml	G		X	X	X	X		
511		1340			AAA7398			2x40ml	G	X						
								1x500ml	G		X	X	X	X		
512		1535			AAA7419			2x40ml	G	X						
					MS/MSD			1x500ml	G		X	X	X	X		

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Pamela W. Jones	11/19/93 1730	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) / Date/Time

Sample Sent To: A Courier Custodian
Lab: Accutest
Address: 2235 Route 130
Dayton NJ 08810
Phone: (908) 329-0200
Freight Co.: Fed Ex
Air Bill No.: 9463221951

Remarks: Radiation screening results not yet available

Send results to: Attn: Michael Dennis
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Distribution: White: (Original) Accompanies Shipment
Pink: Returns With Report
Yellow: Sampler's Copy

For Questions about samples, contact _____ (sampler's name) at
(field phone) _____

Page 1 of 2

Metcalf & Eddy

No 1290

CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL NO.

PROJECT NUMBER	PROJECT NAME / LOCATION
16303	Los Alamos

SAMPLERS: (Signature) Pamela D. Lyons

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB.	STATION LOCATION	MATRIX: SOIL	MATRIX: WATER	MATRIX:	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P - G)	PARAMETER: Volatiles	PRESERVATIVE (Type)	REMARKS
B05	11/7/93	1400		X	Trip Blank		X		2-40ml	G			

TRIP BLK - 2

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Pamela D. Lyons	11/7/93 1730	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) / Date/Time

Sample Sent To: _____
Lab: _____
Address: _____
_____
_____
Phone: _____
Freight Co.: _____
Air Bill No.: _____

Remarks:

Send results to: Attn: _____
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Distribution: White: (Original) Accompanies Shipment
Pink: Returns With Report
Yellow pler's Copy

Page 2 of 2

For Questions about samples, contact _____ sampler's name) at
(field phone) _____

CHAIN-OF-CUSTODY RECORD

Metcalf & Eddy

No. 1291

CUSTODY SEAL NO.

PROJECT NUMBER	PROJECT NAME / LOCATION
163031	Los Alamos

SAMPLERS: (Signature) Pamela W. Jones

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB.	STATION LOCATION	MATRIX: SOIL	MATRIX: WATER	MATRIX:	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P - G)	PARAMETER: Volatiles	Semivolatiles	PI PCB	Cyanide	Metals			PRESERVATIVE (Type)	REMARKS
S13	11/22/93	1330		X	AAA 6035	X			2x2oz	G	X								MS/MSD
↓		↓	X		↓				1x500ml	G		X	X	X	X				MS/MSD
S14		1425		X	AAA 6036				2x2oz	G	X								
↓		↓	X		↓				1x500ml	G		X	X	X	X				~~MS/MSD 2/PCB~~
S15	11/23/93	1140		X	AAA 7424/7408				2x2oz	G	X								
↓		↓	X		↓				1x500ml	G		X	X	X	X				
S16		1220		X	AAA 7420				2x2oz	G	X								
↓		↓	X		↓				1x500ml	G		X	X	X	X				
S17		1400		X	AAA				2x2oz	G	X								dup of S16
↓		↓	X		↓	↓			1x500ml	G		X	X	X	X				

YSMLE '10 - 7

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Pamela W. Jones	11/23/93 1730	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) / Date/Time

Sample Sent To: Sample Custodian
Lab: Accutest
Address: 2235 Route 130
Dayton NJ 08810
Phone: (908) 329-0200
Freight Co.: Fed Ex
Air Bill No.: 9963222216

Remarks:
alpha, beta, gamma results pending

Send results to: Attn: Michael Dennis
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Distribution: White: (Original) Accompanies Shipment
Pink: Co... Returns With Report
Yellow: ...er's Copy

For Questions about samples, contact Pam Jones (sampler's name) at (field phone) (713) 825-3179

Metcalf & Eddy

No 1292

CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL NO.

PROJECT NUMBER	PROJECT NAME / LOCATION
163031	Los Alamos

SAMPLERS: (Signature) Pamela O Jones

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB	STATION LOCATION	MATRIX: SOIL	MATRIX: WATER	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P - G)	PARAMETER: Volatiles	Semivolatiles	PCB's	Cyanide	Metals	PRESERVATIVE (Type)	REMARKS
S18	11/24/93	1055		X	AMA 7421	X		2@20g	G	X						
↓	↓	↓	X		↓	↓		16x250ml	G		X	X	X	X		

93MC70 →

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Pamela O Jones	11/24/93 1530	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) / Date/Time

Remarks:
alpha, beta, gamma, radium

Send results to: Attn: Michael Dunlap
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Sample Sent To: Sample Custodian
Lab: Accutest
Address: 0235 Route 130
Dayton NJ 08810
Phone: (908) 329-0200
Freight Co.: Fed Ex
Air Bill No.: 326802337 43

Distribution: White: (Original) Accompanies Shipment
Pink: Returns With Report
Yellow: Sampler's Copy

For Questions about samples, contact Pam Jones (sampler's name) at (field phone) (713) 825-3179

Metcalf & Eddy

No 1452

CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL NO. 4116

PROJECT NUMBER: 116301

PROJECT NAME / LOCATION: Los Alamos National Lab, N.M.

SAMPLERS: (Signature) Cynthia M. Wurm

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB	STATION LOCATION	MATRIX: SOIL/Rock	MATRIX: WATER	MATRIX:	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P-G)	PARAMETER: RCRA metals + including mercury	PRESERVATIVE (Type)	REMARKS
5Ø1	3/10/94	11ØØ	X		AAA4627	X			1@300ml	G	X	—	—
5Ø1	3/10/94	11ØØ	X		AAA4627	X			1@300ml	G	X	—	Matrix Spike
5Ø1	3/10/94	11ØØ	X		AAA4627	X			1@300ml	G	X	—	Matrix Spike Replicate
5Ø2	3/10/94	112Ø	X		AAA4628	X			1@300ml	G	X	—	—
5Ø3	3/10/94	11ØØ		X	Field Blank AAA4627		X		1@95ml	P	X	HNO_3	—
—	3/10/94	11ØØ		X	Lab Supplied Temp. Blank		X		1@500ml	P	—	—	—

94ME25

the results for AAA4627 & AAA4628

Radiochemistry Screening Results

alpha: -20.66 +/- 112.36 pCi/g

beta: -39.78 +/- 60.00 pCi/g

gamma: -0.32 +/- 2.52 pCi/g

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Cynthia M. Wurm	3/11/94 0700	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) / Date/Time

Sample Sent To: Sample Custodian
Lab: ACCUTEST
Address: 2235 Route 13Ø
Dayton, NJ Ø8810
Phone: (9Ø8) 329-ØØ2Ø
Freight Co.: Fed. Express
Air Bill No.: 987242315Ø5

Remarks: This package conforms to the conditions and limitations specified in 49 CFR 173.421 for accepted radioactive material limited quantity N.O.S. UN2910.

Send results to: Attn: Dr. Michael Devine
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Distribution: White: (Original) Accompanies Shipment
Pink: Returns With Report
Yellow pler's Copy

For Questions about samples, contact Cynthia Wurm sampler's name) at
(field phone) 614-890-5501.

Metcalf & Eddy

No. 1453

CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL NO.

PROJECT NUMBER	PROJECT NAME / LOCATION
163031-1-6226	Los Alamos National Lab, N.M.

SAMPLERS: (Signature) Becky A Chavez

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB.	STATION LOCATION	MATRIX: SOIL	MATRIX: WATER	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P - G)	PARAMETER: RCRA metals, including mercury	PRESERVATIVE (Type)	REMARKS
S04	3/15/94	0850	X		AAA4635	X		1@300ml	G	X		(94ME25)

Radiochemistry Screening Results

Alpha: -55.10 +/- 183.49 pCi/g

beta: 10.20 +/- 58.69 pCi/g

gamma: -0.79 +/- 2.52 pCi/g

ATTN: Bill Sherding
Analyze as one SDG
with C-O-C # 1452

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Becky A Chavez	3/16/94/1200		
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time

Sample Sent To: Bill Sherding
Lab: ACCUTEST
Address: 2235 Route 130
Dayton, NJ 08810
Phone: (908) 329-0200
Freight Co.: Federal Express
Air Bill No.: 987242303 13

Remarks: This package conforms to the conditions and limitations specified in 49 CFR 173.421 for accepted radioactive material limited quantity N.O.S UN2910

Send results to: Attn: Michael Dennis
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Distribution: White: (Original) Accompanies Shipment
Pink: C Returns With Report
Yellow: ler's Copy

For Questions about samples, contact Becky Chavez (sampler's name) at (field phone) (614) 890-5501

M&E Metcalf & Eddy

No. 1459

CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL NO.

PROJECT NUMBER: 163031-1-626

PROJECT NAME / LOCATION: Los Alamos National Lab, NM

SAMPLERS: (Signature) Becky A Chavez

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB.	STATION LOCATION	MATRIX: SOIL	MATRIX: WATER	CONTAINERS: NUMBER AND SIZE	CONTAINERS: TYPE (P - G)	PARAMETER: RCRA metals including Mercury	PRESERVATIVE (Type)	REMARKS
SØ5	3/17/94	1Ø28	X		AAA4614	X		1@300ml	G	X		
SØ5	↓	1Ø28	X		AAA4614	X		↓	↓	X		Matrix Spike
SØ5	↓	1Ø28	X		AAA4614	X		↓	↓	X		Matrix Spike Duplicat
SØ6	↓	1628	X		AAA4644	X		↓	↓	X		
SØ7	↓	1028		X	Field Blank		X	1@950ml	P	X	HNO$_3$	

94ME25

Radiochemistry Screening Results

The results for AAA4614 & AAA4644:
- Alpha: Ø.ØØ +/- 101.39 pCi/g
- Beta: -2Ø.4Ø +/- 58.69 pCi/g
- Gamma: -1.8Ø +/- 2.52 pCi/g

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Becky A Chavez	3/18/94 / Ø7ØØ		
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time

Sample Sent To: Bill Sherding
Lab: ACCUTEST
Address: 2235 Route 13Ø, Dayton, NJ Ø881Ø
Phone: (908) 329-0200
Freight Co.: Federal Express
Air Bill No.: 9872423035

Remarks: This package conforms to the conditions & limitations specified in 49CFR 173.421 for accepted radioactive material limited quantity NOS. UN291Ø

Send results to: Attn: Dr. Michael Dennis
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Distribution: White: (Original) Accompanies Shipment!
Pink: Co... ...turns With Report
Yellow: ...er's Copy

For Questions about samples, contact Becky Chavez (...mpler's name) at (field phone) (614) 89Ø-55Ø1

M&E Metcalf & Eddy

No. 1456

CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL NO. NA

PROJECT NUMBER: 163Ø31

PROJECT NAME / LOCATION: Los Alamos National Lab, New Mexico

SAMPLERS: (Signature) Cynthia M. Wiiem

SAMPLE NO.	DATE	TIME MILITARY	COMP.	GRAB.	STATION LOCATION	MATRIX: SOIL/ROCK	MATRIX: WATER		CONTAINERS: NUMBER AND SIZE	TYPE (P - G)	PARAMETER: RCRA Metals, including mercury							PRESERVATIVE (Type)	REMARKS
5Ø8	3/22/94	Ø916	X		AAA46Ø6	X			1@300ml	G	X						—		—

94NIE25

attention: Bill Sherding – Please analyze as one SDG w/ C-O-C # 1459

results for: AAA46Ø6

Radiochemistry Screening Results

alpha: 27.55 +/− 129.74 pCi/g

beta: −3.Ø6 +/− 58.69 pCi/g

gamma: −2.37 +/− 2.52 pCi/g

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Cynthia M. Wiiem	3/22/94/14ØØ		
Relinquished By: (Signature)	**Date/Time**	**Received By: (Signature)**	
Relinquished By: (Signature)	**Date/Time**	**Received for Laboratory By: (Signature)**	**Date/Time**

Sample Sent To: Bill Sherding

Lab: ACCUTEST

Address: 2235 Route 13Ø, Dayton, NJ Ø881Ø

Phone: (9Ø8) 329-Ø2ØØ

Freight Co.: Fed. Express

Air Bill No.: 98724230Ø46

Remarks: This package conforms to the conditions & limitations specified in 49 CFR 173.421 for excepted radioactive [illegible] limited quantity N.O.S. UN2910.

Send results to: Attn: Dr. Michael Dennis
Metcalf & Eddy, Inc.
2800 Corporate Exchange Drive
Suite 250, Columbus, OH 43231
(614) 890-5501

Distribution: White: (Original) Accompanies Shipment!
Pink: C[illegible] [illegible]turns With Report
Yellow: [illegible]er's Copy

For Questions about samples, contact Cynthia WiiRM ([illegible]mpler's name) at (field phone) 614-89Ø-55Ø1