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FileFolder: WESTERN SANITARY WASTE LINE LOCATION 1A FIELD SUMMARY REPORT FIELD UNIT 1 TA-1 SUMMER 1994 RECORDS PACKAGE #600 SUBMITTAL #1/MEMO & TABLE OF CONTENTS

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Incorporate in Field Summary Report

MEMO

ERM/GOLDER ASSOCIATES - LOS ALAMOS PROJECT TEAM

MSWL 1A

To: Danny Katzman, Field Team Manager

From: Tami Wiggins, Field Team Leader TW

Date: 11 July 94

Re: **REPORT OF FIELD ACTIVITIES FOR 11 JULY 94 FOR OU 1078, TA-01, WESTERN SANITARY WASTE LINE**

The following is a summary of activities conducted on 11 July 94 at OU 1078, TA-01, Western Sanitary Waste Line (WSWL).

Approximately 36 feet (12 3-foot sections) of the WSWL were exposed via backhoe trenching. The backhoe removed soil from on top of the pipe and along both sides for enhanced visual inspection and easier removal of the pipe. The trench (Trench 1) begins about 8.5 feet east of manhole 52 and extends to the east. The depth from ground surface to the top of the pipe is approximately 3'9".

The exterior of the exposed piping was field screened with hand-held alpha and beta/gamma detectors; no elevated readings were detected. Subsequently, the exposed pipe was swept of any residual soil and the pipe joints were numbered and photographed.

Inspection of the pipe yielded the following observations:

- The second section of pipe (which is between the second and third joints) had a round hole in it from auger drilling from field activities earlier this year.
- The fourth, sixth, seventh, and eighth joints were cracked slightly as a result of backhoe activity.
- The fifth section (between the fifth and sixth joints) was in several pieces due to previous installation of an air monitoring port. This port and associated surface casing were carefully removed.
- The fourth section, as a consequence of previous installation of the air monitoring port in the fifth section, was broken where it connected to the fifth section.
- The rest of the exposed pipe sections and joints were intact.

All to FSR 1A

Subsequent field screening inside the pipe with hand-held alpha and beta/gamma detectors showed elevated readings at the sixth and seventh joints. When 766 cpm beta/gamma was detected at the sixth joint, the seventh joint was screened. There it was 6800 cpm beta/gamma and ≤250 cpm alpha. The Site Safety Officer instructed all personnel to stop work and leave the trench.

Received by EH-RPF
JAN 0 1 1999
TRW

ERM/GOLDER ASSOCIATES Los Alamos Project Team

ERM Program
Management Company

555 Oppenheimer
Suite 100
Los Alamos, NM 87544
(505) 662-3700
(505) 662-1398 (Fax)

ERM

7 April 1995

Attn: Carl Newton
EES-3, MS E525
Los Alamos National Laboratory
P.O. Box 1663
Los Alamos, NM 87545

RE: Deliverable: Field Unit 1, TA - 01, Draft Field Summary Report for the Western Sanitary Waste Line Location 1A Activities
Work Release 93-0046, Subcontract F20780002-8M

Dear Carl:

Enclosed is the draft Field Summary Report for the activities conducted during July 1994 for Field Unit 1, Technical Area 1, Western Sanitary Waste Line Location 1A. The Field Activities Section of this report is organized by trench as opposed to daily activities to enable the reader to more fully understand the rationale behind the sampling activities. A copy of the photographic log will be submitted separately. This log is considered an Exhibit and will, therefore, be available from the Records Processing Facility in the future.

If you have any questions or comments, please feel free to call me or Michelle Miller at any time.

Sincerely,

ERM Program Management Company

Al Funk, P. G.
Principal

Enclosure: A/S
cc: Michelle Miller
Project File 19346.AA.10.2.a

DRAFT

RCRA Facility Investigation Sampling Program
Field Unit 1, Technical Area 1, SWMU 1-001(s)
Western Sanitary Waste Line Location 1A
Summer 1994 Field Summary Report

07 April 1995

Prepared for:

Los Alamos National Laboratory
Environmental Restoration Program
Los Alamos, New Mexico

Prepared by:

ERM Program Management Company
and
Golder Federal Services
555 Oppenheimer Drive, Suite 100
Los Alamos, New Mexico 87544

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EXECUTIVE SUMMARY

This report documents RFI (RCRA Facility Investigation) activities implemented at the Western Sanitary Waste Line (WSWL), Location 1A, within Technical Area 1 (TA-1). The purpose of the investigation was to locate and investigate the WSWL at Location 1A; collect samples in order to provide information for evaluating whether hazardous materials are present in the line; determine if hazardous wastes have been released to surrounding soils; and to classify these potential wastes. Location 1A consisted of a 210-foot section of the WSWL between Manholes 52 and 53 and near Timber Ridge and Trinity Drive.

There were three tasks associated with the field activities at Location 1A. Task #1 was a geophysical survey of the Western Sanitary Waste Line. This survey was conducted between February 2 and 8, 1994. Location 1A was surveyed with an electromagnetic induction instrument (Geonics EM31) and a ground penetrating radar unit (GSSI SIR System 4 with 300 MHz antenna). The site was also scanned with a radiodetection unit (RD 400) in order to attempt to locate active power and communication lines and avoid them during excavation. Task #2 was conducted on February 23, 1994, with the purpose of collecting sample material from immediately above, adjacent to and below the WSWL. First, a trench 20 feet long, 3 feet wide and 3 feet deep was dug with a Ditch-Witch in an attempt to locate the WSWL. When the line was not exposed, a hollow stem auger drill rig and continuous split-spoon sampler were used to drill along the line mapped out by the geophysical survey. Eight boreholes, between two and six feet deep were drilled. One of the boreholes was drilled through the center of the WSWL vitrified clay pipe (VCP). Nine soil samples were collected and submitted to the Rad Van for analysis of gross alpha, beta and gamma activity. These soil samples were then submitted to a fixed laboratory to be analyzed for SVOCs, PCBs, pesticides, 12 Resource Conservation and Recovery Act (RCRA) metals, and two isotopic radionuclides, plutonium and uranium. The results of these analyses were used to determine the potential contaminants of concern (PCOCs) for Task #3.

Task #3, the excavation of the WSWL at Location 1A, is the main focus of this report. These excavation and sampling activities took place between July 11 and 22, 1994. Seven consecutive trenches were dug between manhole #52 (MH52) and manhole #53 (MH53), and 70 three foot sections of vitrified clay pipe (VCP) were uncovered. Samples were collected from soil and dried sludge material located inside manhole #52 and #53, and inside the vitrified clay pipe at the joints. Fifteen samples were collected during the course of the field work conducted at Location 1A. All samples were analyzed for the 12 RCRA metals listed in 40 CFR Part 261 Appendix VIII (Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl) as well as isotopic-plutonium and isotopic-uranium. Two of the sampling locations were also selected for the analysis of tritium to verify the absence of this radionuclide. Two quality control (QC) field duplicate soil/desiccated sludge samples were collected as part of the 15 total samples collected; these QC samples were analyzed for 12 RCRA metals, isotopic-plutonium and isotopic-uranium.

Organic vapor monitoring was conducted using a HNu hand-held instrument to detect potential hazards to site personnel and to screen sample locations for the presence of detectable organic vapors. Mercury vapor was monitored with a Jerome Mercury Vapor Analyzer, and no vapor was detected. Real-time aerosol field monitoring was also conducted in the active work area, including the breathing zone of site workers and around the excavation trench using a hand-held, Mie-PDM-3 Miniram. Radiological screening for beta/gamma activity was performed with an Eberline ESP-1 with a GM 260 pancake probe between July 11 and 14, 1994. A Ludlum 12 with a 44-40 probe was used for beta/gamma screening between July 15 and 20, 1994. During the entire investigation, a Ludlum 139 with a 43-32 rate meter was used for surface monitoring of alpha radiation and a Ludlum 200 with a 4310 scaler was used to count swipes taken from equipment. All radiation screening devices were used in accordance with guidance provided by ESH-1. All monitoring activities are outlined in the Site-Specific Health and Safety Plan (SSHASP). The field screening data was an integral part of field team decision-making, and it has been submitted as part of this report. As discussed later in this report, field screening and count trailer analysis results using a Berthold revealed potential radiological contaminants within the vitrified clay pipe sections that exceed Los Alamos National Laboratory (LANL) screening action levels (SALs). After pipe sections were removed, the trench was field screened for organic and radioactive constituents. Since no readings above background levels were detected along the sides and bottom of the trenches, the trenches were backfilled.

Upon receipt, sample analytical data will be utilized to further evaluate and/or confirm the field screening data. The sample analytical data will also be used to determine the method of disposal for wastes. These data will be validated and evaluated upon receipt from the off-site analytical laboratories. All wastes were segregated, containerized, and documented in accordance with the Site-Specific Waste Management Plan (WMP). A total of 70 sections of vitrified clay pipe (each 3 feet in length), the complete manhole 52 structure, the lid to manhole 53, and five, 55-gallon drums of PPE and decontamination waste was generated during this investigation. Two EPA provisional waste generator ID numbers were used for transporting these wastes to the <90 day storage area on Sigma Mesa; NMP 3600-40785 was used on July 18, 1994 and NMP 3600-40797 was used on July 20, 1994.

1.0 INTRODUCTION

The purpose of this report is to document field activities completed along Location 1A of the Western Sanitary Waste Line, (WSWL), SWMU 1-001 (s) of Aggregate N, former TA-1, Los Alamos National Laboratory (LANL).

1.1 Overview

The ERM/Golder Los Alamos Project Team (ERM/Golder) was contracted by LANL to conduct a RCRA Facility Investigation at TA-1 of Field Unit 1. The RCRA Facility Investigation (RFI) was implemented in partial fulfillment of the RCRA Facility Permit for LANL. The field activities were conducted by ERM/Golder, with support from Johnson Controls Inc., (JCI), a subcontractor to LANL. A discussion of the objectives, approach, and field activities is presented in the subsequent sections of this report. This report includes documentation of deviations from the RFI Work Plan and the Sampling and Analysis Plan (SAP). All associated field documentation is included as appendices, with copies retained by ERM/Golder. Exhibits will be provided to the Records Processing Facility (RPF) and are not attached to this report.

1.2 Location

TA-1 covers approximately 80 acres and is located on the East Mesa in the area that includes a portion of the present-day town site (Figure 1). The WSWL served several buildings south of Trinity Drive in TA-1, and wastes flowed in a westerly direction initiating at the D-Building. Location 1A is the westernmost section of the waste line identified for "Opportunity-Available" sampling that is not presently covered by permanent structures (Figure 2). "Opportunity Available" sampling was defined in the SAP as a field investigation that would be conducted whenever the property became accessible.

1.3 Site History

The initial research and development at LANL was conducted at TA-1. Activities began in 1943, peaked between 1945 and 1955, and then slowly declined as LANL relocated to newly constructed technical areas.

Sixty-eight SWMUs (Solid Waste Management Units) are identified within TA-1. This report focuses on SWMU 1-001 (s), the section of the WSWL which served the balance of buildings in TA-1 west of and including the D-Building. Location 1A was proposed for "Opportunity Available" sampling in the 1992 RFI Work Plan as one of thirteen locations along the WSWL that were identified in the RFI Work Plan for "Opportunity-Available" sampling due to their potential accessibility. Most of the land traversed by the WSWL is currently on private land and has been covered by permanent structures.

The majority of wastes handled in the sanitary waste lines were non-process related; however, several buildings connected to the WSWL handled hazardous and radioactive materials. Process-related wastes were routinely disposed in the acid sewer line (SWMU 1-002, the industrial waste line). However, recent sampling results from a septic tank, SWMU 0-030 (g), that was connected to the WSWL, have suggested that possibly such constituents, including mercury, lead and plutonium, entered the WSWL. It is also possible that fugitive releases of these constituents may have occurred along the WSWL due to leaks at pipe joints, at joints between pipes and manholes, at connections between building sewers and sewer mains, or at breaks in the pipe due to construction or ground settlement.

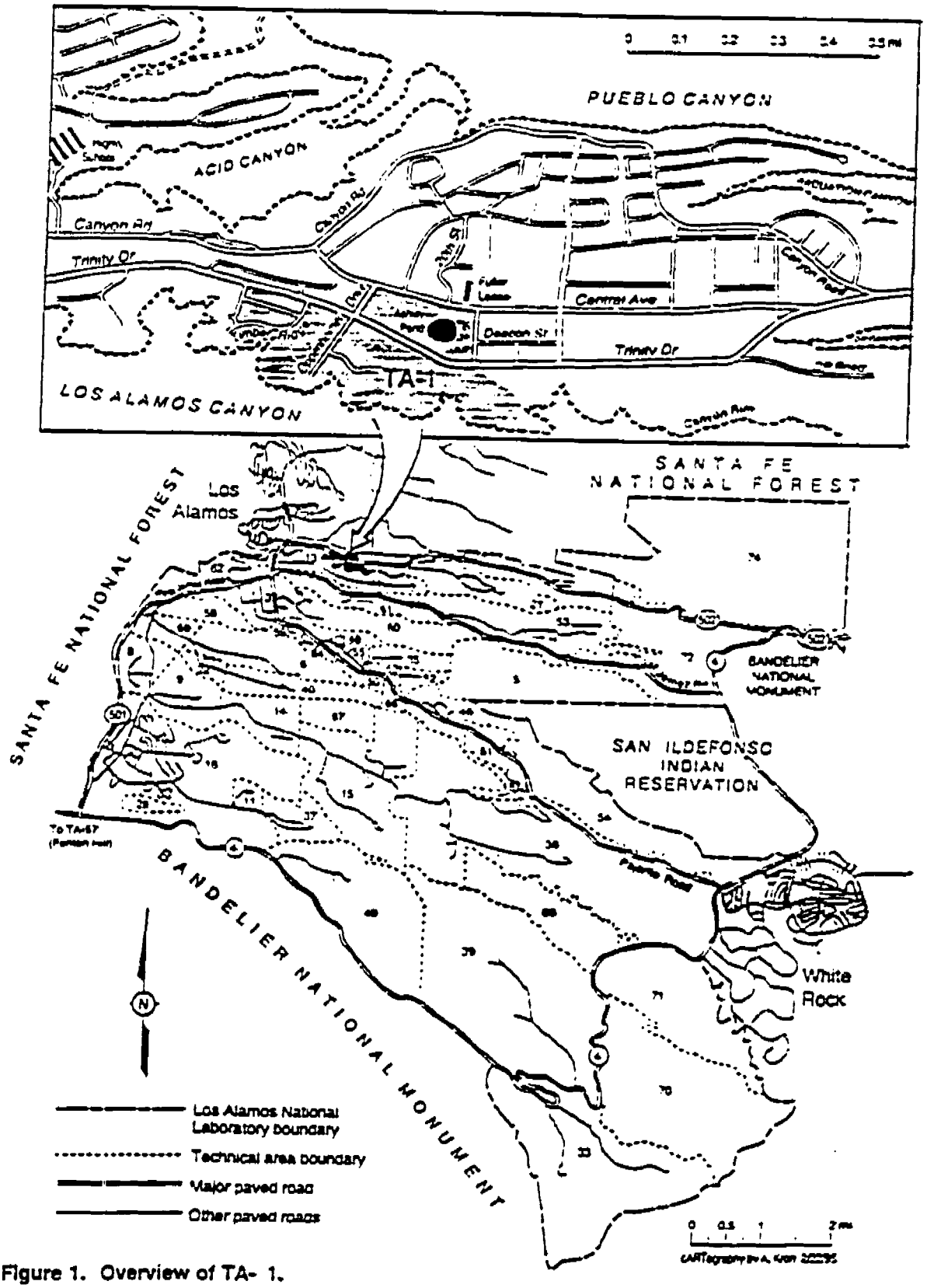
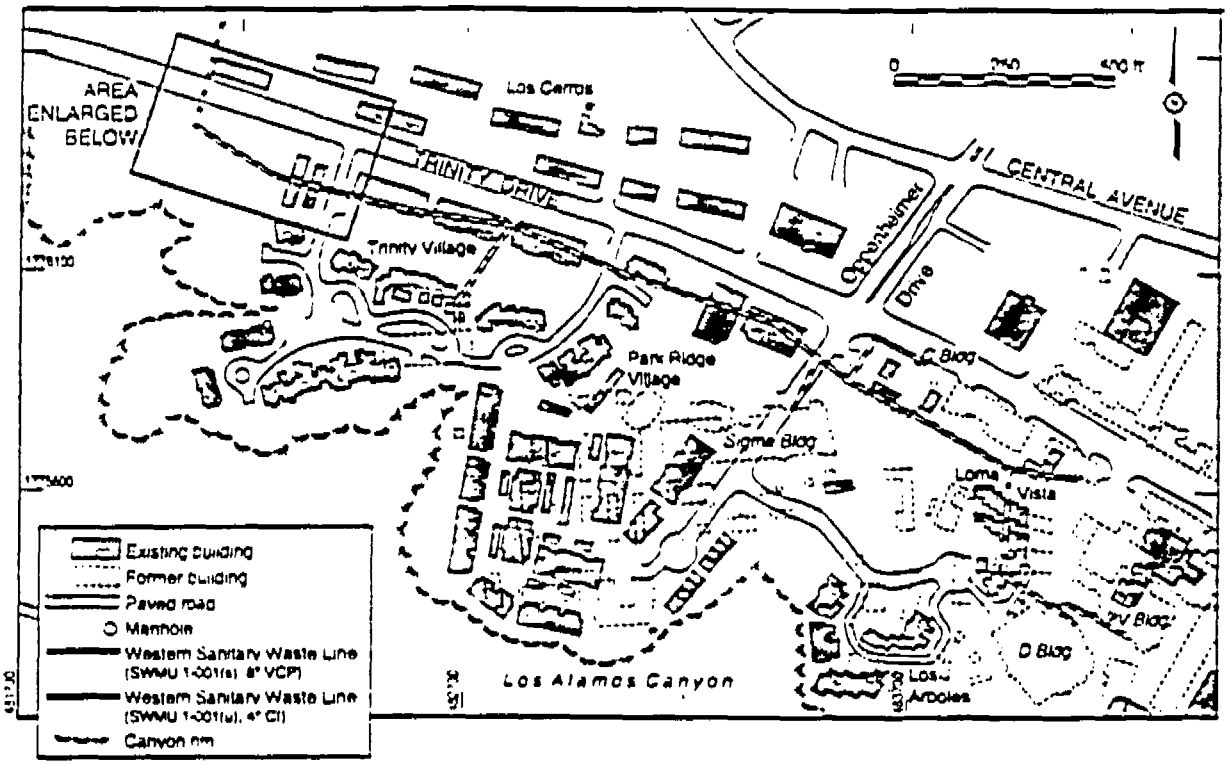


Figure 1. Overview of TA- 1.



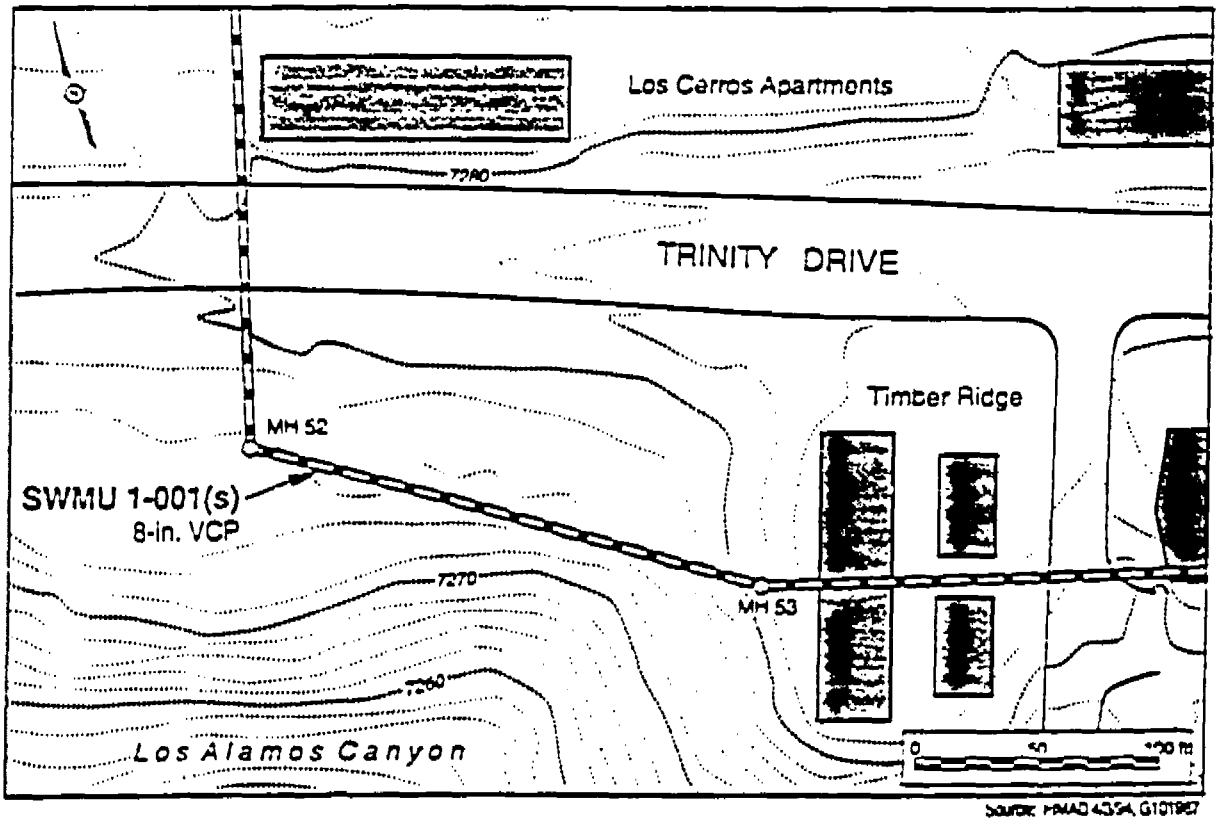


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Figure 2. Location of WSWL Location 1A.

1.4 Field Team Members

The field activities were conducted under the direction of the Field Project Leader (FPL), Garry Allen, and deputy FPL, Carl Newton. The project was organized and supervised by the Project Manager (PM), Danny Katzman of ERM/Golder. The field team consisted of a Field Team Leader (FTL) who also performed the duties of an on-site Waste Manager, a Site Safety Officer (SSO), a Radiation Screening Personnel (RSP), and a Sample Coordinator. Excavation activities were performed by JCI personnel. When required, radiation protection assistance was provided by the LANL ESH-1 personnel. Roles for each member of the field team were consistent with the Quality Assurance Project Plan (QAPjP) for Field Unit 1 (Annex II to the RFI Work Plan, May 1992) as well as with LANL-ER-SOP-1.01, General Instructions for Field Investigation. Field team activities were recorded in the Daily Field Activity Reports and field log books. Copies of the Daily Field Activity Reports are found in Appendix A and field log books will be submitted to the RPF as Exhibit A. Figure 3 is an organizational chart showing all team members and field team roles. Responsibilities for each team member are described below.

The PM prepared planning documents and coordinated field activities with LANL support services and property owners. The PM ensured that personnel and equipment were available to support field operations and ensured the safe conduct of field work. In addition, the PM notified the deputy FPL and Environmental Restoration/Health and Safety team of any schedule modifications, site emergencies, and ensured product quality in accordance with the ERM/Golder QAPjP for supporting the LANL Environmental Restoration Project.

The FTL supervised the field team during daily field operations which included implementing the Sampling and Analysis Plan (SAP), the Site-Specific Health and Safety Plan, the project-specific QAPjP, and the Waste Management Plan. The FTL also ensured that all on-site personnel were appropriately trained and coordinated with other contractor supervisors. The FTL also served as the on-site Waste Manager. In this capacity she prepared and implemented the Waste Management Plan (WMP) and was the primary source of information and guidance regarding on-site waste management issues. Responsibilities included notifying LANL, the Waste Management Coordinator, and the Waste Generator of the following issues: waste management, establishing the waste management area, managing and tracking waste, ensuring compliance with regulatory requirements and implementing waste minimization procedures. Additionally, the on-site Waste Manager prepared the Waste Profile Forms once analytical results became available.

Responsibilities of the SSO included notifying the FPL, PM, FTL and ESH-5 about health and safety matters as well as direct reporting to the FTL. The SSO was the primary contact for health and safety issues and interpreted and implemented the SSHASP. The SSO maintained all health and safety monitoring records, conducted daily tailgate health and safety meetings, prepared and implemented all change order controls for the SSHASP modifications, and ensured that all site monitoring was conducted as required by the SSHASP and that good health and safety practices were followed.

The RSP was the primary resource for radiation protection information and guidance, and was responsible for ensuring compliance with the radiological monitoring requirements of the SSHASP and SAP. The RSP conducted monitoring as outlined in both the SSHASP and the radiological authorization agreement, including care, maintenance, calibration, and operation of radiation monitoring equipment. The RSP's responsibilities also included notifying ESH-1 of radiation safety concerns and reporting directly to the FTL and PM.

The Sample Coordinator was responsible for the preparation of sample containers, the collection of soil samples, and the completion of sample-related paperwork such as sample collection logs, field documentation of sample locations in a log book, and Chain-of-Custody forms. In addition, the Sample Coordinator was responsible for the proper field storage of samples and coordination with the Count Trailer and CST-3 for sample receiving.

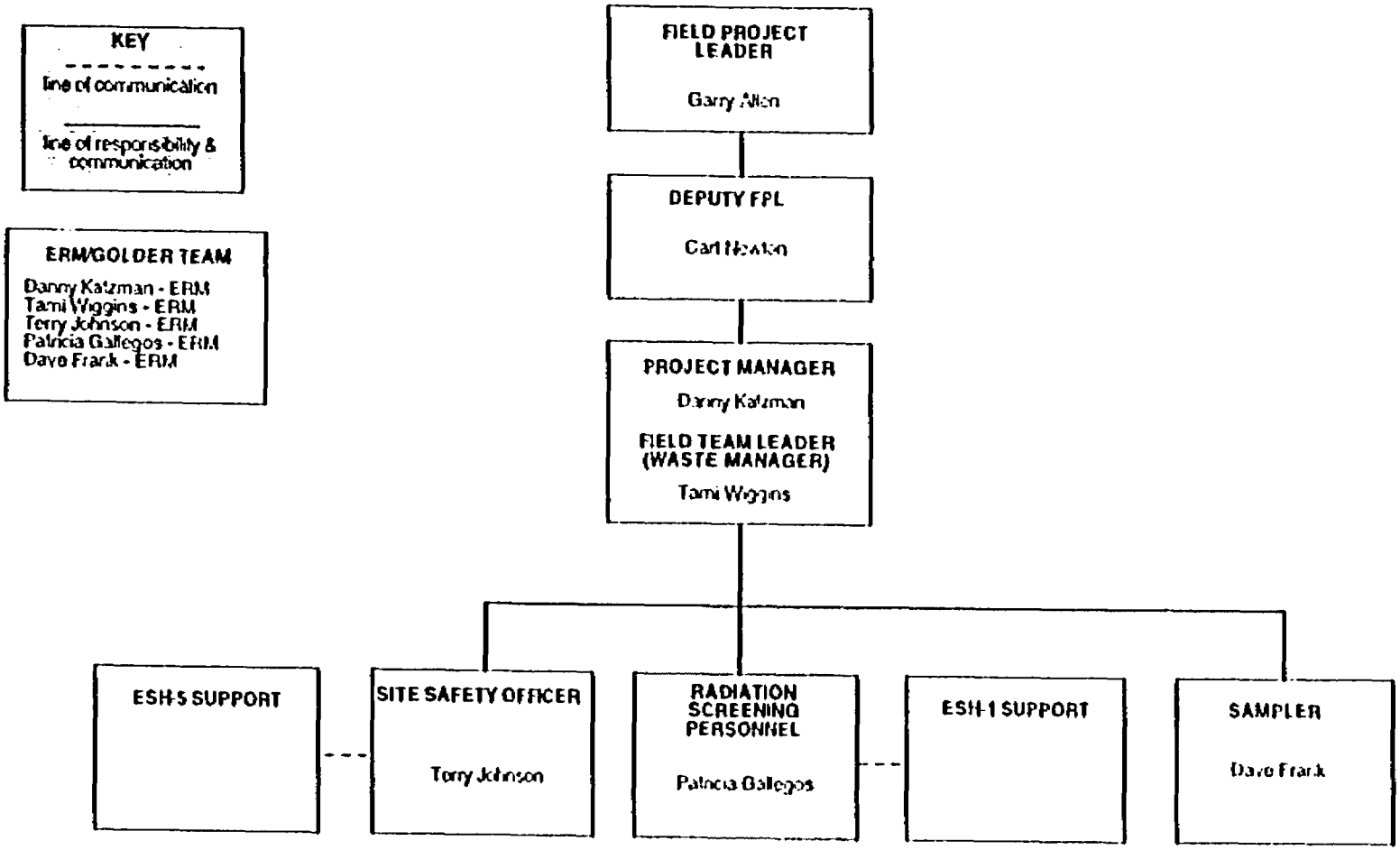


Figure 3. WSWL Location 1A Organizational Chart.

2.0 OBJECTIVES AND APPROACH

2.1 Objectives

The purpose of the investigation was to:

- locate and investigate the WSWL at Location 1A;
- collect samples in order to provide information for evaluating whether hazardous materials are present in the line;
- determine if hazardous wastes have been released to surrounding soils; and
- to classify these potential wastes.

The ultimate goal of the field activities is to collect sufficient data to determine whether the site poses a risk to human health and the environment so that a No Further Action (NFA) may be recommended, or whether further action at this site is necessary.

2.2 Approach

There were three tasks associated with the field activities at Location 1A. Task #1 was a geophysical survey of the Western Sanitary Waste Line. This survey was conducted between February 2 and 8, 1994. Location 1A was surveyed with an electromagnetic induction instrument (Geonics EM31) and a ground penetrating radar unit (GSSI SIR System 4 with 300 MHz antenna). The site was also scanned with a radiodetection unit (RD 400) in order to attempt to locate active power and communication lines and avoid them during excavation. Task #2 was conducted on February 23, 1994, and the purpose was to collect sample material from immediately above, adjacent and below the WSWL. First, a trench 20 feet long, 3 feet wide and 3 feet deep was dug with a Ditch-Witch in an attempt to locate the WSWL. When the line was not exposed, a hollow stem auger drill rig and continuous split-spoon sampler were used to drill along the linear anomaly identified during the geophysical survey. Eight boreholes, between two and six feet deep were drilled. One of the boreholes was drilled right through the center of the VCP. Nine soil samples were collected and submitted to the Rad Van to be analyzed for gross alpha, beta and gamma. These soil samples were then submitted to a fixed laboratory to be analyzed for SVOCs, PCBs, Pesticides, 12 RCRA metals listed in 40 CFR Part 261 Appendix VIII (Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl), and a full suite of isotopic radionuclides. The results of these analyses were inconclusive and were therefore not used to redefine the potential contaminants of concern (PCOCs) listed in the SAP for Task #3.

The Sampling and Analysis Plan, dated August 1993 (Appendix B), outlines the approach used to implement and complete Task #3 of the RFI Phase I Site Investigation at Location 1A. In general, this approach can be summarized as follows:

- locate and expose the WSWL by excavating trenches with a backhoe;
- sample the materials within the waste line and manholes;
- use appropriate real-time screening techniques and professional judgment to determine the need for additional sampling; and
- characterize the WSWL pipe sections for waste purposes and restore the excavated area.

The PCOCs for Location 1A were listed in the SAP as isotopic-plutonium, isotopic-uranium, and the following 12 RCRA metals: Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl. Soil samples were collected for the count trailer and submittal to a fixed laboratory to be analyzed for the isotopic-plutonium, isotopic-uranium, and 12 RCRA metal constituents. Two of the sampling locations were also selected to be analyzed for tritium.

The specific day-by-day field activities are summarized in Section 3.0, followed by a more detailed description of each of the seven trenches. All RFI activities were performed in accordance with the 1078 RFI Work Plan (LANL, May, 1992); the SAP dated August 1993, DOE and LANL directives and policies; and the LANL ER Project SOPs, except where otherwise noted.

3.0 FIELD ACTIVITIES

3.1 Overview

Field activities at Location 1A of the WSWL began on July 11, 1994 and continued through July 22, 1994, for a total of 9 working days. Figure 4 presents an overview of the seven consecutive trenches that were excavated between manhole #52 (MH52) and manhole #53 (MH53) of the WSWL at Location 1A. This figure illustrates the 70, three foot sections of vitrified clay pipe (VCP) that were exposed during the field investigation.

Samples were collected from soil and dry sludge material located inside manhole #52 and #53, and from inside the vitrified clay pipe at the joints at regular intervals. Fifteen samples were collected during the course of the field work conducted at Location 1A. Radiological screening for beta/gamma activity was performed with an Eberline ESP-1 with a GM 260 pancake probe between July 11 and 14, 1994. A Ludlum 12 with a 44-40 probe was used for beta/gamma screening between July 15 and 20, 1994. During the entire investigation, a Ludlum 139 with a 43-32 rate meter was used for surface monitoring of alpha radiation and a Ludlum 200 with a 4310 scaler was used to count swipes taken from equipment. All radiation screening devices were used in accordance with guidance provided by ESH-1. Volatile organic vapors were monitored with a HNu hand-held instrument, mercury vapor was monitored with a Jerome Mercury Vapor Analyzer and dust was monitored with a Miniram PDM-3. All samples were analyzed for the 12 RCRA metals as well as isotopic-plutonium and isotopic-uranium. Two of the sampling locations were also selected to be analyzed for tritium to verify the assumption that the contaminant would not be present. Two quality control (QC) field duplicate soil samples were collected as part of the 15 total samples collected and the QC samples were analyzed for 12 RCRA metals, isotopic-plutonium and isotopic-uranium.

3.1.1 Standard Operating Procedures (SOPs)

All samples were collected, documented, and preserved using LANL-ER-SOPs-01.01 through 01.06, General Instructions for Field Investigations; Sample Containers and Preservation; Handling, Packaging and Shipping of Samples; Sample Control and Field Documentation; Field Quality Control Samples; and Management of RFI - Generated Waste. The following sampling technique SOP was followed: LANL-ER-SOP 06.09 Spade and Scoop Method . LANL-ER-SOP-14.01 Berthold Low Alpha and Beta Activity Counter Calibration, Quality Control, Detection Limit and Use, was followed for the operation of the Berthold at the TA-59 Count Trailer.

3.1.2 Definition of Sampling Terms

The following definitions for sample material, collection methods, count trailer screening and fixed laboratory analyses are used throughout Section 3.0:

Composite sample: An adequate amount of material was collected from two or more locations at the same depth to fill sample volume requirements. This material was then homogenized using an aluminum pan and a small plastic scoop before filling sample containers.

Count trailer: A laboratory, located at TA-59, which was used for radiological screening of the pipe samples. These samples were analyzed for gross alpha and beta activity, using a Berthold instrument. The count trailer data were used to determine whether or not samples being submitted to off-site fixed laboratories for analysis would exceed LANL EM-9 building limits and fixed laboratory building limits for radioactivity.

Grab sample: An adequate amount of material was collected from one location and one depth to fill sample volume requirements.

10 Sample number

Composite sample from inside pipe

Composite sample from grout

Composite confirmation sample from under pipe

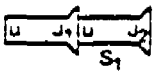
Grab sample from outside pipe

Sample location

8" clay pipe and joints between sections

Manhole

Schematic detail of pipe sections



u = upstream
S = section
J = joint

Each section is 3 ft long and 8 in. wide

Pipe sections found broken	Pipe sections broken by backhoe	
T_1S_2	T_1J_4	T_3J_{11}
T_2J_{12}	T_1J_5	T_4S_{6-7}
T_3J_3	T_1J_8	T_4J_9
T_5S_9	T_1J_7	T_5S_{5-6}
	T_1J_8	T_5S_{10}
	T_2S_4	T_6J_1
	T_2S_5	T_6J_5
	T_2S_6	T_6J_6
	T_2J_{10}	T_7S_2
	T_3S_6	T_7S_3

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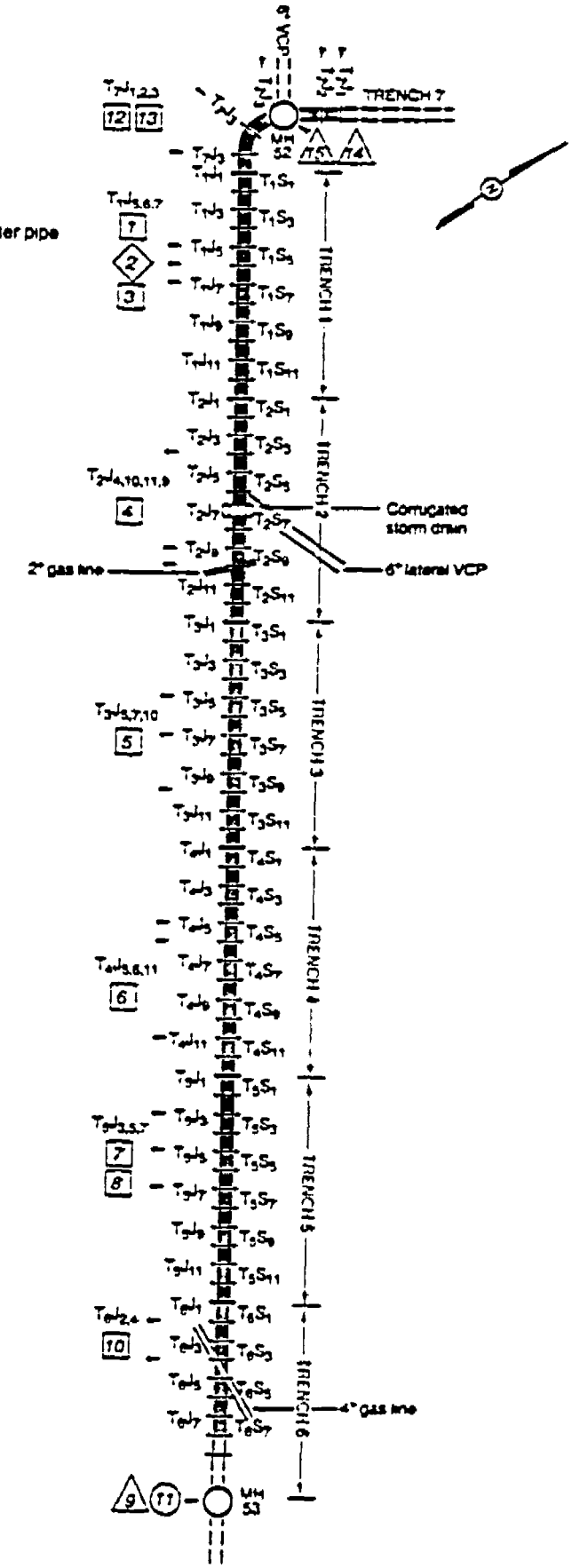

Figure 4. WSWL Location 1A.

Field Duplicate: A quality control sample that is collected at the frequency of one for every 20 soil samples collected. The method of collection is to split one sample into two identical sets of containers to be analyzed for the same constituents.

Inside pipe sample: These samples were spatial composite samples collected from soil and desiccated sewer sludge inside pipe sections using a small plastic scoop. Within each trench, material was collected from pipe sections which represented a high, medium and low field screening result for gross alpha, beta and gamma. Inside pipe samples were analyzed for RCRA metals, isotopic-plutonium and isotopic-uranium.

Pipe Section / Pipe Joint notation: Each pipe section consists of an upstream end, which is the same diameter as the section; and a bell joint on the downstream end, which is wider than the section. The RSP surveyed material at both ends of the pipe and recorded field screening activities with these notations: Trench 1, Section 12, upstream end, is written as: T1S12U, while Trench 1, Section 12, Joint end, is written as T1S12J12. Refer to the inset drawing on Figure 4 for details of pipe sections and joints.

3.1.3 Analytical Procedures

Samples collected and submitted for fixed laboratory analyses were analyzed according to the following analytical methods:

RCRA Metals - SW-846 Method 6010, 7471 and 7061 - (Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl)

Radionuclides - isotopic-Pu and isotopic-U, - ion exchange and alpha spectroscopy

Tritium - Liquid Scintillation (determination of low-energy beta)

3.1.4 Land Surveys

A geophysical survey of Location 1A was conducted on February 8, 1994. The surveyed area was approximately 40 feet by 150 feet and the baseline was positioned along the southern edge of an abandoned asphalt road. The radiodetection unit did not locate any active power or communication lines crossing the WSWL. The GPR and EM31 surveys both indicated a non-metallic anomaly trending in an east-west direction. Based on excavation activity results, this anomaly was determined to be the WSWL (ERM/Golder, 1994).

3.1.5 Decontamination Procedures

In accordance with the LANL-ER-SOP-01.08, Field Decontamination of Sampling and Drilling Equipment, all field equipment was dry-decontaminated after each use with paper towels and Fantastik®. All equipment used during field activities was released upon completion of decontamination in accordance with LANL-LP107-04.0, Documenting Equipment and Item Removal, which meets requirements of the LANL Radiological Control Manual and DOE Order 5400.9. Equipment that was rented or intended for reuse at a later date was documented as meeting the criteria for uncontrolled release. The appropriate release forms are provided in Appendix C. Disposable field sampling equipment and PPE were discarded in 55-gallon drums as discussed in section 5.1.

3.2 Summary of Excavation and Sampling Activities

The field activities at Location 1A of the WSWL took place between July 11, 1994 and continued through July 22, 1994, for a total of 9 working days. Daily Field Activity Reports are included in Appendix A and field log books are included in Exhibit A. The field work was performed in accordance with the RFI Work Plan (LANL, May 1992), the Laboratory's Environmental Restoration (ER) Project, and approved subcontractor procedures.

Each trench was excavated to uncover 12, three-foot sections of VCP at a time, with the exception of the last two trenches. Trench 6 was composed of 7 sections of pipe and Trench 7 was composed of only three sections of pipe. After the entire length of pipe in a trench was uncovered, radiological field screening was conducted along the outside of the pipe and surrounding soil and the results were recorded in the RSP's logbook. Then the 3-foot pipe sections were separated from each other and rotated 45 degrees to allow the insides to be screened and sampled.

Table 1 presents all sample collection data including the sample reference number, the sample collection date and time, the sample ID number (AAB#), FIMAD Location ID number, the associated pipe sections, the sample type and the fixed laboratory analyses requested. A photographic log with an explanation of each photo is provided in Exhibit B. Copies of the Sample Collection Logs and Chain-of-Custody Forms are included in Appendix D and E, respectively. Figure 4 is a schematic of Trenches 1 through 7 showing the location of pipe sections and location of samples. Cracks and breaks found in the pipe and/or resulting from backhoe activities are also illustrated in Figure 4. Tables 2 through 9 in Section 6.1.1 through Section 6.1.8 present all the field screening data for the excavation trenches.

Composite soil samples were collected from three sections of pipe in all but one trench using disposable plastic scoops and aluminum pans. In Trench 6, a composite sample of two sections of pipe was collected. Sections for sampling were selected by determining which sections measured the highest, lowest and middle radiation levels using a hand-held beta/gamma field monitoring instrument. A fine network of roots was often found in the joints of the pipe. After samples were collected, all of the pipe sections were labeled T(1-7)J1 through T(1-7)J12 and photographed, double wrapped in 6-mil plastic and sealed with duct tape. The wrapped pipe sections were then placed in a lined dump truck which was secured on-site. After removal of the pipe sections, the bottom of the trenches were screened using hand-held radiation and organics monitoring devices, readings were determined to be below background levels on the sides and bottom of the trench, and the trenches were backfilled. At the completion of field activities, the entire area was re-graded to restore the original topography.

3.2.1 Trench 1

The first trench was excavated over the course of two days, July 11 and 12, 1994. Trench 1 was excavated eastward beginning approximately 8.5 feet east of MH 52. The depth from ground surface to the top of the pipe was approximately 3 feet 9 inches. Twelve 3-foot sections of VCP were uncovered and the surface was screened with hand-held radiation monitoring instruments; no elevated beta/gamma readings were detected. Inspection of the pipe yielded the following observations:

- The second section of pipe had a round drill hole in it. This hole was caused by the pre-characterization drilling conducted during Task #2 after the geophysical investigation identified a linear anomaly in this location;
- The fourth, sixth, seventh, and eighth joints were cracked slightly as a result of backhoe activity;
- The fifth section was in several pieces due to previous installation of an air monitoring port; This port and associated surface casing were carefully removed;
- The fourth section, as a consequence of previous installation of the air monitoring port in the fifth section, was broken where it connected to the fifth section;
- The rest of the exposed pipe sections and joints were intact.

On July 12, 1994 ESH-1 personnel monitored joint 7 of Trench 1 and found 5300 counts per minute (cpm) beta/gamma. Based on these field screening results, a Radiation Work Permit (RWP) was issued that required personnel in the trench to tape all seams of their disposable coveralls shut with duct tape and to wear two pairs of gloves.

Table 1 - Sample Collection Data

Reference Number	Date Collected	Time Collected	Sample ID Number	FIMAD Location ID Number	Trench Number and Pipe Joints Sampled	Sample Type	Analyses Requested *
1	7/12/94	1615	AAB6098		T1 J 6, 8, 5	composite	~~metals, rads~~ tritium
2	7/12/94	1615	AAB6096		T1, J 5, 6, 8	composite	grout - count trailer analysis
3	7/12/94	1615	AAB6094		T1, J 6, 8, 5	composite	metals, rads
4	7/12/94	1745	AAB6085		T2, J 4, 10, 11, 9	composite	metals, rads
5	7/13/94	1045	AAB6100		T3, J 7, 5, 10	composite	metals, rads
6	7/13/94	1415	AAB6084		T4, J 5, 6, 11	composite	metals, rads
7	7/13/94	1600	AAB6083		T5, J 3, 5, 7	duplicate composite	metals, rads
8	7/13/94	1600	AAB6089		T5, J 3, 5, 7	composite	metals, rads
9 10	7/14/94	1415	AAB6091		End of T6	grab	metals, rads
10 9	7/14/94	1700	AAB6093		T6, J 2, 4	composite	metals, rads
11	7/14/94	1745	AAB6090		MH 53, end of T6	grab	metals, rads
12	7/15/94	1015	AAB6088		T7, J 1, 2, 3	composite	metals, rads
13	7/15/94	1015	AAB6095		T7, J 1, 2, 3	duplicate composite	metals, rads
14	7/15/94	1115	AAB6092		MH 52 - under bottom slab	grab	metals, rads
15	7/15/94	1115	AAB6087		MH 52 - under bottom slab	grab	tritium

*

Metals: 12 RCRA metals (Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl)
Rads: isotopic plutonium and isotopic uranium.
Count Trailer: gross alpha/beta analysis using the Berthold instrument.

Sections 5, 6, and 8 were selected for sampling based on the measured high, medium and low radiation levels for Trench 1. Three samples were collected; two were of soil and one of grout from between the pipe joints. The first soil sample was submitted to a fixed laboratory to be analyzed for metals, isotopic-uranium and isotopic-plutonium. The second soil sample was submitted to a fixed laboratory to be analyzed for tritium and the grout sample was submitted to the Count Trailer to be analyzed for gross alpha and beta using the Berthold.

3.2.2 Trench 2

The second trench was excavated on July 12, 1994. During the excavation of this trench, the second set of 12 three-foot sections of VCP was uncovered. In addition, a 6-inch WSWL lateral and a corrugated metal drain pipe above both the lateral and the WSWL VCP was exposed. The depth from the ground surface to the top of the WSWL was approximately 2 feet, 5 inches. The lateral connected to section 6 and was found broken into pieces up to the first joint (a length of about 2 feet). A wooden plug was observed at this joint and was left in place in the pipe. Pieces of the lateral were inserted inside section 6 and section 7 before the sections were wrapped and removed from the trench. The drain pipe was located above the sixth section of the VCP and was removed. At the ninth section, a 1 foot, 5 inch diameter metal pipe was encountered. After it was determined that the metal pipe was a "dead" gas line, it was cut and bent back so trenching could continue.

Sections 4,9,10 and 11 were selected for sampling based on low, medium and high radiological field screening. Refer to Table 1 for sample collection information. A few small cracks and holes were found in the WSWL and are described in an inset table in Figure 4.

3.2.3 Trench 3

Trench 3 was excavated on July 12, 1994 and field screening, sampling and removal of the pipe sections occurred on July 13, 1994. Twelve 3-foot sections of VCP were uncovered and the pipe surface was screened with hand-held radiation monitoring instruments; no elevated beta/gamma readings were detected. Dust suppression activities using water hoses commenced with the excavation of Trench 3, at the advice of the SSO to control potential airborne contamination. The procedure for handling the pipe sections was the same as the previous two trenches. Notably, a white "lint-like" substance was noted at joints 4, 10, 11, and 12.

3.2.4 Trench 4

Trench 4 was excavated on July 13, 1994. Twelve 3-foot sections of VCP were uncovered and the pipe surface was screened with hand-held radiation monitoring instruments; no elevated beta/gamma readings were detected. No unexpected events occurred.

3.2.5 Trench 5

Trench 5 was excavated on July 13, 1994 and contained a 4-inch gas line at the east end which was found to be "dead" by JCI personnel. This pipe, constructed of 1/4-inch steel, was left in place. Twelve 3-foot sections of VCP were uncovered and the pipe surface was screened with hand-held radiation monitoring instruments; no elevated beta/gamma readings were detected.

3.2.6 Trench 6 and MH 53

Trench 6 was excavated on July 14, 1994. The WSWL VCP was located at least 8 feet below ground surface (bgs) after the seventh and final section of pipe was removed. The proximity of the trench to the adjacent condominiums made it impossible to retain the proper bench height/width ratio of the trench for safety requirements. The pipe sections were removed one at a time because an inactive gas line crossed

the WSWL at an angle and added to the difficulty of the backhoe operations in that area. After the last section was removed from Trench 6, the backhoe located MH 53 six feet further east along the WSWL.

The concrete cover slab of Manhole 53 was uncovered approximately 6 feet deep bgs; the manhole itself was constructed of brick. The manhole contained approximately 1 foot of material and the inlet as well as the outlet were visible and had not been plugged. Since the bottom of the manhole was another 8 feet below the lid, for a total 14 feet bgs, entry was not possible due to safety concerns. A sample was collected from material scraped from the concrete on the bottom of the manhole using a plastic scoop attached to a pole. It was not possible to remove the manhole as was planned due to safety concerns and the limited space for maneuvering. The concrete manhole cover slab was removed, wrapped and stored in the same manner as the pipe sections. The manhole was broken up, collapsed and covered with clean fill from trenching activities.

3.2.7 Trench 7 and MH 52

Trench 7 and MH 52 were excavated on July 15, 1994. The following materials were screened and removed from Trench 7: one 3-foot section of pipe, an "elbow" joint, and a 1-foot connector pipe from east of the manhole; two 3-foot sections from north of MH52; and MH52. The interior of the WSWL at T7S1 was screened at 3000 cpm beta/gamma, where removal for characterization ceased. The excavation of the pipe further north past T7S1 and T7S2 was not possible due to physical obstruction by a tree.

MH52 was not covered with a slab and was already filled with sand. After the sand was removed by the backhoe, the brick manhole was broken up into physically manageable pieces. These pieces were screened with a hand-held beta/gamma detector after removal from the trench; readings were at or below background. Each piece was then double-wrapped in 6-mil plastic and labeled. Examination of the base of MH52 showed that the 8-inch inlet on the east side and the 8-inch outlet on the north side was plugged with cement. From the excavated area around the outside of MH52, a 6-inch inlet was observed on the west side (the inside of which was unobstructed for at least 25 feet). Next to the 8-inch western inlet was a 4-inch steel pipe passing through the manhole; this pipe was plugged with cement. A sample was collected from material scraped from the concrete on the bottom of the manhole. The base was broken into three pieces by the backhoe, broken further by a jackhammer, and then wrapped and labeled.

3.3 Deviations from the RFI Work Plan and SAP

It was not possible to remove MH 53 as was planned due to safety concerns; these concerns were primarily due to the inability to shore the trench properly (due to the 14 foot depth of the manhole) and to the limited space for maneuvering the backhoe. The concrete manhole cover slab was removed and was wrapped and stored in the same manner as the pipe sections. The manhole was field screened with radiological field instruments; no readings above background levels were detected. MH 53 was then broken up using the backhoe, collapsed, and covered with clean fill from trenching activities.

On the first day of field activities alpha screening was performed on the pipe sections and was used to screen equipment out of the exclusion zone. Field screening for alpha was performed with a Ludlum alpha meter equipped with a Scintillation Probe. After the first day of field activities, alpha screening with the Ludlum meter was discontinued. The field team relied on the Berthold results from the Count Trailer for measurements of alpha activity on pipe sections after removal from the trench. This decision was made based on time constraints, rainy weather and the reliability of results obtained using the Ludlum alpha meter. All other procedures were followed as described in the RFI Work Plan (LANL, May, 1992), and SAP (August, 1993).

4.0 HEALTH AND SAFETY

4.1 Overview

The health and safety program established for the SAP at Location 1A meets the requirements listed in 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, the LANL Radiological Control Manual (LANL, LM107-01), and the LANL Environmental Restoration Project. Work was performed in accordance with the requirements outlined in the SSHASP (Exhibit C). The SSHASP specified all health and safety-related protocols and procedures to be followed when working on the site, including type and frequency of monitoring and roles and responsibilities of project personnel. Field operations were performed in Level D personal protective equipment (PPE), which included steel-toed safety shoes; coveralls; and cotton glove liners covered by latex gloves, and also covered by leather work gloves if necessary; hard-hats; and safety glasses. This level of PPE was modified after an RWP was activated on July 12, 1994, due to levels of beta/gamma radiation above the action limit. The RWP required that all personnel in the trench or handling the pipe wear disposable coveralls with seams taped. All personnel wore thermoluminescent dosimeter (TLD) badges and completed all LANL-required training applicable to the site. In addition to the RSP and the SSO, periodic health and safety support and oversight was provided by ESH-5, Industrial Hygiene and Safety, and ESH-1, Health Physics Operations. A description of instruments, calibration, and health monitoring performed during field activities follows.

4.2 Daily Tailgate Health and Safety Briefings

Daily health and safety briefings were conducted by the SSO for all on-site project personnel, including JCI personnel. The daily briefings were documented on LANL Tailgate Safety Meeting Forms and are retained in the project records; copies are in Appendix F. Daily briefing discussions included the potential site-specific hazards, observations from previous activities, and identification of the muster area. There were no reports of personnel exposure or injuries associated with the site activities.

4.3 Organic Vapor and Mercury Vapor Monitoring

The breathing zone of site workers and potential sample locations were screened by the SSO for volatile organic constituents using an HNu meter, model DL-101 and a Jerome Mercury Vapor Analyzer for mercury. The HNu and Jerome Analyzer were calibrated twice per day according to the manual specifications, using 100 parts per million (ppm) isobutylene and zero air, respectively. These calibrations were conducted prior to mobilization to the field and again at the completion of daily field activities. Periodic instrument checks were also performed during field operations at the discretion of the SSO or in accordance with the requirements cited in the SSHASP. Organic vapor and mercury vapor monitoring calibration and field data were recorded on Core Instrument Survey Logs and Direct Reading Air Sampling Forms; copies are found in Appendix G. There were no concentrations of volatile organic or mercury vapor constituents detected above background during the Site Investigation at Location 1A of the WSWL.

4.4 Aerosol Field Monitoring

Real-time aerosol field monitoring was conducted in the active work area, including the breathing zone of the site workers and within the trenches using a hand-held, Mie-PDM-3 Miniram. The Miniram was calibrated prior to mobilization to the field at the beginning of each day according to the manual specifications; the calibration was also checked at the close of daily field activities. Appropriate dust suppression techniques began on July 12 1994 and were utilized as presented in the SSHASP. Aerosol field monitoring calibration and field data were documented on Real-Time Aerosol Field Monitoring Data Forms; copies are in Appendix G.

4.5 Health Physics (Radiation) Monitoring

Radiation field screening consisted of taking background readings around the site with hand-held instruments, and then screening sample material, equipment, and personnel as they exited the area. Background readings were taken at the beginning of each day in an area on-site but outside of the active work area. Five readings were taken and then averaged. The contamination criteria (CC) was then determined by calculating two standard deviations of the average background reading, or by adding the minimal detectable count rate to the average background. The minimal detectable count rate is determined by applying a standard equation during the daily calibration. For example, if the average background is 162 cpm then the contamination criteria is calculated to be 203 cpm.

Routine radiation surveys were conducted on all of the excavation equipment such as the backhoe, dump truck, shovels, hoses, and sampling equipment as it left the area. Equipment used during field work was screened with the Eberline ESP-1 equipped with a GM 260 pancake probe or a Ludlum 12 with a 44-40 probe, and then swiped and counted using an alpha tray counter before the equipment was released from the exclusion zone at the end of field activities. Additionally, all personnel were routinely screened upon exiting the exclusion zone. These screening instruments were utilized throughout the field operation according to the requirements presented in the SSHASP. The radiological screening instruments were calibrated twice per day, at the beginning and at the close of daily field activities, according to the manual specifications. Periodic instrument checks were also performed during field operations at the discretion of the SSC or in accordance with the requirements cited in the SSHASP. Radiological calibration and field screening data and personnel screening data were recorded on Direct Survey Result Forms and Personnel Frisk Record Forms, and copies of this documentation are in Appendix H and I, respectively.

No levels above background were detected on any of the equipment swipes or on any personnel leaving the exclusion zone. Swipe results were recorded on Large Area Direct Reading Forms and are included in Appendix H.

5.0 WASTE MANAGEMENT

All potentially regulated wastes generated during the Site Investigation at Location 1A were generated within the guidelines set forth in LANL-AR-10-8, Waste Minimization and are being managed in accordance with LANL-ER-AP-05.3, Management of Environmental Restoration Project Wastes. In addition, all waste management procedures followed at this site were outlined in the Site-Specific Waste Management Plan (Exhibit D).

5.1 Waste Segregation

All wastes were segregated, containerized, and documented in the FTL's field log book in accordance with the Site-Specific Waste Management Plan. A total of five, 55-gallon drums and 70 three-foot sections of VCP waste were generated during this investigation. The waste was segregated and containerized by waste stream as follows: one drum contains PPE (disposable coveralls, cotton and latex gloves, duct tape, and earplugs) and sampling equipment (paper towels, plastic scoops, tape, paper, and plastic bags); three drums contain plastic that was used to line the dump truck; and one drum contains liquids generated from hand-wash water.

The 70 three-foot sections of VCP were individually double-wrapped in 6-mil plastic and then labeled and placed in a dump truck for transport to the Sigma Mesa <90 day storage area. The slab from the top of MH 53 and the bricks and base of MH 52 were wrapped and labeled in the same manner as the pipe sections and are also being stored in the Sigma Mesa < 90 day storage area.

5.2 Waste Labeling and Tracking

One liquid waste drum, one PPE solid waste drum, three waste drums containing plastic sheeting, the 70 pipe sections and manhole debris were transported on July 18 and 20, 1994 from the on-site staging area to the <90 day storage area at Sigma Mesa. The EPA Provisional Waste Generator ID Number obtained from ESH-8, Environmental Protection, for transportation of wastes on July 18, 1994 was NMP 3600-40785. The EPA Provisional Waste Generator ID Number for July 20, 1994, was NMP 3600-40797. The dose rate on the truck was 0.2 mR/hr on July 18, and was 0.1 mR/hr on July 20, 1994. Copies of the Radioactive Material Transfer forms for these shipments are included in Appendix J.

Due to the potential of generating RCRA-regulated wastes during this Site Investigation, all wastes associated with the investigation are currently being stored at the registered <90-day storage area at Sigma Mesa. All drums and containers were labeled to describe the contents, the generation date, the pending analyses with a copy of the Chain of Custody enclosed, and the name and phone number of the waste generator. A trained employee from JCI performs the required weekly inspection of the storage area and submits required weekly inspection reports to the LANL ESH-19 representative.

5.3 Waste Disposal

In addition to knowledge of process (KOP), Count Trailer and fixed laboratory analytical results from soil samples will be used to determine the appropriate method of disposal for excavated soils, plastic sheeting, PPE, and sampling equipment. Upon receipt of waste-stream analytical results, waste profile forms for the waste drums will be drafted for the ER Waste Management Coordinator's review and approval, and the waste will be managed and disposed of in an appropriate manner. If analytical results indicate that a portion of the wastes require special storage or disposal requirements, then that portion will be segregated and managed separately. Liquid waste material may be treated and disposed at TA-50. Radioactively contaminated materials will remain at the waste storage area in drums and will be characterized for transport to a waste management facility. RCRA-contaminated materials will be retained at the waste storage area in drums and will be characterized for transport to a waste management facility.

6.0 PRELIMINARY RESULTS

Analytical results from samples submitted to off-site laboratories will be presented in the RFI Phase I Site Investigation Report. These results are currently being validated and will assist in determining whether this aggregate and associated SWMUs (1-001(s) and 1-001(u)) can be recommended for no further action or whether additional activities are required. Additional activities may include Phase II sampling, risk assessments, voluntary corrective actions, or an expedited clean-up. Validated analytical laboratory data will be provided directly to the FPL for evaluation and interpretation; these data will also be entered into the FIMAD database. Preliminary findings for this RFI activity are presented in Sections 6.1 and 6.2 and are based on field observations and screening data only.

6.1 Field Screening Results

Radiological screening for beta/gamma was performed with an Eberline ESP-1 equipped with a GM 260 pancake probe or a Ludlum 12 with a 44-40 probe. On the first day of field activities alpha screening was performed on the pipe sections in Trench 1 and was used to screen equipment out of the exclusion zone. Field screening for alpha was performed with a Ludlum 1239 Alpha meter equipped with a 43-32 rate meter probe. After the first day of field activities, alpha screening with the Ludlum meter was discontinued. The field team relied on the Berthold results from the Count Trailer for measurements of alpha activity on pipe sections after removal from the trench. This decision was made based on time constraints, rainy weather and the reliability of results obtained using the Ludlum alpha meter. All equipment used on-site was screened prior to release at the close of field activities; no levels of alpha, and beta/gamma radiation above background were detected on any equipment. Field radiation screening results for each pipe section are reported by trench in the following sub-sections. Values are presented for both ends of each pipe section; the upstream end and the bell-joint end. Low readings were generally detected on the outside of the pipe and high readings were generally detected at the ends of each section where sediments settled into the bell joints. The highest readings were found inside the joints where yellow, or yellow-orange colored sediment was discovered. No levels above background were detected for organics or mercury vapor using hand-held monitoring equipment.

6.1.1 Trench 1

The highest beta/gamma reading detected with an Eberline ESP-1 in Trench 1 of 5,150 cpm beta/gamma was measured by the RSP in a localized spot on the west end of the bell joint of Section 7. This reading exceeded the present action level as defined in the SSHASP and ESH-1 was contacted. Once ESH-1 representatives arrived on-site, a representative measured 5,300 cpm beta/gamma with a hand-held beta/gamma instrument and a radiation work permit (RWP) was issued. The RWP required that personnel in the trench tape up all seams of their disposable coveralls.

One composite sample was collected from soil/desiccated sludge from inside pipe sections in Trench 1 from the following areas of high, medium and low radiation levels:

High : T1J6 = 5150 cpm
Medium: T1J5 = 2250 cpm
Low: T1J8 = 300 cpm

Table 2a - Trench 1 Field Screening Results for Joints 1 through 6

Background: 280 cpm beta/gamma
<17 cpm alpha
Contamination criteria:
330 cpm beta/gamma

Date Location Screened	Location	Comments	Screening Result Beta/ Gamma (cpm) upstream / joint
7/11/94	S/J 1		725 / 419
	S/J 2		350 / 736
	S/J 3		616 / 350
	S/J 4		380 / 2250
	S/J 5	section broken up	2500
	S/J 6	moist inside pipe	3120 / 5150

Table 2b - Trench 1 Field Screening Results for Joints 7 through 12

Background: 280 cpm beta/gamma
<50 cpm alpha
Contamination criteria:
330 cpm beta/gamma

Date Location Screened	Location	Comments	Screening Result Beta/ Gamma (cpm) upstream / joint
7/12/94	S/J 7	moist inside pipe	580 /390
	S/J 8		500 / 300
	S/J 9		440 / 440
	S/J 10		420 / 700
	S/J 11		340 / 330
	S/J 12		350 / 800

6.1.2 Trench 2

Sections of the pipe in Trench 2 contained orange-yellow stained sediment which gave readings that were higher than roots and sediment found inside the joints when screened separately. Section 4 had the highest reading of all pipe sections in Trench 2 with a reading of 4950 cpm beta/gamma. One composite sample was collected from material inside pipe sections from Trench 2 from the following areas of high, medium and low radiation levels:

High : T2J4 = 4950 cpm
Medium: T2J10 = 1300 cpm
Low: T2J9,11 = 350-430 cpm

Background: 280 cpm beta/gamma
<50 cpm alpha
Contamination criteria:
300 cpm beta/gamma

Table 3 - Trench 2 Field Screening Results

Date	Location	Comments	Screening Result Beta/ Gamma (cpm) upstream / joint
7/12/94	S/J 1		260 / 1000
	S/J 2	roots outside	740 / 1030
	S/J 3	roots outside	740 / 1300
	S/J 4	orange-yellow soil/roots	480 / 4950
	S/J 5		3010 / 380
	S/J 6		700 / 850
	S/J 7		420 / 350
	S/J 8		430 / 600
	S/J 9		500 / 430
	S/J 10		1000 / 1300
	S/J 11		350 / 350
	S/J 12		600 / 400

6.1.3 Trench 3

Section 7 of Trench 3 had a high reading of 5000 cpm beta/gamma inside the middle of the pipe section where the sediment was a yellow-orange color intertwined with some roots. One composite sample was collected from material inside pipe sections in Trench 3 from the following areas of high, medium and low radiation levels:

High : T3J7 = 5000 cpm
Medium: T3J5 = 1400 cpm
Low: T3J10 = 350 cpm

Background: 270 cpm Beta/Gamma
<70 cpm Alpha
Contamination Criteria:
320 cpm beta/gamma

Table 4 - Trench 3 Field Screening Results

Date	Location	Comments	Screening Result Beta/ Gamma (cpm) upstream / joint
7/13/94	S/J 1	outer and inner sediment	700 / 450
	S/J 2	yellow sediment and roots	700 / 1300
	S/J 3	sediment in VCP	750 / 500
	S/J 4	white fiber on roots	500 / 1900
	S/J 5	yellow sediment	1400 / 300
	S/J 6	yellow sediment	500 / 1130
	S/J 7	orange-yellow sediment/roots	5000 / 700
	S/J 8	brown sediment with roots	700 / 400
	S/J 9	dark brown sediment/roots	600 / 480
	S/J 10	roots with white fiber/ sediment	350 / 350
	S/J 11	roots with white fiber, yellow sediment on lip	400 / 1500
	S/J 12	yellow sediment under roots	400 / 900

6.1.4 Trench 4

The side-walls of Trench 4 had a screening result of 200-300 cpm beta/gamma. The soil was dry with no discoloration over the broken joint of section 8 and section 6 (200-400 cpm beta/gamma). The high reading of 10,100 cpm beta/gamma was found in section 11 in sediment under a root mat within the pipe. One composite sample was collected from material inside pipe sections in Trench 4 from the following areas of high, medium and low radiation levels:

High : T4J11= 10100 cpm
Medium: T4J5 = 3800 cpm
Low: T4J6 = 300-500 cpm

Background: 270 cpm Beta/Gamma
<70 cpm Alpha
Contamination Criteria:
320

Table 5 - Trench 4 Field Screening Results

Date	Location	Comments	Screening Result Beta/ Gamma (cpm) upstream / joint
7/13/94	S/J 1	yellow-orange sediment / roots	3000 / 1100
	S/J 2	brown sediment	800 / 700
	S/J 3	yellow sediment at lip / roots	1000 / 1000
	S/J 4	yellow sediment	1500 / 1500
	S/J 5	yellow sediment	3800 / 500
	S/J 6	dry sediments	500 / 300
	S/J 7	yellow and brown sediments	2150 / 800
	S/J 8	yellow sediment	2150 / 2240
	S/J 9	orange-yellow sediment	2300 / 2050
	S/J 10	orange-yellow sediment	2100 / 1700
	S/J 11	yellow under roots	10100 / 1900
	S/J 12	brown and yellow sediment	5000 / 800

6.1.5 Trench 5

Due to the presence of rain, the soils on Trench 5 walls and pipe sections were moist during beta/gamma screening activities. One composite sample was collected from material inside pipe sections of Trench 5 from the following areas of high, medium and low radiation levels:

High : T5J5= 8100 cpm
Medium: T5J3 = 1100 cpm
Low: T5J7 = 300 cpm
No readings above 500 cpm beta/gamma were found outside the pipe.

Background: 270 cpm Beta/Gamma
<70 cpm Alpha
Contamination Criteria:
320

Table 6 - Trench 5 Field Screening Results

Date	Location	Comments	Screening Result Beta/ Gamma (cpm) upstream / joint
7/13/94	S/J 1	thick roots, yellow sediment	1650 / 300
	S/J 2	dark soil	400 / 500
	S/J 3	lighter than topsoil	1100 / 200
	S/J 4	yellow-orange sediment	1100 / 300
	S/J 5	broken section filled with soil/yellow on lip	250 / 8100
	S/J 6	orange/yellow sediment at bottom	6300 / 1100
	S/J 7	roots/sediment	400 / 800
	S/J 8	roots/sediment	600 / 500
	S/J 9	little sediment	400 / 300
	S/J 10	yellow-orange in joint	1700 / 350
	S/J 11	yellow-orange in joint	350 / 3000
	S/J 12	minimal roots	450 / 350

6.1.6 Trench 6

The range of readings on the floor and walls of Trench 6 was between 200-400 cpm beta/gamma. Section 1 was found cracked, but no readings above background were discovered on its exterior. The highest reading of 4500 cpm beta/gamma was found inside the pipe in Trench 6 in dark sediment and roots at the lip of the bell joint. One composite sample was collected from material inside pipe sections of Trench 6 from the following areas of medium and low radiation levels:

Medium: T6J2 = 2100 cpm
Low: T6J4 = 200-300 cpm

Background: 280 cpm Beta/Gamma
<100 cpm Alpha
Contamination Criteria:
320

Table 7 - Trench 6 Field Screening Results

Date	Location	Comments	Screening Result Beta/ Gamma (cpm) upstream / joint
7/14/94	S/J 1	sediment / roots	2600 / 200
	S/J 2	yellow on rim	2100 / 450
	S/J 3	sediment in lip	1000 / 3700
	S/J 4	dark root mat	300 / 1100
	S/J 5	broken pipe, dark sediment/roots	400 / 4500
	S/J 6	dark sediment /roots	600 / 3000
	S/J 7	dark sediment in joint to MH 53	300 / 3000

6.1.7 Trench 7

Trench 7 is the section of pipe that connects Trench 1 with MH 52. Sections 1 and 2 of the pipe were crushed but did not have any readings above 450 cpm beta/gamma on the outside. Section 1, the northernmost section heading out of MH 52, had the highest readings between 1000-2000 cpm beta/gamma for Trench 7. One Composite sample was collected from the three pipe sections.

Background: 300 cpm Beta/Gamma

Table 8 - Trench 7 Field Screening Results

Date	Location	Comments	Screening Result Beta/ Gamma (cpm) upstream / joint
7/15/94	S/J 1	sediment / roots	1000 / 2000
	S/J 2	loose soil	400 / 400
	S/J 3	sediment / roots	200 / 600

6.1.8 MH 52 and MH 53

Background: 300 cpm Beta/Gamma

Table 9 - MH 52 Field Screening Results

Date	Location	Comments	Screening Result Beta/ Gamma (cpm)
7/15/94	Brick		200-300
	Base underside		200-300
	Base topside	some yellow on cement/ roots	200-400
	soil at bottom		300
	10 paces east	turned over soil	300
	20 paces east	"	280-300
	30 paces east	"	250
	40 paces east	"	250-350
	50 paces east	"	250-300
	60 paces east	"	250-350
	70 paces east	"	280
	80 paces east	"	250

A grab sample was collected from the bottom of MH 52 for tritium, radioisotopes and metals analysis. MH 53 had a reading of 200-400 cpm beta/gamma for soil on the exposed bottom.

6.2 Count Trailer Analysis Results

The count trailer was used for two purposes: 1) as a screening tool to verify trends observed in field screening operations with hand-held instruments; and 2) to provide data that was required by CST-3, Sample Receiving, to determine whether or not samples being sent off-site for fixed laboratory analysis would exceed LANL EM-9 building limits and fixed laboratory building limits for radioactivity.

A Berthold LB770 was used to analyze the samples for gross alpha and beta radiation. Gross gamma was not analyzed because gross alpha measured by the Berthold is a more accurate indicator of the presence of isotopic uranium and isotopic plutonium, the two radiological PCOCs. Statistical error, as reported by CST-9 for the Berthold LB770, is a percentage value equal to three standard deviations of the mean of the samples run. Radiation screening results from the TA-59 count trailer ranged between 3.7 and 475.5 pCi/g alpha and 12.3 and 666.8 pCi/g beta. Table 10 presents the count trailer results obtained for these samples.

Table 10 - Count Trailer Results

Ref. Num.	Sample ID Number	Location	Alpha pCi/g	% Error	Beta pCi/g	% Error
1	AAB6098	T1; J5,6,8 sediment	243.2	16.9	386.8	5.79
2	AAB6096	T1; J 5,6,8 grout	43.1	42.6	7.98	>100
3	AAB6094	T1; J5,6,8 sediment	277.6	15.1	666.8	4.22
4	AAB6085	T2; J4,10, 11, 9	475.5	11.6	182.5	9.46
5	AAB6100	T3; J5,7,10 sediment	148.0	22.9	169.0	9.67
6	AAB6084	T4; J5,6,11 sediment	231.0	17.2	2092	2.41
7	AAB6083	T5; J 3, 5,7 sediment	2.19	>100	21.6	46.1
8	AAB6089	T5; J3,5,7 sediment	4.37	>100	24.7	37.1
9	AAB6093	T6, J2,4 sediment	77.0	30.9	73.8	16.5
10	AAB6091	end of T6 sediment	22.5	67.6	34.8	31.1
11	AAB6090	MH 53 sediment	20.2	not available	45.8	not available
12	AAB6088	T7; J1,2,3 sediment	12.8	98.1	17.7	48.8
13	AAB6095	T7, J1,2,3 sediment	9.23	>100	18.4	51.6
14	AAB6092	MH 52 sediment	3.72	>100	20.5	44.6
15	AAB6087	MH 52 slab bottom	5.61	>100	12.3	71.6

7.0 CONCLUSIONS

Field activities at Location 1A of the WSWL were completed in support of the 1078 RFI Work Plan (LANL May, 1992). The Task #1 geophysical investigation conducted in February, 1994, was successful in locating the WSWL. The Task #2 pre-characterization drilling and sampling activities conducted were successful in sampling soil in the trench surrounding the WSWL. This success was shown in the case of one borehole at Location 1A, where drilling occurred right through the center of a section of VCP, which was indicated as a linear anomaly by the geophysical survey. Task #3 sampling operations were performed in July, 1994, in accordance with the SAP and applicable LANL procedures for sample collection and handling. During the nine days of field work, 15 samples were collected and submitted to the count trailer for initial radiation screening and were then submitted to the fixed laboratory for analyses. All equipment was demobilized from the site on July 22, 1994.

Field screening for beta/gamma radiation was continuously performed during the field investigation using hand-held radiological instruments and dust, mercury, and organics monitoring instruments, with the support from the Count Trailer for alpha radiation analysis. The field screening data was an integral part in field team decision-making and has been submitted as part of this report. As discussed in the previous section, field radiological screening and Berthold results did reveal potential radiological contaminants inside the pipe sections that exceed LANL SALs. The bottom of the trenches were screened with a hand-held beta/gamma instrument after pipe sections were removed; no readings above background levels were detected in any of the trenches prior to backfilling.

Once all sample analytical data is received, it will be utilized to further assist in confirming the field screening data. Those data will be validated upon receipt from the off-site analytical laboratories. Draft Waste Profile Forms will be processed once the analytical data has been validated.

8.0 REFERENCES

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APPENDIX A

Daily Field Activity Reports

MEMO

ERM/GOLDER ASSOCIATES - LOS ALAMOS PROJECT TEAM

To: Danny Katzman, Field Team Manager

From: Tami Wiggins, Field Team Leader

Date: 11 July 94

Re: **REPORT OF FIELD ACTIVITIES FOR 11 JULY 94 FOR OU 1078, TA-01, WESTERN SANITARY WASTE LINE**

The following is a summary of activities conducted on 11 July 94 at OU 1078, TA-01, Western Sanitary Waste Line (WSWL).

Approximately 36 feet (12 3-foot sections) of the WSWL were exposed via backhoe trenching. The backhoe removed soil from on top of the pipe and along both sides for enhanced visual inspection and easier removal of the pipe. The trench (Trench 1) begins about 8.5 feet east of manhole 52 and extends to the east. The depth from ground surface to the top of the pipe is approximately 3'9".

The exterior of the exposed piping was field screened with hand-held alpha and beta/gamma detectors; no elevated readings were detected. Subsequently, the exposed pipe was swept of any residual soil and the pipe joints were numbered and photographed.

Inspection of the pipe yielded the following observations:

- The second section of pipe (which is between the second and third joints) had a round hole in it from auger drilling from field activities earlier this year.
- The fourth, sixth, seventh, and eighth joints were cracked slightly as a result of backhoe activity.
- The fifth section (between the fifth and sixth joints) was in several pieces due to previous installation of an air monitoring port. This port and associated surface casing were carefully removed.
- The fourth section, as a consequence of previous installation of the air monitoring port in the fifth section, was broken where it connected to the fifth section.
- The rest of the exposed pipe sections and joints were intact.

Subsequent field screening inside the pipe with hand-held alpha and beta/gamma detectors showed elevated readings at the sixth and seventh joints. When 766 cpm beta/gamma was detected at the sixth joint, the seventh joint was screened. There it was 6800 cpm beta/gamma and ≤250 cpm alpha. The Site Safety Officer instructed all personnel to stop work and leave the trench.

Anne White (ERM/Golder Health and Safety) spoke with HS-1, and with their consent the site was secured for the night in the following manner: Four 10-foot sections of fencing were placed across the trench; the fencing was covered with a large piece of plastic sheeting; and the sheeting was weighted with rocks. A Radiation Controlled Area sign was placed on top of the sheeting, and red "Danger - Do Not Enter" tape was placed around the immediate area of the covered trench.

For continued field operations, an RWP has been submitted and an RCT has been requested. PPE requirements and waste management practices are being re-evaluated.

No soil or liquid samples were collected for lab analysis.

cc: Carl Newton, EES-3, MS C335
John Smith, ERM/Golder
Roy Bohn, EM/ER, MS M992
ERM/Golder Project File 19346

MEMO

ERM/GOLDER ASSOCIATES - LOS ALAMOS PROJECT TEAM

To: Danny Katzman, Field Team Manager

From: Tami Wiggins, Field Team Leader

Date: 12 July 94

Re: **REPORT OF FIELD ACTIVITIES FOR 12 JULY 94 FOR OU 1078, TA-01, WESTERN SANITARY WASTE LINE**

The following is a summary of activities conducted on 12 July 94 at OU 1078, TA-01, Western Sanitary Waste Line (WSWL).

This morning, John Elliott and Bob Dinwiddie with ESH-1 monitored the WSWL exposed in Trench 1 because of the elevated levels of beta/gamma detected yesterday. They detected beta/gamma at Joint 7 of the trench at 5300 cpm. It was decided that personnel in the trench should wear light-weight disposable coveralls with the seams taped and two pairs of gloves (the first pair taped to the coveralls). It was also decided that the WSWL pipe should be bagged by section and stockpiled until analytical results are available. In the afternoon, Elliott and Dinwiddie briefed all site personnel on the RWP.

Three different property owners from the condos on the east end of the site visited the site to inquire about field activities. They expressed some concern about what was going on at the site, fugitive dust, and potential contamination of the pipe.

Composite soil samples for metals, isotopic uranium and plutonium, and screening by the TA-59 trailer were collected from Trench 1 (the first set of 12 3-foot sections of WSWL pipe beginning 8.5 feet east of manhole 52). Also, a composite soil sample for tritium and a composite sample of grout were collected. Each 3-foot section was then wrapped in 6-ml plastic, duct-taped closed, and placed in a lined dump truck which is secured on site. After removal of the sections, the bottom of Trench 1 was screened and the trench was then backfilled.

During the excavation of Trench 2 (the second set of 12 3-foot sections of WSWL pipe), a 6-inch WSWL lateral and a corrugated drain pipe above the lateral and the WSWL were found (as expected) at the sixth section. The drain pipe was removed. At the ninth section, a 1.5" metal pipe was unexpectedly encountered. Worked ceased until personnel from county utilities with the help of JCI fitters determined that the gas line was "dead." The exposed portion of this metal pipe was hacksawed in two in the process and bent back from the trench so that trenching could continue.

The exterior of the exposed WSWL pipe in Trench 2 was field screened with hand-held alpha and beta/gamma detectors; no elevated readings were detected. Subsequently, the exposed pipe was swept of any residual soil and the pipe joints were numbered and photographed. Subsequent field screening inside the pipe with hand-held alpha and beta/gamma detectors showed one elevated reading of about 5000 cpm beta/gamma and several readings in the 1000 to 2000 cpm range. Composite soil samples for metals, isotopic uranium and plutonium, and screening by the TA-59 trailer were collected from Trench 2. The depth from ground surface to the top of the pipe was approximately 2'5". The few small cracks and holes in the pipe are believed to be due to the backhoe trenching activities. Each 3-foot section was then wrapped in plastic and placed in the dump truck as described above. A Radiation Controlled Area sign was placed in the bed of the dump truck on top of the sheeting covering the sections from Trenches 1 and 2. After removal of the sections, the bottom of Trench 2 was screened and then backfilled.

Trench 3 (the third set of 12 3-foot sections) was exposed by backhoe trenching and covered with fencing and plastic in the same manner as yesterday. This section is expected to be screened, sampled, and removed tomorrow.

cc: Carl Newton, EES-3, MS C335
John Smith, ERM/Golder
Roy Bohn, EM/ER, MS M992
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Job No.
File No. 193
Doc No. 18246
Date filed 8/15/94
ERM/Golder
QA Records

MEMO

ERM/GOLDER ASSOCIATES - LOS ALAMOS PROJECT TEAM

To: Danny Katzman, Field Team Manager

From: Tami Wiggins, Field Team Leader TW

Date: 13 July 94

Re: **REPORT OF FIELD ACTIVITIES FOR 13 JULY 94 FOR OU 1078, TA-01, WESTERN SANITARY WASTE LINE**

The following is a summary of activities conducted on 13 July 94 at OU 1078, TA-01, Western Sanitary Waste Line (WSWL).

To date, five contiguous trenches (each trench containing 12 3-foot pipe sections) of the WSWL have been exposed, assessed, monitored (exterior and at each joint), photographed, sampled, wrapped up and removed, and placed in a lined dump truck on site. By the end of the day today, all trenches had been backfilled. A vertical 10-foot PVC pipe was left to show were trenching is to resume tomorrow.

Four tarp-like "screen" panels were erected on the east end of the site to provide more privacy for the adjacent landowners and to catch or deflect fugitive dust.

Dust suppression measures were implemented. An adjacent landowner gave permission to use his faucet, and several hoses and a nozzle were supplied by JCL. The landowner's homeowner's association will bill the project for the water used.

After screening by hand-held monitoring instruments, composite soil samples for metals, isotopic uranium and plutonium, and screening by the TA-59 count trailer were collected from Trench 3. Each 3-foot section was then wrapped in plastic and removed as previously described. After removal of the sections, the bottom of Trench 3 was screened and the trench was then backfilled.

The exterior of the exposed WSWL pipe in Trench 4 was field screened with a hand-held beta/gamma detector; no elevated readings were detected. Subsequent field screening inside the pipe showed one elevated reading of about 10,100 cpm beta/gamma. Composite soil samples for metals, isotopic uranium and plutonium, and screening by the TA-59 count trailer were collected from Trench 4. Each 3-foot section was then wrapped in plastic and removed as previously described. After removal of the sections, the bottom of Trench 4 was backfilled.

Trench 5 contained a 4-inch gas line at the east end (as expected) which was found to be "dead" by a JCI fitter. This pipe, which is constructed of 1/4" steel, will be left in place. As with the other sections, the pipe was initially screened before composite sampling and removal occurred.

cc: Carl Newton, EES-3, MS C335
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Job No.
File No. 19346
Log No. 19346.10
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ERM/Golder
QA Records

MEMO

ERM/GOLDER ASSOCIATES - LOS ALAMOS PROJECT TEAM

To: Danny Katzman, Field Team Manager

From: Tami Wiggins, Field Team Leader TW

Date: 14 July 94

Re: **REPORT OF FIELD ACTIVITIES FOR 14 JULY 94 FOR OU 1078, TA-01, WESTERN SANITARY WASTE LINE**

The following is a summary of activities conducted on 14 July 94 at OU 1078, TA-01, Western Sanitary Waste Line (WSWL).

All of the day's activities occurred at the eastern end of the site in Trench 6. Only seven (rather than 12) 3-foot sections of the WSWL were removed from this trench. The pipe was at least 8 feet below ground surface after the seventh section, and the proximity of that end of the trench to the adjacent condos made it impossible to "bench" the hole for safety requirements. The pipe sections were removed one at a time because an inactive gas line crossed the WSWL at an acute angle and added to the difficulty of backhoe operations in that area. After one section was removed, its former location was backfilled so that the backhoe could reach the next section. A composite soil sample was taken after all the sections had been removed.

After the last section was removed from Trench 6, the backhoe located manhole 53 six more feet (2 more sections) up the WSWL. Removal of the manhole as had been planned was not possible because of safety concerns due to the depth to the bottom of the manhole (about 8 feet) and the difficulty involved with the backhoe manuevering in that area. The manhole-cover-containing slab over the top of the manhole was removed and will be disposed, and the manhole itself was broken up into itself and covered with fill.

Manhole 53 was about 6 feet deep and constructed of brick, similar to the previously assessed manhole 52. The manhole had not been filled; it contained only about 1 foot of soil in the bottom. An inlet as well as the outlet were visible; these outlets had not been plugged. The highest reading from field screening inside and around the manhole with a hand-held beta/gamma detector was approximately 450 cpm beta/gamma. A sample was taken from material scraped from the concrete on the bottom of the manhole.

cc: Carl Newton, EES-3, MS C335
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MEMO

ERM/GOLDER ASSOCIATES - LOS ALAMOS PROJECT TEAM

To: Danny Katzman, Field Team Manager

From: Tami Wiggins, Field Team Leader

Date: 16 July 94

Re: SUMMARY OF FIELD ACTIVITIES FOR 15 JULY 94 FOR OU 1078, TA-01, WESTERN SANITARY WASTE LINE

All of the day's activities occurred at the western end of the site at manhole 52 (Trench 7). The following materials were screened and removed from Trench 7: one 3-foot section of pipe, an "elbow" joint, and a short connector pipe from east of the manhole; two 3-foot sections from north of the manhole; and the manhole itself. The interior of the end of the north line was screened at 3000 cpm beta/gamma. This line appeared to be headed toward an active manhole closer to Trinity Drive.

Manhole 52 had no lid-containing slab over it and was filled with sand. After the sand was removed by backhoe, the brick manhole was broken up into physically manageable pieces. These pieces were screened with a hand-held beta/gamma detector after removal from the trench; readings were at or below background. Each piece was then wrapped in plastic and placed on plastic in the fenced area on site. The top and bottom of the base of the manhole were field screened; readings were in the range of 200 to 400 cpm beta/gamma. Examination of the base showed that the 8-inch inlet on the east side and the 8-inch outlet on the north side had been plugged with cement. In the trench, a 6-inch inlet could be seen on the west side (the inside was unobstructed for at least 25 feet) and, next to it, was a 4-inch steel pipe plugged with cement. A sample was taken from material scraped from the concrete on the bottom of the base of the manhole. The base was broken into three pieces by the backhoe and moved to the fenced area where the pieces were wrapped in plastic until they can be broken up further by jackhammer.

The site was demobilized at the end of the day; only a fenced area remains. This area contains the backhoe; a dump truck containing all the pipe sections (for transportation purposes, the truck's maximum dose rate was measured by ESH-1 at 0.2 mR/hr on contact); two drums (one of PPE, the other with handwash water); the slab from the top of manhole 53; and the bricks and base of manhole 52.

cc: Carl Newton, EES-3, MS C335
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APPENDIX B

Sampling and Analysis Plan

MEMORANDUM

ERM/GOLDER LOS ALAMOS PROJECT TEAM

To: Jim Aldrich, PPL, EM-13

From: Danny Katzman, ELM/Golder

Date: October 12, 1993

Regarding: Submittal of Final Draft of Western Sanitary Waste Line Sampling Plan for FY 93, OU 1078

Please find attached four copies of the Western Sanitary Waste Line Sampling Plan for FY 93. This version incorporates comments from the DOE as well as those from R. Conrad, P. Shanley, and internal reviewers. The attached Plan contain photocopies of figures 1-5. Final copies of the figures are being printed at FIMAD and will be submitted separately, likely within 48 hours. If you have any questions, feel free to contact Brent Russell or Danny Katzman at 662-3700.

cc:
Project File #19346.002

cc w/o attachment:
B. Russell
P. Bennno
D. Katzman

Job No. ___
File No. 19346
Log No. 19346-1.3
Date Filed 1/23/95
ERM/Golder
QA Records

ELM/Golder Los Alamos Project Team

ENVIRONMENTAL RESTORATION PROGRAM

RCRA FACILITY INVESTIGATION
OPERABLE UNIT 1078 (TA-1)

WESTERN SANITARY WASTE LINE SAMPLING PLAN FOR FY93

LOS ALAMOS NATIONAL LABORATORY

LOS ALAMOS, NEW MEXICO

August 1993

ENVIRONMENTAL RESTORATION PROGRAM

LOS ALAMOS NATIONAL LABORATORY

DRAFT FINAL

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Figure 2 - Sample Location Numbers 5, 6, and 7

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Figure 5 - Sample Locations 1 - 13

SAMPLING AND ANALYSIS PLAN

OU 1078 PHASE I, WESTERN SANITARY WASTE LINE, SWMU AGGREGATE N

SWMUs 1-001(s) and 1-001(u)

1.0 INTRODUCTION

The RCRA Facility Investigation (RFI) Work Plan for Operable Unit (OU) 1078 (LANL 1992), submitted to the U.S. Environmental Protection Agency (EPA) Region VI in May 1992, was judged to be deficient, and a Notice of Deficiency (NOD) was issued. After the NOD Response was submitted, the Work Plan was accepted with two modifications on January 8, 1993. One requirement for final approval of the OU 1078 RFI Work Plan was the addition of subsurface sampling and analysis plans (SAPs) for Phase I investigation of the Solid Waste Management Units (SWMUs) not adequately justified for no further action (NFA) or originally planned for Phase II investigation. This SAP is one of several planned for the mesa top for fulfilling that requirement.

SWMUs 1-001(s) and 1-001(u) together comprise the Western Sanitary Waste Line (SWMU Aggregate N, as described in the RFI Work Plan for OU 1078), which served several buildings located south of Trinity Drive in TA-1. SWMU 1-001(u) is the sanitary waste line that served J-2 Building; it was proposed for no further action (NFA) in the May 1992 RFI Work Plan for OU 1078. SWMU 1-001(s) served the balance of the buildings in TA-1 west of (and including) D Building, and was proposed for Opportunity-Available sampling in the 1992 Work Plan. These two units are now proposed for sampling in the FY93 sampling program, and will be referred to collectively as the "Western Sanitary Waste Line." The majority of wastes handled in the sanitary waste lines were non-process-related, however, several buildings connected to the sanitary waste line handled hazardous and radioactive materials. Process-related wastes were routinely disposed in the acid sewer line (i.e., the industrial waste line). However, recent sampling results from a septic tank in OU 1071, SWMU 0-030(g), located downstream of the Western Sanitary Waste Line,

have suggested that possibly such constituents, including mercury, lead, and plutonium, entered the line.

Most of the sanitary waste lines in TA-1 were left in place following the decommissioning of the Technical Area. Portions of the sewers were apparently used by Los Alamos County as sanitary sewers for a period of time; however, Los Alamos County personnel have stated that none of the Western Sanitary Waste Line has been used by the County. The following sampling plan is designed with the assumption that the sanitary sewer line can be located in the field. Although it will not be the object of investigations proposed in this plan, it should be kept in mind that the acid sewer line (SWMU 1-002, which was totally removed), not the Western Sanitary Waste Line, was designed to handle the most harmful waste streams from TA-1. The volume of hazardous waste which may have passed through the Western Sanitary Waste Line is thought to be small by comparison with that released into the acid sewer line.

The general approach in this sampling plan will be to locate and investigate accessible portions of the sanitary waste line, given the constraints of legal access to private property and physical constraints in the field. Virtually all of the land traversed by the sanitary waste line is now in private hands, and much has been developed. Private dwellings, office buildings, commercial establishments, parking lots, and roads have been built atop the route of the former line. The sampling will be based on and directed by engineering judgment as described in the Work Plan.

2.0 DATA QUALITY OBJECTIVES

The Data Quality Objectives described in the May 1992 Work Plan for OU 1078, and updated in this Phase I Addendum, are as follows for the planned sampling of the Western Sanitary Waste Line. The sampling program will form the basis for a screening assessment of the Western Sanitary Waste Line to evaluate the overall condition of the system and the contaminant levels from releases that may have occurred. The objectives of this work plan are to (1) determine, initially, the nature of the soil contamination, if any; (2) provide information on waste characterization and possible impacts to residents and properties from more invasive sample collection techniques; and (3) remove portions of the line during the excavation phase.

2.1 Problem Statement

The objectives of this sampling plan are (1) to provide additional information for evaluating whether hazardous materials remain in the line; (2) to determine if hazardous wastes have been released to surrounding soils; and (3) to classify these potential wastes. Knowledge of the operations performed in TA-1 buildings, and recent analysis of the downstream septic tank's (SWMU 0-030(g)) contents, have shown that hazardous and radioactive constituents were discharged into at least a portion of the sanitary waste line. There is no evidence that these constituents were released from the sanitary waste line in any other way than to the septic tank, but it is possible that fugitive releases might have occurred due to failure of the structural containment. Specifically, leaks may have occurred at pipe joints, at joints between pipes and manholes, at connections between building sewers and sewer mains, or from breaks in the sewer pipe. Damage could have occurred from faulty installation, settlement of portions of the line, or disruption due to subsequent construction of roads or structures above the line. Manholes could have had obstructions which resulted in release of waste from overflows. If leaks or losses of liquid occurred, and if they occurred in areas where

future excavation could expose the contamination, then there is a possibility for future human exposure. In addition, migration of constituents could occur, most likely within the excavation backfill. Since the proposed activities will support a screening assessment, LANL ER Program screening action levels (SALs) will be used as the basis for comparisons.

2.2 Decision Domain

The scope of the investigation will include the soil within the original excavation, and soil adjacent to the sanitary waste line and manholes. Since the investigation will include evaluation of the presence and distribution of contaminants in the sanitary waste system, these are also included in the domain. Surface soils, backfill associated with the sanitary waste system excavation, and tuff beneath the previous excavation are outside the domain of this decision, except when they are in immediate proximity to the line or show visible evidence of a release. The investigation will be focused on and biased towards the locations where contamination is most likely to exist: the immediate vicinity of the sanitary waste line, including the sewer pipe and manholes.

2.3 Decision Inputs

The data requirements for the decision include the thickness of clean fill (from borehole logs) and concentrations in soil of contaminants of concern (COCs). These concentrations will be determined using field and laboratory analytical testing techniques. COCs include radioactivity (specific radionuclides, if gross alpha, beta, or gamma are detected in the field), RCRA metals, PCBs, pesticides, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs). Analytical methods for these analyses are provided in Table 3-1.

2.4 Decision Logic

Individual observations will be compared with SALs for soil. Observations that exceed SALs will identify COCs and locations along the Western Sanitary Waste Line system that require further evaluation. Further evaluation may include a preliminary baseline risk assessment or development of risk-based target cleanup levels for the identified contaminants, either of which will provide a basis for determining whether corrective action is needed. If no observations exceed SALs, no further action (NFA) will be proposed for the Western Sanitary Waste Line.

2.5 Design Criteria

Portions of the Western Sanitary Waste Line which may be sampled are constrained by limited physical and legal access. However, the areas that are potentially available for sampling are reasonably representative of the elements of the sanitary system, including straight runs, lateral connections, and manholes. Selection of target areas, and of samples within these areas, will be biased by professional judgment, visual indicators, and field measurements to increase the probability of detecting contaminants if present in the line or the surrounding soil.

3.0 SAMPLING AND ANALYSIS PLAN

3.1 Physical Description of the Sampling Locations

The Western Sanitary Waste Line is composed of both gravity and force main sections. The sanitary line segment from the J-2 Building (Figure 1) is the only force main, and is believed to be cast iron, 4 to 6 inches in diameter (nominal pipe size). Connections of pipe sections (four to eight feet in length) may be flanged or have a similar connection system, or may be leaded in place. The force main was laid in a northerly direction from the building, and follows the generally rising topography at a more-or-less uniform depth of 3 to 4 feet. The total length of this line is 275 feet. No manholes are expected on this line until the point where it discharged into a manhole of the former gravity sanitary waste line near Trinity Drive. The line would have operated under low pressure, and would have been at atmospheric conditions at the discharge point at the gravity sewer manhole. A sump and pumping system would have been located within or adjacent to J-2 Building, and would have included one or more pumps and check valves. The check valves would serve to check the backflow of sewage when the pumps had emptied the sump and shut down.

A gravity sanitary waste line comprises the balance of the Western Sanitary Waste Line system (Figures 2 through 4). This includes over 1300 feet of vitrified clay pipe (VCP), 4 and 8 inches in diameter, and most likely in four-foot sections. The sanitary waste line operated under atmospheric conditions, and is shown on drawings as having manholes every 200 to 300 feet. Six manholes are shown on the drawings, although not all are expected to still be in place. Gravity sewer lines must be designed with adequate capacity to carry expected flows. Pipe size (diameter) and slope are the most important design variables. The sanitary line is shown on design drawings as having a slope of less than one percent (vertical feet per 100 horizontal feet) to over 7 percent. A minimum depth of four to five feet is usually specified to provide crush resistance to applied

loads, such as heavy equipment. It is not known at what depth the sanitary line was installed, but it may have been anywhere from 4 to 15 feet below the original land surface. Modifications to the ground surface since abandonment of TA-1 may have increased or decreased this depth.

The manholes may be of concrete or brick construction, but would likely have had a cast-iron riser collar at the top with a cast-iron lid. Remaining manholes on the Eastern Sanitary Waste Line that have been in service since the Manhattan Project are of this construction.

In most locations, it is be expected that excavations for the sanitary waste line were made into the tuff. It is possible to identify such excavations by removing fill material down to the tuff surface. Most of the properties through which the line passed have been developed, which restricts physical access.

3.1.1 Selection of Sampling Locations

In general, it was determined that buildings and related structures, retaining walls, concrete drives and walks, buried utilities, and plantings on private property should be considered restraints on physical access. Asphalt is judged to be repairable, and as such is not considered a restraint. At least 20 feet of continuous access, in directions both parallel and perpendicular to the sanitary waste line, is judged to be necessary to use the selected equipment. Also, a location on an active roadway or drive is not preferred, if at least one-way access could not be maintained during excavation. Manholes are of particular interest, since they may be more prone to leaks than pipes, for the following reasons. Connections are necessary between pipes and manhole bodies, and sophisticated joining methods and materials were not available in the 1940's. Also, manholes were used at changes in grade or line direction, so sediments may collect in manholes and potentially result in flow constrictions. Constrictions may, in turn, result in manhole "surcharge," creating a greater likelihood of a release.

The following locations along the sanitary waste line were selected for further review and ranking. Locations of manholes and connections are noted and are provided on the attached maps (Figures 1 through 4). Figure 5 shows the entire Western Sanitary Waste Line with proposed sampling locations and current structures.

1. Timber Ridge along Trinity Drive. A 20-foot section is available between the Timber Ridge fence and Trinity Drive. The ground surface is covered with cobbles, which can easily be restored (Figure 1).

2. J-2 Building Sewer Line. A 40-foot section of this line is available where it crosses a playlot and the asphalt-surfaced Trinity Village drive (Figure 1).

3. J-2 Building Sanitary Sewer Sump. A tentative location for the sump serving the sanitary wastes from this building has been established. The location is in a condominium village, but physical access is possible (Figure 1).

4. Timber Ridge Road. Over 50 feet of access is available in this asphalt drive (Figure 1).

5. West of 555 Oppenheimer. Approximately 40 feet of access in asphalt is possible (Figure 2).

6. East of 557 Oppenheimer. Over 50 feet of access is possible, including a possible manhole and lateral connection location (Figure 2).

7. Oppenheimer Drive Right-of-Way. About 50 feet of access is available, but subsurface utilities are present that will likely reduce the extent of possible access (Figure 2).

8. West of Shell Station. About 60 feet of access is possible between the Shell station and the plantings/landscaping along Oppenheimer Drive. A manhole is shown on the FIMAD maps within this access (Figure 3).

9. East of Shell Station. About 20 feet of access is possible, but stored equipment will have to be moved to facilitate access (Figure 3).

10. Behind Hot Shots Restaurant. Nearly 100 feet of access is available across the parking lot. A manhole is mapped in the approximate center of the parking lot (Figure 3).

11. Vacant Lot Between Hot Shots and Exxon Station. Although the lot is vacant (used for Hot Shots parking), the sewer line is thought to be located at the rear of the property beyond (and below) the extent of fill. Although over 100 feet of length is available, physical access will likely be restricted due to fill and overgrowth (Figure 3).

12. West of Exxon Station. About 20 feet of access is available west of the former car wash structure, including a manhole location. A concrete retaining wall will limit exploration to the west and a fence to the south would have to be restored if disturbed (Figure 3).

13. Western Portion of the Los Alamos Inn Property. This location was investigated last winter by drill rig during a geotechnical investigation for the construction of new office buildings. Field screening results showed no elevated levels of radioactivity or VOCs. Up to 200 feet of access is available, with the most promising location being at the west edge of the property. This area would be excavated to locate the sanitary sewer line from D Building (Figure 4).

In terms of ranking, the following locations are recommended for investigation: Numbers 3, 6, 8, 10, and 12 due to the expected location of former manholes, number 2 provides the best access to SWMU 1-001(u), and number 13 due to its proximity to D Building. However, each of the 13 locations listed above will be investigated as long as physical or legal access is obtained.

3.2 Sampling Program Design

The general sampling program design is as follows: the sanitary waste line will be traced using historic engineering drawings and presently identifiable features (such as manholes), in the field. Areas where physical access is possible will be noted. Particular attention (ranking) will be paid to locations where manholes or other connections are expected, based on professional and engineering judgment. Legal access will be pursued for the properties that contain both extensive physical access and high-ranking features, such as manholes or branch line connections. Geophysical methods will be used to provide more precise locations of the line, manholes and other features.

A pre-characterization field operation will be performed using a drill rig to help determine the type of waste materials that will require handling and disposal during the full implementation of the sampling plan. The results of the pre-characterization field operation will not be used for any RFI-related decisions. This pre-characterization step was added after hazardous and radioactive wastes were discovered in Septic Tank 030(g) at OU 1078, which was fed by the Western Sanitary Waste Line. Pre-characterization of waste materials associated with the Western Sanitary Waste Line will ensure that necessary procedures are in place to handle the waste before sections of the line are excavated. Upon completion of the pre-characterization field operation, a backhoe or similar excavator will be used to locate the former sanitary waste line and manholes, and to obtain soil samples from as many of the locations listed in Section 3.1.1 as possible based on legal and physical access.

3.2.1 Selection of Investigation Methods

Prior to initiation of any field operations, subsurface utilities will be located and marked. The most likely locations of the sanitary waste line (and manholes) will then be located and marked based on engineering and/or geophysical surveys. The geophysical methods may include one or more of the following techniques: magnetometer, electromagnetic conductivity surveys (EM), ground penetrating radar, and/or probing with short rods to locate the former sanitary waste line excavation/backfill locations and, ultimately, the sanitary waste line and manholes. The LANL ER Standard Operating Procedure (LANL-ER-SOP-03.02, General Surface Geophysics) will be implemented for performing these surveys.

3.2.2 Pre-Characterization Field Operations

The pre-characterization field work will be performed to help determine the potential contaminants that may be encountered during the excavation of portions of the line, and how those materials should be handled if temporary storage and disposal are required. However, excavation of locations identified in Section 3.1 will be implemented even if pre-characterization results show no contamination. If mixed waste is determined to be present during pre-characterization activities, excavation of the line may be delayed until an approved mixed waste disposal site is identified.

This process, termed initial waste classification, is intended to provide an indication as to whether excavated materials will need to be treated as one of four waste types: 1) municipal-type waste - suitable for disposal in the Los Alamos County Landfill; 2) radioactive waste materials - requiring disposal at TA-54; 3) hazardous waste materials - requiring packaging and manifesting at TA-54 for off-site treatment and disposal; or 4) mixed waste materials - requiring storage at TA-54 until a suitable disposal facility is available. Alternatively, the soil or

tuff may not be contaminated and therefore suitable for replacement into the excavation at the conclusion of the removal process.

The initial sampling for waste classification will use two primary criteria for the selection of sample sites. The first criteria is the probability that the surface geophysical investigations have located the western sanitation line. The second criteria is accessibility to those portions of the line that are well-defined during the geophysical surveys.

The locations chosen for the waste classification phase will be sampled using a hollow-stem auger drilling rig and continuous split-barrel or split spoon sampler for acquisition of sample materials from immediately above, adjacent, and below the sanitary waste line and associated manholes. The specifics associated with the waste classification sampling techniques are described in Section 3.2.2.2. This approach will minimize the generation of materials that will need to be treated as a suspect waste, pending the results of radioisotopic and chemical constituent analyses. A minimum of three of the locations identified in Section 3.1.1 will be sampled. The number and frequency of the locations will be dependent on the established criterion and the variability, if any, in the results obtained from field monitoring. Additional locations may be sampled if initial locations do not provide any or inadequate waste characterization results. Physical and/or legal access may restrict additional pre-characterization activities.

3.2.2.1 Pre-Characterization Constituent Analyses

Field screening and laboratory analyses will be performed on the pre-characterization samples collected. The potential COCs to be measured are RCRA metals, PCBs, pesticides, VOCs, SVOCs, and gross alpha and beta/gamma analyses. Specific isotopes are to be determined in the event that gross radioactivities exceed background levels (20 pCi/g gross alpha and/or 30 pCi/g gross beta).

Those samples with metals that exhibit total concentrations equal to or exceeding 20 times the TCLP threshold value for hazardous waste classification will be subjected to the TCLP analysis to determine if the sample materials will require classification as a RCRA hazardous waste or in the event of elevated radioactivity, as a mixed waste.

3.2.2.2 Pre-Characterization Sampling Methods

The following procedure will be used for minimizing potential wastes during the initial pre-characterization sampling. It may also be the preferred procedure for some of the subsequent sampling.

1. A hollow-stem auger fitted with 5-foot continuous barrel samplers or split spoon samplers will be used to collect the samples. The hollow-stem auger method consists of advancing continuous auger flights into the ground. The core barrel samplers fit inside the hollow-stem auger flights, and advance with the augers as the subsurface is penetrated. When VOCs are to be collected, either a stainless steel core barrel will be used or stainless steel sleeves, 6 inches long by 2.5 inches in diameter, which are pressure-fitted end-to-end inside the core barrel. As the auger flights move into the subsurface, soil and sediments are pushed up into the (non-rotating) core barrel, or stainless steel sleeves, and relatively undisturbed soil samples are collected. In the event the core-barrel recovery is insufficient for specific sample collection purposes, either another portion of the recovered core will be used in the sample or the borehole will be relocated as close as possible to the original borehole. Any such change will be documented in Daily Activity Logs and field logs, and any new borehole location will be surveyed. Only selected intervals will be analyzed for VOCs, allowing cuttings and materials from above and below any stainless steel sleeves to be used for geologic descriptions. Additionally, clear liners may also be used for some borings to ensure adequate geologic descriptions.

2. When the core barrel is brought to the surface, it is separated from the auger and placed on a table fitted with tools for opening the core barrel into its two halves. At the same time, a decontaminated core barrel (with accompanying sleeves, if used) is placed in the auger to accompany the next flight down. If used, the stainless steel sleeves are numbered consecutively; the first one is the sleeve that represents the 6-inch segment nearest the ground surface, and the highest-numbered sleeve is the sleeve that samples the deepest segment of the boring. The core barrel is split into its two parts, using two pipe wrenches, to reveal the stainless steel sleeves or the core. At this point the HS-1 and HS-5 monitors will screen each core to measure levels of VOCs and the number of beta/gamma counts emanating from the core in a one-minute interval in accordance with HS-5 procedures. This information will be recorded in the sample collection log. This information is gathered primarily for health and safety purposes; however, the beta/gamma counts are also useful in determining whether there are any radioactive contaminant trends over the profile of the borehole. Each subsurface soil sample will be screened and a geologic description of the sample materials prepared.

3. Each boring will extend to approximately 24 inches below the level of the sanitary waste line as determined from geophysical surveying and probes/rods as discussed in Section 3.2.1. At least three core samples will be collected from each boring, immediately above the line, adjacent to the line, and immediately below the line. If field screening or visual observation suggest the presence of potential contaminants, additional samples may be collected at those locations.

4. Cuttings from each borehole will initially be containerized until expedited analytical results are received indicating that the material is clean and can be placed back into the borehole.

3.3 Excavation Sampling Procedures

The following general steps will be followed for excavations at all locations. Field instruments will be used continuously for personnel protection and field screening of excavated materials and samples for radioactivity (alpha and beta/gamma) and VOCs.

1. A preliminary excavation will be made perpendicular to the line to locate any previous excavation.

2. If the previous excavation is located, the excavator will move 90 degrees and proceed to remove backfill from the trench.

3. When a line or manhole is encountered, the line will be carefully exposed (still using the backhoe if necessary) and conditions observed. Photographs will be taken and notations made. Sample locations will be selected based on field screening (radiological and VOCs) and/or visual observation of contamination. The most contaminated areas within an excavation will be sampled.

4. The line will then be broken, using the backhoe bucket, and the pieces removed until at least four feet of pipe bedding is clearly exposed. For a manhole, samples will be collected at a minimum of two locations using hand-operated augers advanced to the base of the manhole.

5. The pipe segments will be screened for radioactivity in the field and inspected. Any residue will be collected for analysis. If radioactivity is detected, swipe samples will be collected for laboratory analysis. Similar procedures will be followed to sample any residue from manholes for analysis.

6. Samples will be collected from materials directly beneath the pipe using the backhoe bucket. The samples collected will be from the surface of the bedding material to a depth of 6 to 12

inches. If tuff is encountered at depths of less than 6 inches below the pipe, an attempt will be made to collect tuff to crush and homogenize with the bedding material in accordance with the procedure described in Section 4.2.2. Samples will be collected from the backhoe bucket with a stainless steel scoop in a representative manner (from the left-side, center and right-side and then homogenized in a stainless-steel bowl), and the bucket will be decontaminated before moving to a new location. Decontamination procedures to be followed are described in Section 4.2.5. Sampling personnel may enter the excavation only if it is less than four feet deep. In most locations, it will not be possible to lay back the excavation sides to facilitate safe access because of space restrictions.

7. If access allows, each excavation will be lengthened along the pipe to provide for a second sampling location. A location five to ten feet away from the first location will be selected so that, in a gravity sewer, at least one intact pipe joint will be selected as a sampling point.

8. Soil samples will be analyzed in on-site mobile chemistry and radioactivity laboratories for rapid turnaround to support field decisions.

9. Backfill and natural soils that do not exhibit any signs of contamination when measured with field instruments and mobile screening labs will be returned to the excavation. Sections of pipe determined not to be contaminated will be removed for disposal as non-hazardous solid waste. Materials determined to be contaminated will be handled according to the Waste Management Plan applicable to this sampling effort. As much remediation (removal of contaminated soil and pipe) as is practical will be accomplished during the investigation, consistent with ER Program guidance, and in a fashion that minimizes inconvenience to the property owner(s). Additional

remediation, if necessary, (i.e., beneath property structures) will be addressed during a Corrective Measures Study (CMS).

10. Backfill will be placed and compacted in lifts to achieve maximum compaction. Surface materials will be replaced to closely approximate the pre-excavation land surface (Section 4.2.7).

Field conditions may dictate modification of the above steps.

3.3.1 Number of Samples

If physical and legal access is obtained for all 13 proposed locations listed in Section 3.1.1, and 2 soil samples are collected below the sanitary waste line from each excavation, a total of 26 soil samples will be taken. Up to 4 pipe residue samples are estimated. The 4 manholes will yield an additional 8 soil samples and 4 residue samples. Six swipe samples may also be collected from the manholes. Therefore, a total of 48 samples is expected, in addition to samples for quality assurance purposes (such as field replicates, etc.).

3.3.2 Suite of Constituents to be Analyzed

For the samples collected from the Western Sanitary Waste Line, the full suite of analyses will include:

- Isotopic plutonium and uranium;
- Cesium-137 by gamma spectrometry;
- Radionuclides by gamma and alpha spectrometry;
- 12 RCRA metals (total analysis);
- Manhole soils for SVOCs; and
- Manhole and pipe residues for VOCs, SVOCs, PCBs, and pesticides.

In addition, soil samples will be submitted for VOC analyses only if VOCs are detected with field instruments, or a total of four samples will be submitted based on evidence of fugitive releases. These samples will be collected from the center of the backhoe bucket in accordance with ER-SOP 06.09 "Spade and Scoop Method for Collecting Soil Samples." The soil samples will be collected in glass jars and immediately placed in a cooler maintained at 4 degrees centigrade. Specified analytical methods are provided in Table 3-1.

4.0 FIELD METHODS FOR TA-1 SANITARY SEWER LINE INVESTIGATION

4.1 Plans

Numerous plans and procedures are incorporated into this sampling plan. Some will be developed specifically to support this activity, while others will be referenced. Plans and procedures that have been identified are noted below:

Health and Safety Plan. This plan will be developed specifically to address activities covered in this sampling plan, and will be based on previous investigations in OU 1078 and waste removal activities in OU 1071.

Waste Management Plan. This plan will also be site-specific to the planned sampling, and will include requirements for contaminated media that may be found in the excavations: soil, backfill, sewer pipe, manholes, debris, etc. These materials may need to be moved off-site while the excavation is open to minimize inconveniences to the property owner(s) or traffic. Appropriate permits and/or authorization will be obtained, if necessary.

4.2 Procedures

A list of applicable SOPs to OU 1078 field activities is provided in Table 4-1. The following subsections provide further guidance for focussing attention on various aspects of quality assurance and waste minimization practices.

4.2.1 Methods of Field Screening For Radioactivity and VOCs

The principal radiological field screening instruments that will be used during the OU 1078 sanitary waste line sampling is the Eberline ESP-1 beta/gamma meter with a "pancake" detector and the Eberline ESP-1 alpha meter. The principal field instrument that will be used to screen for volatile organic compounds while sampling the sanitary waste line

is an HNu meter. Subsurface soils collected in the backhoe bucket will be screened with each instrument prior to the collection of any samples. The detectors/meters will be moved along the surface of the soil and a one minute reading will be taken at a minimum of three locations in the bucket.

4.2.2 Methods for Homogenization of Samples

The sample collected from the backhoe bucket will be placed in a stainless steel bowl. A stainless steel hammer is used to pulverize the material. Since the excavated material may range from clay-like mud to large tuff fragments, the homogenized sample may consist of a mixture of these entities. For example, any moist clay-like material will be broken up to the greatest extent possible and mixed with any drier soil and tuff that is separately pulverized. The end product will approach a visual particle size distribution that approximates the surrounding soils. Foreign particles such as pieces of asphalt, wood, or non-tuff derived pebbles will be discarded from the homogenate and not included in the sample although they may be submitted for discrete analysis if field screening indicates the materials are contaminated. The time required to homogenize each sample will depend on the hardness of any tuff included in the sample and the consistency of any clay-like materials that require diminution. The same field personnel will be used to homogenize each sample to help ensure consistency and professional judgement to the process.

4.2.3 Methods for Preparing Replicate Samples

At least one replicate sample will be collected for each Western Sanitary Line location sampled and submitted for a full suite of analyses. Additionally, the EPA and/or NMED may collect replicates of specific samples. In those instances when replicates are to be made, the replicate sample containers will be filled by alternately placing a subsample in the OU 1078 sample container followed by an equivalent subsample into the replicate sample container. This process will continue until all the required containers are filled.

4.2.4 Methods for Managing Waste Material

Cuttings brought to the surface during the pre-characterization field operations will be continuously monitored for radioactivity and VOCs. Cuttings designated as clean will be stockpiled for backfilling. Upon completion of sampling, all soil brought to the surface will be replaced in the excavation until analytical results are received from the laboratory and a decision made whether to proceed with a voluntary corrective action (VCA) or interim measures. If results indicate that a VCA is feasible or interim measures are necessary, the site-specific Waste Management Plan will be implemented. Soil brought to the surface and not used as samples will also be returned to the excavation. Some soil samples may be held in a controlled repository for delayed submission to the sample coordination facility if analytical results from the expedited samples indicate that additional analyses would improve the conclusions of the investigation.

4.2.5 Decontamination

Equipment decontamination will primarily be conducted offsite at LANL decontamination facility located at the Waste Management Site (TA-50). Equipment will be screened for contamination prior to removal from the site in accordance with threshold values established by the draft SOP. Should some equipment decontamination be required in the field, the decontamination will be performed in accordance with the draft ER-SOP entitled "Field Decontamination and Sampling Equipment." Personnel will be decontaminated according to the draft ER-SOP entitled "Personnel Decontamination."

4.2.6 Restoration of Excavation and Surrounding Areas

Every attempt will be made to return the excavation and area adjacent to each excavation to the condition it was in before the field operations began. Excavated soils (or clean fill in the event a voluntary corrective action or interim measure has taken place) and unused samples will be replaced in the excavation and the ground surface returned to its original condition. In some cases, grass sod will be placed where patches of grass have been damaged, or asphalt/concrete patching will be required where excavations are made through asphalt or concrete surfaces.

REFERENCES

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Table 3-1
Analytical Methods for Soil Samples
at the Western Sanitary Waste Line

Method #	Analysis	Holding Time
EPA SW-846 Method 8270	Semivolatile Organic Compounds	14 days until extraction 40 days thereafter
EPA SW-846 Method 6010	Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy	6 months
EPA SW-846 Method 7000	Metals by Atomic Absorption	6 months
EPA SW-846 Method 7470	Mercury	28 days
EPA Method 418.1	Total Petroleum Hydrocarbons	
EPA SW-846 Method 8260	Volatile Organic Compounds	14 days
EPA SW-846 Method 8080	PCBs and Pesticides	7 days until extraction 30 days thereafter
LANL or DOE Method	Radionuclides Gross Alpha Gross Beta Gamma Spectrometry Isotopic Plutonium (Pu-238, -239) Isotopic Uranium (U-234, -235) Cesium 137 Americium 241 Cobalt 60 Strontium 90 Beryllium 90	6 months

TABLE 4-1
SOPS APPLICABLE TO OU 1078 FIELD OPERATIONS

General

ER-SOP-01.01	General Instructions for Field Investigations
ER-SOP-01.02	Sample Containers and Preservation
ER-SOP-01.03	Handling, Packaging, and Shipping of Samples
ER-SOP-01.04	Sample Control and Field Documentation
ER-SOP-01.05	Field Quality Control Samples
ER-SOP-01.06	Management of RFI-Generated Waste

Health and Safety in the Field

ER-SOP-draft	Personal Protective Equipment
ER-SOP-draft	Respirators
ER-SOP-draft	Pre-Entry Briefings for Site Personnel
ER-SOP-draft	Pre-Entry Briefings for Site Visitors
ER-SOP-draft	Safety Meetings and Inspections
ER-SOP-draft	Heat and Cold Stress and Natural Hazards
ER-SOP-draft	General Equipment Decontamination
ER-SOP-draft	Accident/Incident Reporting
ER-SOP-draft	Radiation Protection
ER-SOP-draft	Training and Medical Surveillance

Reconnaissance/Field Survey

ER-SOP-3.02	General Surface Geophysics
ER-SOP-3.08	Geomorphic Characterization
ER-SOP-draft	PHOSWICH Determination of Low-Energy Gamma Radiation
ER-SOP-draft	FIDLER Determination of Low-Energy Gamma Radiation

Drilling, Excavating, Sampling, and Logging

ER-SOP-04.01	Drilling Methods and Drill Site Management
ER-SOP-draft	Excavating Methods
ER-SOP-draft	General Borehole Logging
ER-SOP-planned	Methods for Sample Collection from Backhoe Bucket
ER-SOP-planned	Methods for Sample Collection from Sewer Pipe and Debris

Field Screening Techniques

ER-SOP-draft	Portable GC/MC for Field Screening of VOCs
ER-SOP-draft	X-Ray Fluorescence for Field Screening of Metals
ER-SOP-14.01	Berthold Low Alpha and Beta Activity Counter Calibration, Quality Control, Detection Limit, and Use
ER-SOP-draft	Gross Gamma Activity on Soil

Sampling Techniques

ER-SOP-06.09	Spade and Scoop Method for Collecting Soil Samples
ER-SOP-06.10	Hand-Auger and Thin-Wall Tube Sampler
ER-SOP-06.11	Stainless Steel Surface Soil Sampler
ER-SOP-06.13	Surface Water Sampling
ER-SOP-06.14	Sediment Material Collection
ER-SOP-06.15	Coliwasa Sampler for Liquids and Slurries
ER-SOP-06.17	Trier Sampler for Sludges and Moist Powders or Granules
ER-SOP-06.19	Weighted Bottle Samples for Liquids and Slurries in Tanks
ER-SOP-draft	Draeger Tubes
ER-SOP-draft	Replicate Spoon Sampling for Auger Drilling

Decontamination

ER-SOP-draft	Field Decontamination and Sampling Equipment
ER-SOP-draft	Personnel Decontamination

Figure 1

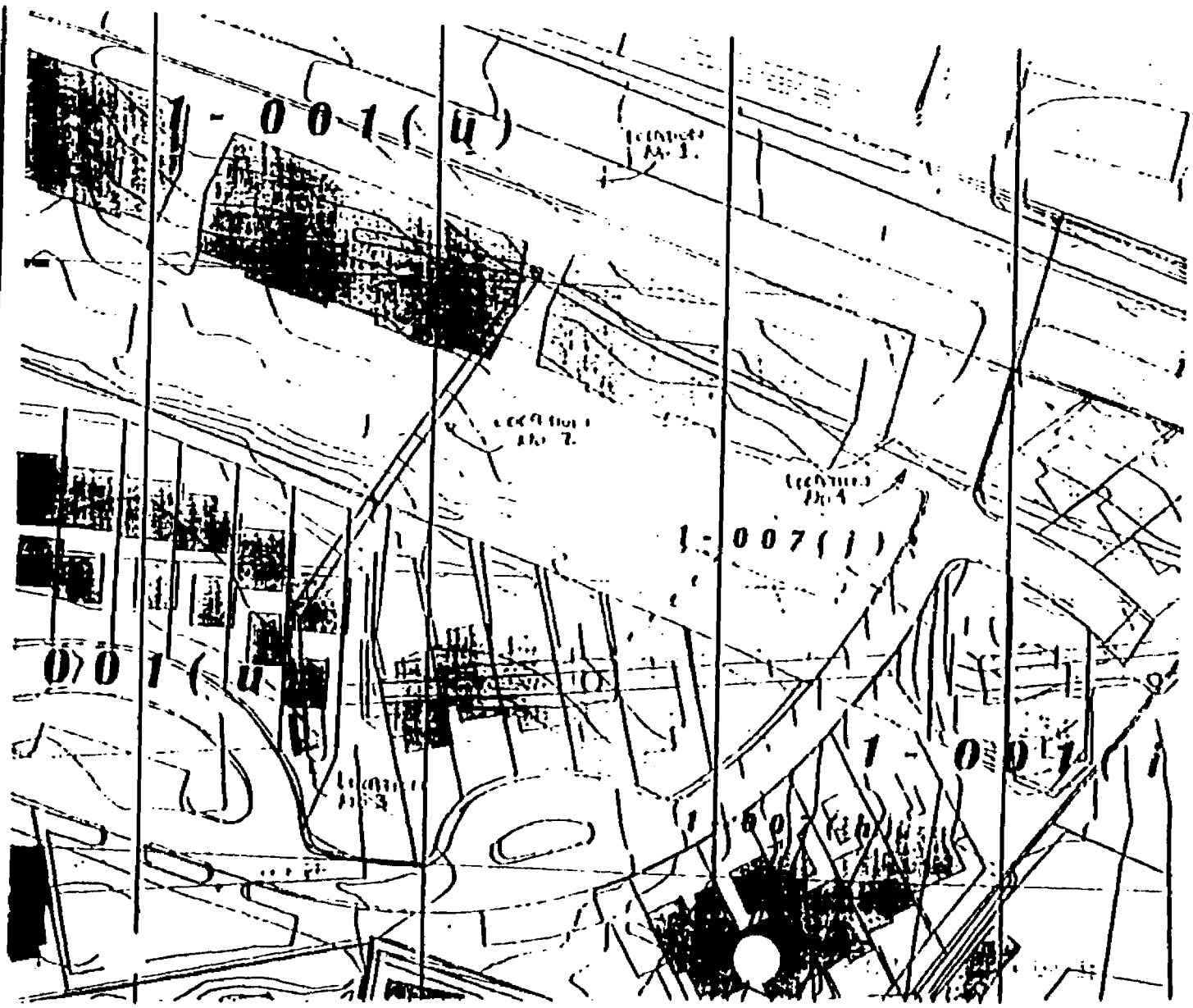


Figure 2

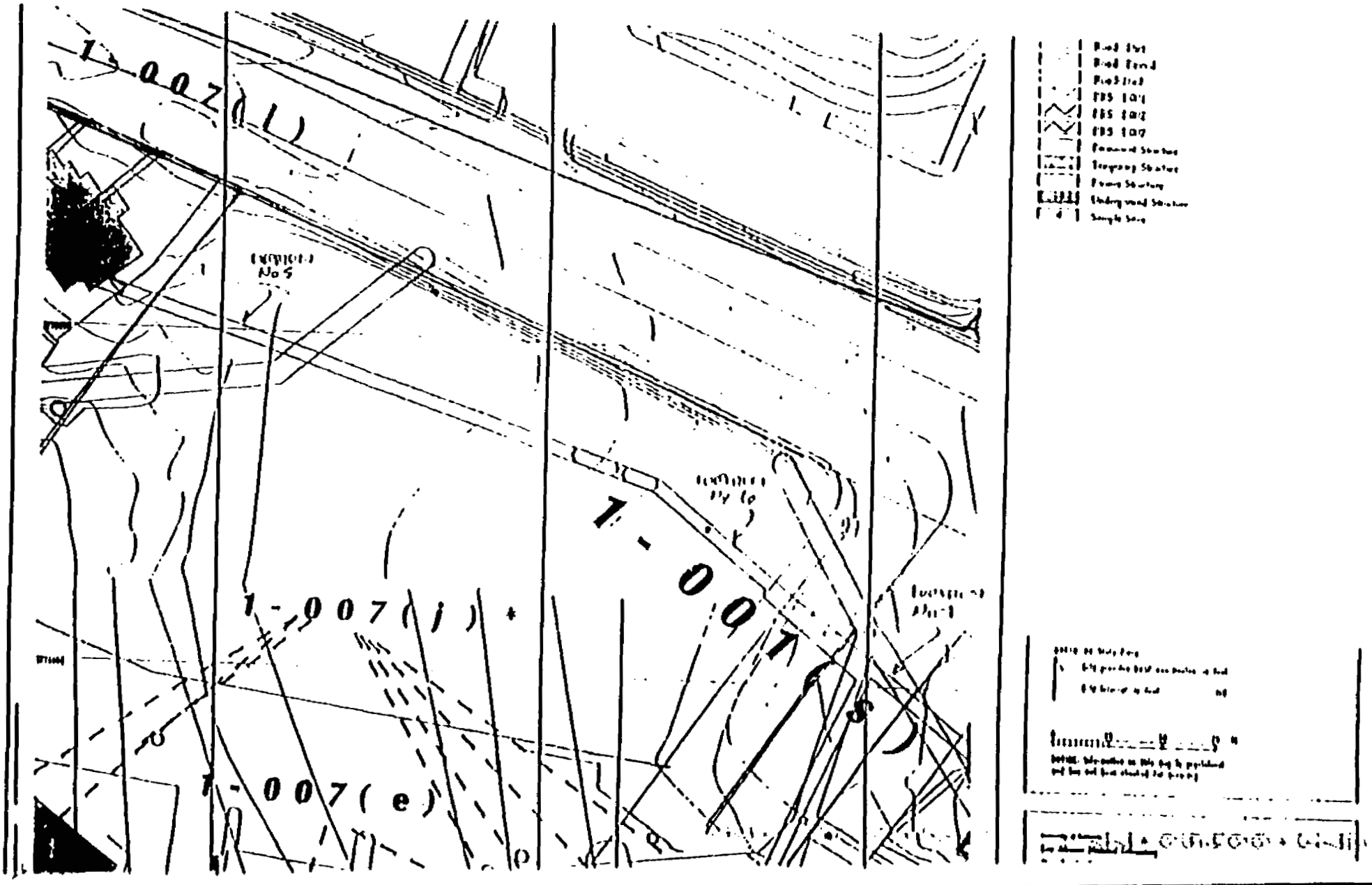


Figure 3

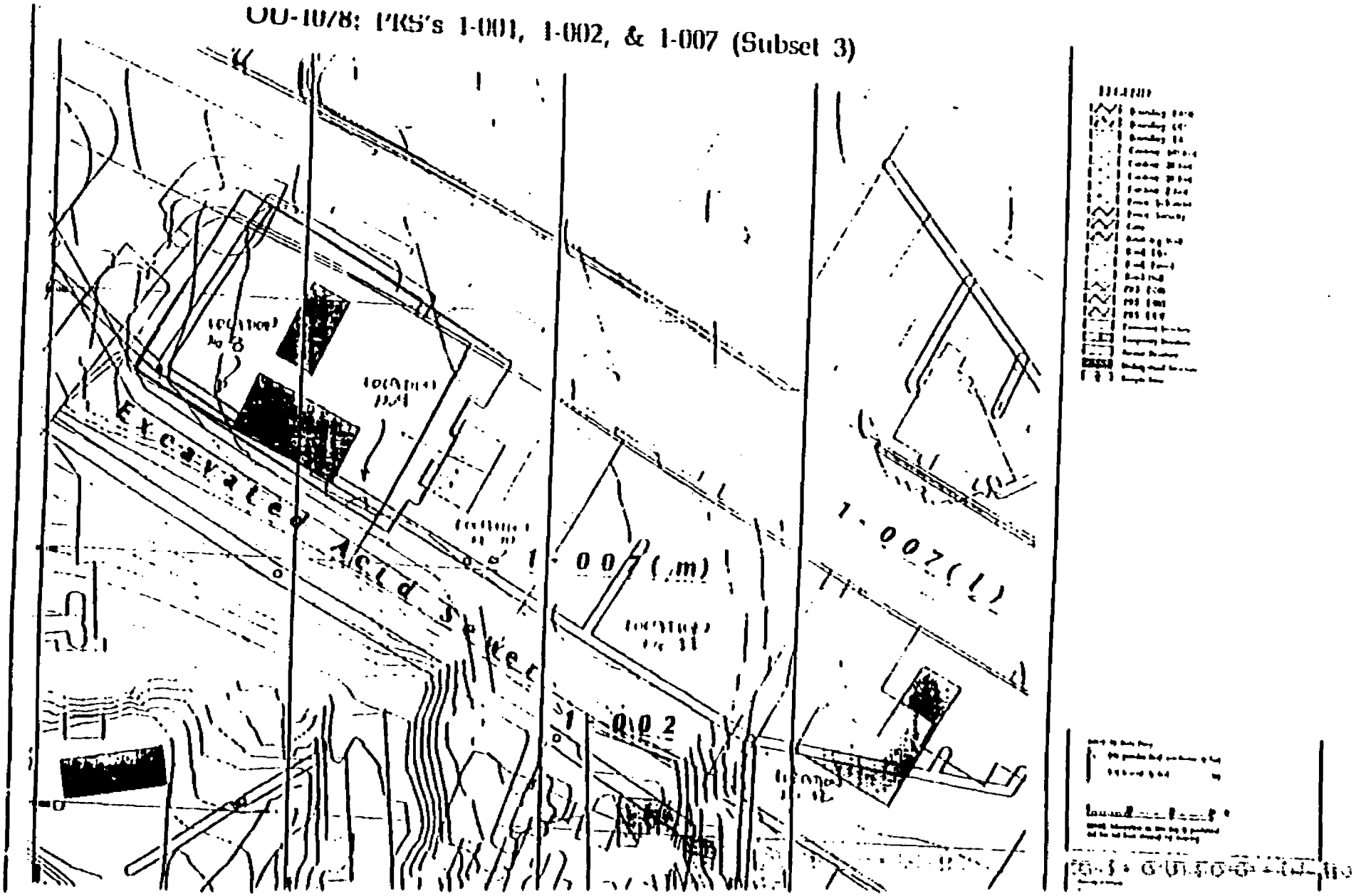
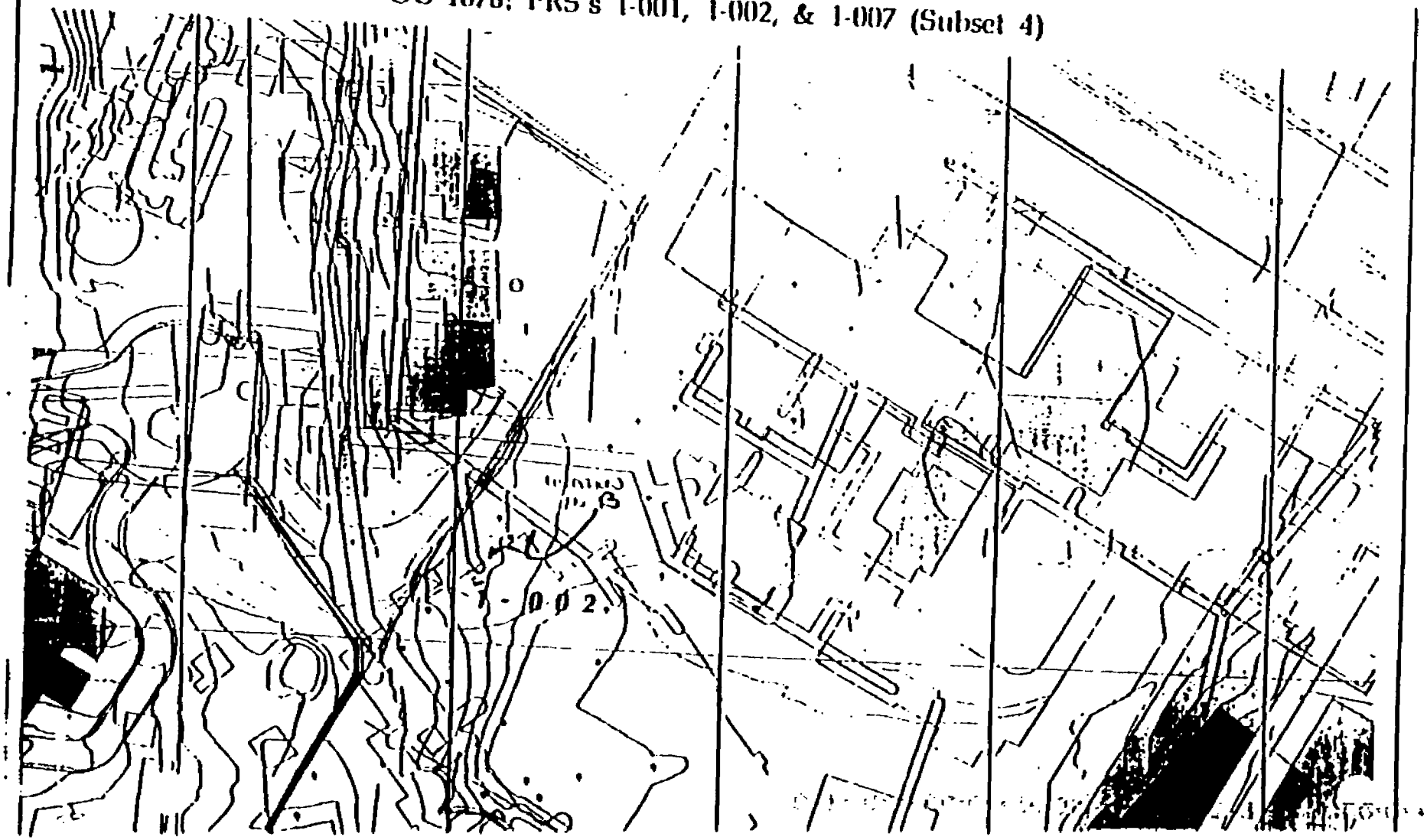

OU-10/8: PRS's 1-001, 1-002, & 1-007 (Subset 3)
Excavated Acid Sewer
1-001(m)
1-002
1-007(l)

Figure 4

OU-1078: PRS's 1-001, 1-002, & 1-007 (Subset 4)



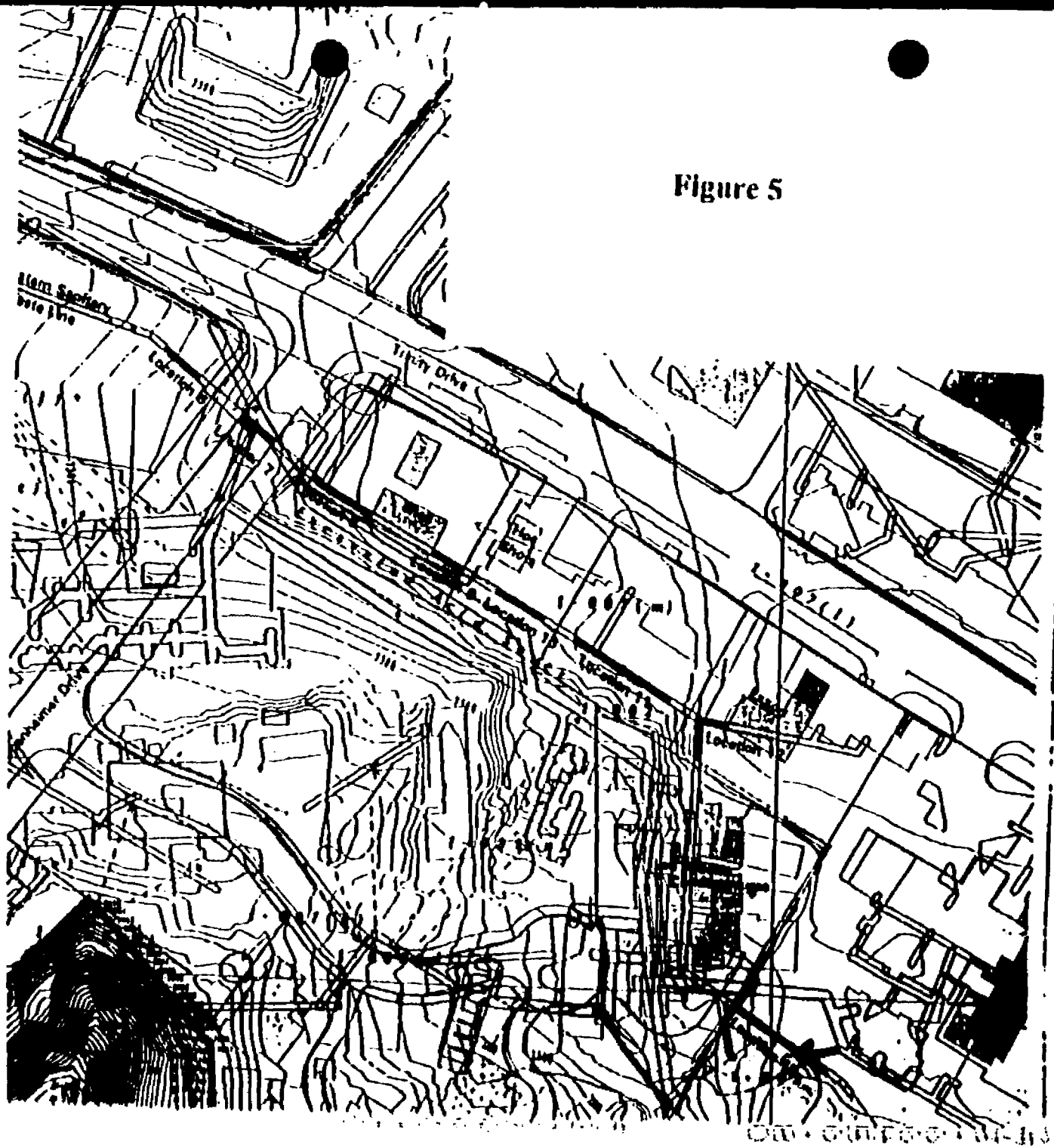


Figure 5

APPENDIX C

Equipment Release Forms

AA 6-3

HEALTH PHYSICS RELEASE TAG

Tag Number 004238

Item Description ESP-1 with HP-260 P/N HSE# 008032

Individual Removing Item Christina Kruger (Print Name) Group EM-13 Phone 661-9685

Individual Removing Item Christina Kruger (Signature) Date 4/15/94

Note — Signature verifies that exterior and interior surfaces of the item have been monitored according to LANL requirements.

Survey Results (Check one or more, as applicable)*

☒ Alpha NA dpm Direct 10 dpm/100cm² Removable

☐ Beta-Gamma _____ dpm/mR/hr Direct _____ dpm/100cm² Removable

☐ "Volume" Contamination: Yes/No _____ uR/hr at Contact ☐ Tritium _____ dpm/100cm² Removable

	Instrument	Model Number	HSE Number
1.	Ludlum 2000	2000	004259
2.	Ludlum 43-10	43-10	004259
3.			

Disposition (Check one)

☐ Item is free from detectable radioactive contamination and may be released without controls.

☒ Item is below applicable release limits and may be released for controlled use at LANL.

Comments/Controls: Release by NOL to ESH-4 for calibration trace

RSO ACT Patricia Gallegos (Print Name) Patricia L. Gallegos (Signature) Survey Date 4-18-94

Note — Signature verifies that monitoring information is complete and correct.

*(NA = not applicable; NDA = no detectable activity/dose rate)

HEALTH PHYSICS RELEASE TAG

Tag Number 006442

Item Description Backhoe P/N 30590

Individual Removing Item Dennis E. Rice (Print Name) Group JCI Phone 7-6111

Individual Removing Item (Signature) Date 7-18-94

Note — Signature verifies that exterior and interior surfaces of the item have been monitored according to LANL requirements.

Survey Results (Check one or more, as applicable)*

X Alpha NDA dpm Direct 3.0 dpm/100cm² Removable

X Beta-Gamma NDA dpm/mR/hr Direct NA dpm/100cm² Removable

☐ "Volume" Contamination: Yes/No ____ uR/hr at Contact ☐ Tritium ____ dpm/100cm² Removable

Instrument	Model Number	HSE Number
1. Ludlum Ratemeter	12 with 44-10	0060068
2. Ludlum Scaler	2000 with 43-10	004759
3. Ludlum Ratemeter	139 with 43-32	003653

Disposition (Check one)

☐ Item is free from detectable radioactive contamination and may be released without controls.

X Item is below applicable release limits and may be released for controlled use at LANL.

Comments/Controls: Release backhoe from EU1078 Swmu 1-001 to Z in MDDrpcal

RSP Patricia Gallegos (Print Name) Patricia Gallegos (Signature) Survey Date 7-18-94

Note — Signature verifies that monitoring information is complete and correct.

*(NA = not applicable; NDA = no detectable activity/dose rate)

HEALTH PHYSICS RELEASE TAG

Tag Number 006341

Item Description [illegible] PN [illegible]

Individual Removing Item [illegible] (Print Name) Group [illegible] Phone [illegible]

Individual Removing Item [illegible] (Signature) Date [illegible]

Note — Signature verifies that exterior and interior surfaces of the item have been monitored according to LANL requirements.

Survey Results (Check one or more, as applicable)*

☒ Alpha NDA cpm Direct n/a cpm/100cm² Removable

☒ Beta-Gamma NDA cpm mRhr Direct NDA cpm/100cm² Removable

☐ "Volume" Contamination: Yes/No ____ uRhr at Contact ☐ Tritium ____ cpm/100cm² Removable

	Instrument	Model Number	HSE Number
1.	Beta Gamma	[illegible]	[illegible]
2.	Alpha	1125	[illegible]
3.			

Disposition (Check one)

☒ Item is free from detectable radioactive contamination and may be released without controls.

☐ Item is below applicable release limits and may be released for controlled use at LANL.

Comments/Controls: ____

RCT Troy Ellison (Print Name) [illegible] (Signature) Survey Date [illegible]

Note — Signature verifies that monitoring information is complete and correct.

*(NA = not applicable; NDA = no detectable activity/dose rate)

APPENDIX D

Sample Collection Logs

according to collection log

T1S5

Table 1. WSWL Location 13 Sample Collection Data

Reference No.	Date	Time	Sample No.	Location ID	Pipe Section(s)	Sample Type	Comments
1	11/21/94	1405	AAC0354	None	N/A	R	Excavated soil
2	11/21/94	1405	AAC0519	None	N/A	R	Excavated soil
3	11/21/94	1405	AAC0356	None	N/A	R	Excavated soil
4	11/21/94	1405	AAC0355	None	N/A	R	Excavated soil
5	11/21/94	1405	AAC0518	None	N/A	R	Excavated soil
6	11/21/94	1405	AAB6079	None	N/A	R	Excavated soil
7	11/21/94	1405	AAC0520	None	N/A	R	Excavated soil
8	11/22/94	1105	AAB7440	01-4317	T1S0/T1S1	O	
9	11/22/94	1110	AAC0517	01-4320	T1S5/T1S6	O	
10	11/22/94	1340	AAC2070	None	N/A	R	Excavated soil
11	11/22/94	1340	AAB6076	01-4260 - 01-4265	T1S0-T1S6	I	
12	11/22/94	1341	AAC2063	01-4318	T1S3/T1S4	R	
13	11/22/94	1346	AAC2064	01-4319	T1S4/T1S5	R	
14	11/22/94	1348	AAC2065	None	N/A	R	Excavated soil
15	11/22/94	1348	AAC2066	None	N/A	R	Excavated soil
16	11/22/94	1348	AAC2067	None	N/A	R	Excavated soil
17	11/22/94	1348	AAC2068	None	N/A	R	Excavated soil
18	11/22/94	1348	AAC2069	None	N/A	R	Excavated soil
19	11/22/94	1427	AAC0514	01-4260	T1S0-T1S1	C	
20	11/22/94	1430	AAC0516	01-4261 - 01-4262	T1S2	C	
21	11/22/94	1544	AAB6077	01-4265 - 01-4269	T1S6-T1S10	I	
22	11/23/94	745	AAC2061	01-4260 - 01-4271	T1S10-T1S11	G	
23	11/23/94	835	AAB7450	01-4321	T1S10/T1S11	O	
24	11/23/94	838	AAB7438	01-4322	T1S15/T1S16	O	
25	11/23/94	847	AAB7449	01-4283	N/A	R&Tritium	62 ft W of fence
26	11/23/94	850	AAB7439	01-4271 - 01-4276	T1S11-T1S16	G	
27	11/23/94	855	AAB6078	01-4269 - 01-4274	T1S10-T1S14	I	
28	11/23/94	957	AAB6072	01-4274 - 01-4277	T1S14-T1S17	I	
29	11/23/94	1125	AAC0351	None		QC	
30	11/28/94	1415	AAC0513	01-4323	T1S19/T1S20	O	
31	11/28/94	1430	AAC0515	01-4324	T1S21/T1S22	O	
32	11/28/94	1445	AAC2071	None		R&TAL Metals	Stained soil

R = Rad Van composite I = Inside composite O = Outside grab C = Confirmation composite G = Grout composite QC = Rinsate grab TAL = Target Analyte List

Field Sampling Activities:

Fourteen samples were collected: eight composite and six grab samples. These samples are described below in order of collection.

Sample 8 (AAB7440) was collected as a grab soil sample outside of the pipe and underneath joint T1S0/T1S1 before the sections were separated. The sample was collected to determine if the joints of the pipe had leaked over the years, providing a pathway for contamination to enter the environment. This sample was homogenized and submitted to the Rad Van and the fixed laboratory for a trench suite of analyses.

Sample 9 (AAC0517) was collected as a grab soil sample outside of the pipe and underneath joint T1S5/T1S6 before these sections were separated. The justification of this sample is the same as Sample 8, and the same analyses were requested.

Sample 10 (AAC2070) was collected as a composite sample from the top 0-6 inch of an excavation soil pile south of the trench. Four to five scoops were taken using a stainless steel spoon and then homogenized for the sample. Approximately 150g of soil was placed into a plastic bag and submitted to the Rad Van. No fixed laboratory analyses were requested. This sample was taken to verify that the excavated soil was clean prior to being used to backfill the trench.

Sample 11 (AAB6076) was a composite sample taken from inside pipe sections T1S0 through T1S5 after each section had been separated. Twelve scoops were taken and homogenized in a stainless steel bowl before being submitted to the Rad Van and fixed laboratory for analysis. This sample was analyzed for gross alpha, beta, gamma, and an inside pipe suite as previously defined. Elevated radiological field screening levels of up to 16,800 cpm/beta gamma were observed at the joint T1S4/T1S5.

Sample 12 (AAC2063) was a grab sample taken from some material that fell out of pipe sections T1S3 and T1S4 and was submitted to the Rad Van for gross alpha, beta, and gamma screening. This material had a reading of 4180 cpm beta/gamma and 0 cpm alpha with the field instruments, and the decision was made to obtain a more accurate reading from the Rad Van. Any material that was not collected for the Rad Van that fell out of the pipe was placed back into the pipe. Material was removed from the bottom of the trench until the bottom of the trench field-screened below the contamination criteria level as shown in Table 2 of section 6.2. The pipe was then sealed and removed.

Sample 13 (AAC2064) was a grab sample, similar to sample 12, collected from material that fell out of pipe sections T1S4 and T1S5 after they were separated, but before they were wrapped. The sample was then was submitted to the Rad Van for analysis and the remainder was returned to the pipe. Radiation field-screening of this section with hand-held instruments produced a reading of 16,800 cpm beta/gamma and 15 cpm alpha.

Samples 14 through 18 (AAC2065, AAC2066, AAC2067, AAC2068, AAC2069) were Rad Van samples collected from excavation soil piles located to the north of the trench. Each sample was a composite of four to five scoops taken from the top 0-6 inch of an individual pile which was homogenized and then submitted to the Rad Van for analysis.

Sample 19 (AAC0514) was a confirmation grab soil sample taken under pipe joint T1S0/T1S1 after this pipe section had been wrapped and removed. This sample was collected to confirm that all contaminants had been removed with the removal of the pipe. This sample was submitted to both the Rad Van and the fixed laboratory for a full confirmation suite plus tritium.

Sample 20 (AAC0516) was a confirmation grab soil sample taken outside of pipe section T1S2 along the length of the section after the pipe section was wrapped and removed. This sample was also taken to confirm that all contaminants had been removed from the trench. A full confirmation suite, plus tritium and Rad Van analyses, was requested for this sample.

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 2/17/00 Time 1015

Technical Area 01 Operable Unit OU1078

Name/Signature [illegible]

Control No.(from chain of custody form) 1078-09768

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

AA86098

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes ___ No

Composite Type SPATIAL

Depth of Sample NA

Weather [illegible] 80°F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS

LANL ER SOP # 6.09 was used to collect this sample. KCR 3/28/95

01-001(s) 01-001(u)

COMMENTS:

TEMPLIN SAMPLE COMPOSITE TEMPLIN 1 [illegible]

1, 8, 9

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ___
- ○ Other ___

LANL-ER-SOP-01.04,R2

Reviewed by: [illegible] for 3-27-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 2/12/94 Time 1115

Technical Area 01 Operable Unit OU1078

AAB6096

Name/Signature [illegible]

Control No.(from chain of custody form) 1078-09766

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

Sample Matrix

- ○ Soil
- ○ Surface Water
- ○ Sediment
- ○ Ground Water
- ○ Tuff/Rock
- ○ Sludge
- ○ Drum Sample
- ○ Swipe
- ○ Filter
- ● Other GRAV

Composite Y Yes ___ No

Composite Type SPATIAL

Depth of Sample NA

Weather SUNNY - 50°F

~~1.001~~	~~[illegible]~~	~~Plastic~~		GROSS ALPHA/BETA/GAMMA
1.001	~~[illegible]~~	Poly		HSOPO AND HSOU
1.001	~~[illegible]~~	~~Poly~~		RCRA METALS
1.001	1 liter	Kimax		GROSS α, β & TRITIUM
				[illegible]

LANL ER SOP # 6.09 rev 2/28/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

COMPOSITE SAMPLE FROM TREATMENT, LINES 5, 6 & 7

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ___
- ○ Other ___

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Hartnett FR 3-22-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 7/12/94 Time 1615

Technical Area 01 Operable Unit 1/OU1078

AAB6094

Name/Signature D Fran[illegible]

Control No.(from chain of custody form) 1078-09764

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes ___ No

Composite Type SPATIAL

Depth of Sample 0"-7"

Weather Sunny 80°F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS

LANL ER SOP # 6.09 CEB 3/23/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

SAMPLE WAS A COMPOSITE FROM PIPE JOINTS C, B, S CORRESPONDING TO HIGH, MEDIUM & LOW RAD READINGS FOR P/X.

TRENCH 1 PW 26 July 94

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ___
- ○ Other ___

LANL-ER-SOP-01.04.R2

Reviewed by: Rebecca Garrett PR 3-24-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 7/12/94 Time 1745

Technical Area 01 Operable Unit OU1078

Name/Signature D Frank

Control No.(from chain of custody form) 1078-09755

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

AAB6085

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes ___ No

Composite Type TOTAL

Depth of Sample NA

Weather Sunny, 80°F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS 7471-Hg, 6010-Other metals, Tl 4ppm DL

LANL ER SOP # 6.09 REV 3/29/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

COMPOSITE SAMPLE FROM HIGH, MEDIUM & LOW R/V READINGS FROM PIPE SECTIONS OF TRENCH T2, JOINTS 9, 10, 11 & SIU

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ___
- ○ Other ___

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Marrett ER 3-27-95

Name Title Date

91

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 7/13/94 Time 1045

Technical Area 01 Operable Unit OU1078

Name/Signature DAE FRANK

Control No.(from chain of custody form) 1078-09770

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

AAB6100

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes No

Composite Type SPATIAL

Depth of Sample NA

Weather SUNNY, 80°F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS, Hg 7471, 6010 Sb, Se, TlX6 (Total Alpha 52)

LANL ER SOP # 6.09 RKG 3/28/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

TRENCH 3 POINTS 7, 5, 10

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number
- ○ Other

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Hardnett RL 3-27-95

Name Title Date

92

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 7/13/94 Time 1415

Technical Area 01 Operable Unit OU1078

Name/Signature DAVE FRANK

Control No.(from chain of custody form) 1078-09754

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

AA86084

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes ___ No

Composite Type SPATIAL

Depth of Sample N/A

Weather SUNNY, 80°F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS, [illegible], NON-A. [illegible] METALS [illegible]

LANL ER SOP # 6.09 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

TRENCH 4, UNITS 5, 6, 11

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ___
- ○ Other ___

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Hewitt FTL 3-27-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 7/15/94 Time 1600

Technical Area 01 Operable Unit OU1078

Name/Signature DAVE FRANK

Control No.(from chain of custody form) 1078-09759

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

AAB6089

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes No

Composite Type SPOT/AC

Depth of Sample NA

Weather SUNNY 80°F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS

LANL ER SOP # 6.09 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

TREND 5 JOINTS 3,5,7

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number
- ○ Other

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Hancock FR 3-27-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 2/15/94 Time 1100

Technical Area 01 Operable Unit OU1078

Name/Signature DAVE FRANK

AAB6083

Control No.(from chain of custody form) 1078-09753

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite Y Yes No

Composite Type GRAB

Depth of Sample NA

Weather SUNNY 80 °F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS Hg, TL

LANL ER SOP # 6.09 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

TRENCH 5 LINES 5,5,7

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ● Field Duplicate Associated Sample Number AAB6089
- ○ Other

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Garrett - FRL 5-27-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 3/14/95 Time 1711

Technical Area 01 Operable Unit OU1078

Name/Signature [illegible]

Control No.(from chain of custody form) 1078-09763

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

AAB6093

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes No

Composite Type SPATIAL

Depth of Sample NA

Weather [illegible]

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS SW7- HCl [illegible]

LANL ER SOP # 6.09 ECG 3/23/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

TRENCH C [illegible] 7, 4

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number
- ○ Other

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Grantt RG 3-27-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 3/19/95 Time 1415

Technical Area 01 Operable Unit OU1078

Name/Signature [illegible]

AA86091

Control No.(from chain of custody form) 1078-09761

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type GRAB

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite ____ Yes X No

Composite Type NA

Depth of Sample NA

Weather OVERCAST, 85°F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS [illegible]

LANL ER SOP # 6.09 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

TRENCH IS EAST TERMINATION

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ____
- ○ Other ____

LANL-ER-SOP-01.04,R2

Reviewed by: [illegible] 3-27-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 7/10/94 Time 1245

Technical Area 01 Operable Unit OU1078

AAB6090

Name/Signature [illegible]

Control No.(from chain of custody form) 1078-09760

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type GRAB

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swabs
- ○ Other

Composite ____ Yes X No

Composite Type NA

Depth of Sample 11"-7"

Weather Overcast 85°F

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS
				[illegible]
				[illegible]
				[illegible]

LANL ER SOP # 6.09 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

[illegible] 55 TRENCH IS EAST

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ____
- ○ Other ____

LANL-ER-SOP-01.04,R2

Reviewed by: [illegible] on 3-27-95

Name Title Date

96

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 3/15/95 Time 1115

Technical Area 01 Operable Unit OU1078

Name/Signature [illegible]

Control No.(from chain of custody form) 1078-09758

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type COMPOSITE

AAB6088

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes ___ No

Composite Type SPOT/12

Depth of Sample N/A

Weather [illegible]

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS (ONLY THESE METALS WITH CLEAR TOP)

LANL ER SOP # 6.09 REV 3/28/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

[illegible]

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ___
- ○ Other ___

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Garrett FR 3-27-95

Name Title Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 2/15/90 Time 1015

Technical Area 01 Operable Unit OU1078

Name/Signature [illegible]

Control No.(from chain of custody form) 1078-09765

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type [illegible]

AAB6095

Sample Matrix

- ○ Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite X Yes ___ No

Composite Type GRAB

Depth of Sample N/A

Weather [illegible]

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS

LANL ER SOP # 6.09 [illegible] 3/28/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

DUPLICATE

[illegible]

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ● Field Duplicate Associated Sample Number AAB6088
- ○ Other

LANL-ER-SOP-01.04,R2

Reviewed by: [illegible] for 3-27-95

Name Title Date

100

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 3/15/99 Time 1115

Technical Area 01 Operable Unit OU1078

Name/Signature [illegible]

AA86087

Control No.(from chain of custody form) 1078-09757

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type GRAB

Sample Matrix

- ● Soil
- ● Sediment
- ○ Tuff/Rock
- ○ Drum Sample
- ○ Filter
- ○ Surface Water
- ○ Ground Water
- ○ Sludge
- ○ Swipe
- ○ Other

Composite ____ Yes ✓ No

Composite Type NA

Depth of Sample NA

Weather Sunny 85°F

~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
100	500.00 ml	Soil	Terminal

LANL ER SOP # 6.09 [illegible] 3/28/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

Handle + 2, under Rotten Log

Field Sketch:

Quality Control Sample

- ○ Trip Blank
- ○ Rinsate Blank
- ○ Field Blank
- ○ Field Split
- ○ Field Duplicate Associated Sample Number ____
- ○ Other ____

LANL-ER-SOP-01.04,R2

Reviewed by: [illegible] Name [illegible] Title 3-27-95 Date

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

Date: 7/15/94 Time 1115

Technical Area 01 Operable Unit OU1078

Name/Signature [illegible]

Control No.(from chain of custody form) 1078-09762

Location ID No

Sample Location ALONG WESTERN SANITARY WASTELINE

Sample Type GRAB

AAB6092

Sample Matrix

- (●) Soil
- ( ) Sediment
- ( ) Tuff/Rock
- ( ) Drum Sample
- ( ) Filter
- ( ) Surface Water
- ( ) Ground Water
- ( ) Sludge
- ( ) Swipe
- ( ) Other

Composite ____ Yes X No

Composite Type N

Depth of Sample 1'

Weather [illegible]

1.00	150.00	G	plastic	GROSS ALPHA/BETA/GAMMA
1.00	125.00	ML	Poly	ISO PU AND ISO U
1.00	125.00	ML	Poly	RCRA METALS

LANL ER SOP # 6.09 REV 3/29/95 was used to collect this sample.

01-001(s) 01-001(u)

COMMENTS:

MANHOLE #72 UNDER BOTTOM LAB

Field Sketch:

Quality Control Sample

- ( ) Trip Blank
- ( ) Rinsate Blank
- ( ) Field Blank
- ( ) Field Split
- ( ) Field Duplicate Associated Sample Number ____
- ( ) Other ____

LANL-ER-SOP-01.04,R2

Reviewed by: Rebecca Garrett 3-27-95

Name Title Date

APPENDIX E

Chain of Custody Forms

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/12/94
COC 1078-09768
Technical Area 01
Operable Unit OU1078
Send Lab Report to: Ron Conrad MS K490
OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676
Date Lab Report Required 8/30/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Matl	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6098				1 150 00 G plastic	Soil		GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6098				1 125 00 ML Poly	Soil		ISO PU AND ISO U		
AAB6098				1 125 00 ML Poly	Soil		RCRA METALS	6010/7470/7471	(6010 (7) (4PPM OL))
AAB6098	7/12/94		X	1, 500 ml Poly	Soil		TPH		

Relinquished by (Signature): Affiliation:	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 suspect to contain high levels of hazardous substances)
Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:
Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS

Original - SCF Yellow Copy - RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/12/94 COC 1078-09766

Technical Area 01

Operable Unit OU1078

Send Lab Report to: Ron Conrad MS K490

OU Contact Carl Newton C335

Contact Phone Number (505) 667-8676

Date Lab Report Required 5/30/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Mat'l	Matrix (Liquid Soil, Core Sludge, Etc)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc)
AAB6098				1 150 00 G plastic	Soil		GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6096				1-125 00 ML Poly	Soil		ISO PU AND ISO U		
AAB6096				1 125 00 ML Poly	Soil		RCRA METALS	8010/7471/7061 7440,6010 (TCLP/TOTAL)	
AAB6096	7-12-94 1115		X	1 Glass Bottle	Grab		Gross α, β, γ, Rem, Deep Well Grab		

Relinquished by (Signature): Affiliation:	Date 7/15-94	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By: (Signature): Affiliation:	Time 950	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS Grab Sample, Total, June 5618

Original - SCF Yellow Copy - RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/12/94
Technical Area 01
Operable Unit OU1078

COC 1078-09764

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676

Date Lab Report Required 8/30/94

Field Unique Sample # ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Matl	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6094	7/12/94 1615		X	1 150.00 G plastic	Soil	NA	GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6094	↓		X	1 125.00 ML Poly	Soil	NA	ISO PU AND ISO U		1025
AAB6094			X	1 125.00 ML Poly	Soil	NA	RCRA METALS	6010/7471/~~7061~~ 7411, 6010 (TAL(4PIM DL1)	

Relinquished by (Signature): Affiliation:	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 suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:
Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS Courier/Fed Jones 6,8,5 D. Frak, Y. Lancaster

Original- SCF Yellow Copy -RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/12/94 COC 1078-09755

Technical Area 01 Send Lab Report to: Ron Conrad MS K490

Operable Unit OU1078

OU Contract Carl Newton C335

Contact Phone Number (505) 667-8676 Date Lab Report Required 8/20/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Matl	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6085	7-12-94 1745		X	1 150 00 G plastic	Soil	NA	GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6085			X	1 125 00 ML Poly	Soil	NA	ISO PU AND ISO U		
AAB6085			X	1 125 00 ML Poly	Soil	NA	RCRA METALS	6010/7471/7061 7471, 6010 (TL 4PPM DL)	

Relinquished by (Signature): Affiliation: EES-3	Date 7-15-94	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By (Signature): Rebecca Eaton Affiliation: CST-9	Time 950	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS TEFLON 72 JOINTS 4, 10, 11, 9 & 516 P. FRANK, Y. LANCASTER

Original- SCF Yellow Copy -RPF DPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/13/94

COC 1078-09770

Technical Area 01

Operable Unit OU1078

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newlon C335

Contact Phone Number (505) 667-8676

Date Lab Report Required 8/31/94

Field Unique Sample #ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Mat'l	Matrix (Liquid Soil, Core Sludge, Etc	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6100	7/13/94 1015		X	1 150 00 G plastic	Soil	NA	GROSS ALPHA/BETA/G AMMA	RAD VAN	
AAB6100			X	1 125 00 ML Poly	Soil	NA	ISO PU AND ISO U		
AAB6100			X	1 125 00 ML Poly	Soil	NA	RCRA METALS	6010/7471/7061	
							NO OTHER REMARKS		

Relinquished by (Signature): Affiliation:	Date 7/14/94	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By: (Signature): Affiliation:	Time 1200	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard ✓ Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS Received 5, Dates 7, 5, 10

Original - SCF Yellow Copy - RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/13/94 COC 1078-09754

Technical Area 01

Operable Unit OU1078

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335

Contact Phone Number (505) 667-8676

Date Lab Report Required 8/31/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Mat'l	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6084	7/13/94 1415		X	1 150.00 G Plastic	Soil	NA	GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6084	↓		X	1 125.00 ML Poly	Soil	NA	ISO PU AND ISO U		
AAB6084			X	1 125.00 ML Poly	Soil	NA	RCRA METALS	6010/7471	

Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By: (Signature): Affiliation: EE-3	Time 1200	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS D. FRANK V-AMLISTER TRENCH, UNITS 5,6,11

Original- SCF Yellow Copy -RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/13/94
Technical Area 01
Operable Unit OU1078

COC 1078-09759

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676

Date Lab Report Required 8/31/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Mat'l	Matrix (Liquid Soil, Core Sludge, Etc	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc)
AAB6089	7-13-94 1600		X	1 150 00 G plastic	Soil	NA	GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6089			X	1 125 00 ML Poly	Soil	NA	ISO PU AND ISO U		
AAB6089			X	1 125 00 ML Poly	Soil	NA	RCRA METALS	6010/7471/7061	Hg, Tl, Pb, Se, As, Ag, Cd, Cr, Ba

Relinquished by (Signature): Affiliation: Date
Received By: (Signature): Affiliation: Time

Relinquished by (Signature): Affiliation: Date
Received By: (Signature): Affiliation: Time

Relinquished by (Signature): Affiliation: Date
Received By: (Signature): Affiliation: Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non-hazard X Other ___

SAMPLE DISPOSAL:
Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS D. FRANK VICKI LANCASTER TRUCK 3,5,7

Original - SCF Yellow Copy - RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/13/94
Technical Area 01
Operable Unit OU1078

COC 1078-09753

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676

Date Lab Report Required 8/31/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Matl	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6083	7-13-94 1100		X	1 150 00 G plastic	Soil	NA	GROSS ALPHA/BETA/G AMMA	RAD VAN	
AAB6083			X	1 125 00 ML Poly	Soil	NA	ISO PU AND ISO U		
AAB6083			X	1 125 00 ML Poly	Soil	NA	RCRA METALS	6010/7471/7061	
							Hg Arsenic Metals (Tl Hgm Tl)		

Relinquished by (Signature): Affiliation:	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 suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS [illegible]

Original - SCF Yellow Copy - RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/14/94

COC 1078-09775

Technical Area 01

Operable Unit OU1078

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335

Contact Phone Number (505) 667-8676

Date Lab Report Required 8/31/94

Field Unique Sample ID (write in Sample ID number again below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Matl	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6105 NB6084	7/13/94 1415		X	1 150 00 G Plastic	Soil	NA	GROSS ALPHA/BETA/G ALPHA	RAD VAN	
~~AAB6105~~				~~1 - 125 00 ML Poly~~	Soil		~~ISOTOPIC~~ ISOU		
~~AAB6105~~				~~1 - 125 00 ML Poly~~	Soil		~~RCRA METALS~~		

Relinquished by (Signature): Affiliation:	Date 7/14/94	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By: (Signature): Affiliation:	Time 1253	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS RELEASE RAD VAN SAMPLE ONLY 7/14/94 D. FRALE

DFF

Original - SCF Yellow Copy - RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/14/94
COC 1078-09763
Technical Area 01
Operable Unit OU1078
Send Lab Report to: Ron Conrad MS K490
OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676
Date Lab Report Required 9/1/94

Field Unique Sample #/ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Mat'l	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6093	7/14/94 1100		X	1 150 00 G plastic	Soil	AA	GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6093	↓		X	1 125 00 ML Poly	Soil	AA	ISO PU AND ISO U		
AAB6093	↓		X	1 125 00 ML Poly	Soil	AA	RCRA METALS 9471-Hg	6010/7471/7061	
							(Also - Over Heads (to Upp. Tz)		

Relinquished by (Signature): Affiliation:	Date 7/15/94	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By: (Signature): Affiliation: EE-3	Time 1200	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)
Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:
Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS D. Falk, V. Lancaster
Tracy Jones 7/1

Original - SCF
Yellow Copy - RPF
Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 7/14/94 COC 1078-09761

Technical Area 01

Operable Unit OU1078

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335

Contact Phone Number (505) 667-8676

Date Lab Report Required 9/1/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Matl	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6091	7/14/94 1215	X		1 150.00 G plastic	Soil	NA	GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6091	↓	X		1 125.00 ML Poly	Soil	NA	ISO PU AND ISO U		
AAB6091	↓	X		1 125.00 ML Poly	Soil	NA	RCRA METALS	6010/7471/7060	
							Hg - 7471		
							(ITD - Quick Turnaround)		
							(Tc 9pm Tu)		

Relinquished by (Signature): Affiliation:	Date 7/15/94	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By: (Signature): Affiliation:	Time 1210	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS D. FRANK V. LANGSTER TRENCH 6 EAST TERMINATION

Original- SCF Yellow Copy -RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 9/14/94
Technical Area 01
Operable Unit OU1078

COC 1078-09760
Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676
Date Lab Report Required 9/21/94

Field Unique Sample # ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Matl	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6090	9/14/94 1415	X		1 150 00 G plastic	Soil	NA	GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6090		X		1 125 00 ML Poly	Soil		ISO PU AND ISO U		
AAB6090		X		1 125 00 ML Poly	Soil		RCRA METALS 9411-TK	6010/7471/7061	
							GW - OTHER THAN 1 (7) TPH 11		

Relinquished by (Signature): Affiliation:	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 suspect to contain high levels of hazardous substances)
Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non-hazard X Other ___

SAMPLE DISPOSAL:
Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS D. FRANK V LAMBSHIRE Hanford 53 TRENCH TEST

Original- SCF Yellow Copy - RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 9/15/94

COC 1078-09758

Technical Area 01

Operable Unit OU1078

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335

Contact Phone Number (505) 667-8676

Date Lab Report Required 9/2/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Mat'l	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6088	9/8/94 1015		X	1 150 00 G plastic	Soil		GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6088			X	1 125 00 ML Poly	Soil		ISO PU AND ISO U		
AAB6088			X	1 125 00 ML Poly	Soil		RCRA METALS 9/17/94	6010/7471/7061	?
							(W) - OTHER (TAL) (7, 9, 11, 12)		

Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By: (Signature): Affiliation: EE-3	Time 4:00	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non-hazard X Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months): ___

COMMENTS D. PARK V. LANCASTER TRENCH 7, UNITS 1,2,3

Original - SCF Yellow Copy - RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 2/15/94
Technical Area 01
Operable Unit OU1078

COC 1078-09765

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676

Date Lab Report Required 9/1/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Mat'l	Matrix (Liquid Soil, Core Sludge, Etc)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6095	2/15/94 1015		X	1 150 00 G plastic	Soil	NA	GROSS ALPHA/BETA/GAMMA	RAD VAN	
AAB6095			X	1 125 00 ML Poly	Soil	NA	ISO PU AND ISO U		
AAB6095			X	1 125 00 ML Poly	Soil	NA	RCRA METALS 7471-7196	6010 7471/7196	
							(NP - Other Flights 1 (7 1 4/m-V)		

Relinquished by (Signature): Affiliation:	Date 2/15/94	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By (Signature): Affiliation:	Time 700	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)
Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:
Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS [illegible] Trench 7, Jun-15 1,2,3

Original- SCF Yellow Copy -RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 9/15/94
Technical Area 01
Operable Unit OU1078

COC 1078-09757
Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676
Date Lab Report Required 9/2/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Matl	Matrix (Liquid Soil, Core Sludge, Etc)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc)
AAB6087	[illegible]			[illegible] plastic	Soil		GROSS ALPHA/BETA/GAMMA	RADVAN	
AAB6087				1 - [illegible] Poly	Soil		ISOTOPIC ISOTOPIC		
AAB6087				1 - 125.00 ML Poly	Soil		RCRA METALS	[illegible]/7061	
AAB6057	9/15/94 1115	X	X	1 SOUNAL BYG	SU	NA	TEMPH		

Relinquished by (Signature): Affiliation:	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 suspect to contain high levels of hazardous substances)
Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non hazard X Other ___

SAMPLE DISPOSAL:
Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS [illegible]

Original- SCF Yellow Copy -RPF Pink - FTL

Los Alamos National Laboratory Environmental Restoration
Chain of CUSTODY/REQUEST FOR ANALYSIS

Date 9/15/94
Technical Area 01
Operable Unit OU1078

COC 1078-09762

Send Lab Report to: Ron Conrad MS K490

OU Contract Carl Newton C335
Contact Phone Number (505) 667-8676

Date Lab Report Required 9/2/94

Field Unique Sample ID (write in Sample ID number space below)	Date & Time Collected	GRAB	COMP	Sample Container Volume/Mat'l	Matrix (Liquid Soil, Core Sludge, Etc.)	Preservative	ANALYSIS REQUESTED TEST	METHOD	REMARKS (Condition of receipt, etc.)
AAB6092	9/15/94 1115	X		1 150 00 G plastic	Soil	NA	GROSS ALPHA BETA GAMMA	RAD VAN	
AAB6092		X		1 125 00 ML Poly	Soil	NA	ISO PU AND ISO U		
AAB6092		X		1 125 00 ML Poly	Soil	NA	RCRA METALS 7	6010/7471/7061	
							(GOLD - OTHER METALS)		

Relinquished by (Signature): Affiliation: CPM	Date 9/15/94	Relinquished by (Signature): Affiliation:	Date	Relinquished by (Signature): Affiliation:	Date
Received By: (Signature): Affiliation:	Time 1201	Received By: (Signature): Affiliation:	Time	Received By: (Signature): Affiliation:	Time

POSSIBLE HAZARD IDENTIFICATION:
(Please indicate if sample(s) are hazardous materials and/or suspect to contain high levels of hazardous substances)

Radiological ___ High Toxic ___ Flammable ___ Skin Irritant ___ Non-hazard X Other ___

SAMPLE DISPOSAL:

Return to client ___ disposal by Lab X Archive (indicate number of months) ___

COMMENTS D. FRANK, V. LANCASTER VAULT 52 UNDER BUILDING SLAB

Original - SCF Yellow Copy - RPF Pink - FTL

APPENDIX F

Tailgate Safety Meeting Forms

Jeff Woolstrom
313-556-7688

TAILGATE SAFETY MEETING

OU 1078 TA 01 SSHASP No. 07 Date 07/11/94
Project Title Western Sanitary Water Line

SAFETY TOPICS PRESENTED

SUBJECTS DISCUSSED (Including Change Orders)
Planned operations, PPE, excavation, sanitary facilities, emergency, muster area, trench operations, maintenance, underground utilities, Phone Nos. allowed to Emergency Kit, directions to hospital

HAZARDS:
Biological (Site/Operational) Snakes, Spiders & Poisonous

Chemical Organic Vapors not expected; Potential for Mercury Vapor

Physical Slips, Trips & Falls, Electrical shock, Debris falling from trench, backhoe movements, operations

Radiological Some potential for intact [illegible] Radon Gas & Particulate Emissions

HAZARD CONTROL MEASURES:
Personal Protective Equipment Level D - Hard Hat, Safety Glasses w/ Side Shields, steel-toed boots, coveralls or Khakis, and White Gloves; Lin trench
Engineering/Administrative Control Forced Air For Drainage, Stress All Trenches to be closed by end of day, Caution Flagging for CZ & EZ
Monitoring (IH/HP) OVM or Equivalent, Mercury Vapor Analyzer [redacted] necessary; Radiation Screening from and CZ & EZ
Special Equipment -None-

EMERGENCY ACTIONS:

Meeting Conducted By: Terry Johnson (Print Name) (Title) (Signature)

ER/HS Team Form 04

TAILGATE SAFETY MEETING

OU 1076 TA 01 SSHASP No. 07 Date 07/12/94
Project Title Waste Gas Waste Line

SAFETY TOPICS PRESENTED

SUBJECTS DISCUSSED (Including Change Orders)
Planned operations, Radiation Hazard, Changes in PPE, SSHASP Changes, Emergency alarm, Location of Generator, Changes of Site Topography, Weather Changes, SZ, CRZ & EZ Changes, Phone was added to First Aid Kit

HAZARDS:
Biological (Site/Operational) Snakes, Spiders & Poison Ivy

Chemical Organic Vapors & Mercury Vapors; Possible But Not Expected

Physical Slips, Trips, Falls, Lightning from Thunderstorms, Debris falling from trees and structures, Backing Machinery, Operations

Radiological Tritium was detected within the waste gas vent, should be priority, Engineering & Administrative radiological changes

HAZARD CONTROL MEASURES:
Personal Protective Equipment Normal PPE w/ specialized type as for personnel working in VCP

Engineering/Administrative Control Fence/Area for Personnel & Equipment Only, Entry/Exit To the Site To Be Through This Entrance

Monitoring (IH/HP) OVM/PID Monitoring for Organic Vapors, Mercury Vapor Monitoring, Dust Monitoring, Radiation Screening with Ratemeter/Scaler

Special Equipment RCT-1 Radiation Control Technician To Be On Site for Entry Excavation work

EMERGENCY ACTIONS:

Meeting Conducted By: Terry Johnson SSO (Print Name) (Title) (Signature)

ER/HS Team Form 04 1/1/94

22

Meeting Attendees

Print Name & Z =	Signature
TERRY Johnson 115893	Terry Johnson
Jami Wiggins 113023	Jami Wiggins
Patricia Gallegos 115966	Patricia Gallegos
DAVE FRANK 115880	[illegible]
Alfred R. Kellner 94750	Alfred R. Kellner
JOHN Elliot 115438	[illegible]
Robert Dimmick 081222	[illegible]
Jim Lewis 102160	[illegible]

TAILGATE SAFETY MEETING

OU 1078 TA 01 SSHASP No. 08 Date 07/13/94
Project Title Western Smelter Wetland

SAFETY TOPICS PRESENTED

SUBJECTS DISCUSSED (Including Change Orders)
Planned operations, Radiation Hazard, Mixed Waste, Monitoring & Sampling, Decon of Slips Trips & Falls, Weather Decision, SZ, CRZ & EZ Area, Location of Toilet and Decon Station, Communication problems in EZ

HAZARDS:
Biological (Site/Operational) Ticks, Snakes, Spiders & Poison Ivy

Chemical Organic Vapors & Mercury, Vapors Possible Toxic Noxious Detected To Date

Physical Slips Trips & Falls, Lightning, Debris from trees falling on head/body, Broken Mercury Equipment, Slips & Trips from Tarp

Radiological >5000 CPM area, Airborne or Loose Contamination Hazards, People leaving w/ contamination on their Suits, Gloves & Tape which is broken & tape up zippered

HAZARD CONTROL MEASURES:
Personal Protective Equipment Forced Air for Decon & Equipment. PPE as required, Not allowed to people leaving w/ UCP zone gloves & taping required

Engineering/Administrative Control Forced Air for Decon & Equip. Sign in/out log for entrance to EZ, Slips Trips & Falls Safety meeting

Monitoring (IH/HP) PID, Mercury Vapor, Explosive, Dust & Radiation

Special Equipment ESM-1, RCT Personnel, Posting of RWP in Support Structure on Forced Air

EMERGENCY ACTIONS:

Meeting Conducted By: Terry Johnson SSO
(Print Name) (Title) (Signature)

ER/HS Team Form 04 1/1/94

124

Meeting Attendees

Print Name & Z #	Signature
Terry Johnson 115497	[illegible]
DAVE FRANK 115513	[illegible]
Randy Rouhal 106655	Randy Rouhal
Linda Callaway 31171	Linda Callaway
DONALD RICHARD E 093001	Donald Richard
Patricia Gallagher 115916	Patricia Gallagher
Alfred A. Rodriguez 097850	Alfred A. Rodriguez
Tammi Irrigaines 113023	Tammi Irrigaines
Walda R Williams 090581	Walda R Williams
Lonnie F Dugal 104771	[illegible]
Nick Ceballos 081241	Nick Ceballos

TAILGATE SAFETY MEETING

OU 10K TA 01 SSHASP No. 07 Date 07 14 94
Project Title Western Sanitary Inst. Line

SAFETY TOPICS PRESENTED

SUBJECTS DISCUSSED (Including Change Orders)
Planned Operations / Radiation Hazard / Minute Lunch / Emergency Phone Locations / Monitoring of the Excavation / Proper Slips, Trips & Falls / Hazards Review / SZ CRZ & EZ Zones / Importance of Being Sensitive / Inside EZ / Decontamination / Communication

HAZARDS:
Biological (Site/Operational) Ticks, Snakes, Spiders & Poison Ivy
Danger of insect bites

Chemical Organics & Mercury Vapors Possible

Physical Slips, Trips & Falls; Danger of falling debris especially when working around the machinery / Rockhoe Operations & Movement / Walking Planks during lifting material from the excavation

Radiological >10,000 cpm BX (Cs, Ra) in majority detected of alpha contamination by laboratory

HAZARD CONTROL MEASURES:
Personal Protective Equipment Hard Hat Overalls. People working w/ pipes to have 2 pair gloves, taping at wrists & zipper

Engineering/Administrative Control Fenced Area for Equipment Storage; Signs at Entrance for EZ; Tailgate Safety Meeting

Monitoring (IH/HP) PID & Mercury Vapor meters; Fugitive Dust to minimize Radiation w/ Rehydration & Nuisance.

Special Equipment ESH-1 RCT Periodically & Parking of RWP in Support Structure

EMERGENCY ACTIONS:

Meeting Conducted By: Terry L Johnson SSO
(Print Name) (Title) (Signature)

ER/HS Team Form 04 1/1/94

126

Meeting Attendees

Print Name & Z =	Signature
Terry Tolman 115203	[illegible]
DAVE FRANK 115880	[illegible]
Patricia Gallegos 115964	Patricia L Gallegos
Alfred A. Rabinger 070750	Alfred A. Rabinger
Randy Roybal 106698	Randy Roybal
DONALD VECARDE	[illegible]
Luis A Gallegos	Luis Gallegos
Danny Sanchez	[illegible]
Waldo R. Ulibarri	Waldo R Ulibarri
Dana Katzman 114247	[illegible]
CARL NEWTON 082102	[illegible]
Tarni Wiggins 113023	Tarni Wiggins

6.3a

TAILGATE SAFETY MEETING

OU 10 TA 01 SSHASP No. 08 Date 07 15 94
Project Title 105W

SAFETY TOPICS PRESENTED

SUBJECTS DISCUSSED (Including Change Orders)
Planned Operations; Radiation Hazard; Mixture Areas; Communication; Monitoring; Previous Results; Dangers of Slips, Trips, Falls; Weather Dangers; SZ, CRZ's, EZ Areas; Emergency Procedures RAD Sensitive Instruments EZ

HAZARDS:
Biological (Site/Operational) Trees, Snakes, Spiders, Insect Bites, Poison Ivy

Chemical Organic; Mercury Vapors

Physical Slips, Trips, Falls; Dangers of Falling Bricks From MH Removal

Radiological > 10,000 CPM Bα in VCP

HAZARD CONTROL MEASURES:
Personal Protective Equipment Level D w/coveralls + taping at wrists, zipper

Engineering/Administrative Control Fenced Area for Equipment; VCP storage; Sign in/out of EZ logbook

Monitoring (IH/HP) PID; Mercury Vapor Analyzer; mini-RAM; Bα meter for RAD

Special Equipment: ESH-1 RCT Periodically; Posted RWP

EMERGENCY ACTIONS:

Meeting Conducted By: Terry Johnson SSO
(Print Name) (Title) (Signature)

ER/HS Team Form 04 1/1/94

Meeting Attendees

Print Name & Z =	Signature
Terry Johnson 115093	[illegible]
Randy Roybal 116698	[illegible]
DONALD VELARDE 053001	[illegible]
Luis A Callegos 81171	[illegible]
Patricia A Callegos 115966	[illegible]
Tami Wiggins 113025	[illegible]
Danny Trujillo 112579	[illegible]
Alfonso A. Rodriguez 097850	[illegible]

APPENDIX G

Air Sampling Forms

ERM/Golder Los Alamos Project Team

FLAME & PHOTOIONIZATION DETECTOR FIELD DATA FORM

FLAME & PHOTO IONIZATION DETECTOR FIELD DATA

FACILITY CODE [illegible]

LOCATION ID TRENCH #1

LOG DATE 7/1/94

FIELD REP [illegible]

TIME (HH:MM)	SAMPLE ID	OBSERVED READING (HID/PID) in PPM					OBSERVATION DEPTH (FT)	COMMENTS
		DH	HS	BZ	D	OT		
10:00	Background			0.0				
10:01	Background Bucket			0.0		0.0		W/in 18" bucket
10:02	Background [illegible]			0.0		0.0		W/in [illegible]
10:25	Trench #1			0.0		0.0		At Top of HCP
10:30	@ Trench #1			0.0		0.0		In HCP at Bottom
11:15	Trench #1			0.0		0.0		At Top of HCP
13:00	Trench #1			0.0		0.0		In HCP at Bottom
14:00	Trench #1			0.0		0.0		At Each Joint Thru Jt in Trench
14:30								

7 Jts

LOCATION TYPES:
BH - Borehole
SS - Soil Sample
SL - Surface Location
SB - Sample Bottle
TP - Test Pit
WL - Well
OT - Other

OBSERVED READING:
DH - Downhole
HS - Headspace
BZ - Breathing Zone
D - During Excavation (HID)
OT - Other

Terry Johnson 7/1/94
FORM COMPLETED BY/DATE

Rick Hardesty 3-27-95
TECHNICAL REVIEWER/DATE

131

ERM/Golder Los Alamos Project Team

FLAME & PHOTOIONIZATION DETECTOR FIELD DATA FORM

FLAME & PHOTO IONIZATION DETECTOR FIELD DATA

FACILITY CODE OU1078 WSWL

LOG DATE 7/12/94

LOCATION ID TA-01 SWMU 1-001 Trench #2 & #3

FIELD REP TLJ

TIME (HH:MM)	SAMPLE ID	OBSERVED READINGS (FID/PID) in PPM					OBSERVATION DEPTH (FT)	COMMENTS
		DH	HS	BZ	D	OT		
10:00	T2 J1			0.0		0.0		in vcp
10:30	Storm Drain			0.0		0.0		in pipe
11:00	Above Lateral			0.0		~~0.0~~		
13:10	T2			0.0				
14:10	T3			0.0				
14:11 to	T2 J1 to			0.0		0.0		w/in each
14:16	T2 J12			0.0		0.0		joint (1-12)
14:20	T3			0.0				

Terry Johnson

LOCATION TYPES:
BH - Borehole
SS - Soil Sample
SL - Surface Location
SB - Sample Bailer
TP - Test Pit
WL - Well
OT - Other

OBSERVED READINGS:
DH - Downhole
HS - Headspace
BZ - Breathing Zone
D - During Excavation (BZ)
OT - Other

Terry Johnson / 7/12/94
FORM COMPLETED BY/DATE

Rick Hacker 3-27-95
TECHNICAL REVIEWER/DATE

132

ERM/Golder Los Alamos Project Team

FLAME & PHOTOIONIZATION DETECTOR FIELD DATA FORM

Page 1 of 1

FLAME & PHOTO IONIZATION DETECTOR FIELD DATA

FACILITY CODE: OU1078 WSWL

LOG DATE: 7/13/94

LOCATION ID: TA-01 SWMU 1-001 Trench #3, 4, 5

FIELD REP: Terry Johnson

TIME (HH:MM)	SAMPLE ID	OBSERVED READING (RD/PDI in PPM) DN	HS	BZ	D	OT	OBSERVATION DEPTH (FT)	COMMENTS
08:30	Background			0.0				
09:04	T3J14			0.0 to		2-5ppm		invcp 2-5
09:24	T3J12			0.0		2-5ppm		fr all trjcts
11:35 to	T4J1 to			0.0 to		2-5ppm		in vcp 2-5
11:34	T4J12			0.0		2-5ppm		for all trjcts
14:46	T5J1 to			0.0 to		0-2ppm		in vcp 0-2
15:11	T5J12			0.0		0-2ppm		fr all trjcts

LOCATION TYPES:
BH = Borehole
SS = Soil Sample
SL = Surface Location
SB = Sample Bottle
TP = Test Pit
WL = Well
OT = Other

OBSERVED READING:
DN = Downhole
HS = Headspace
BZ = Breathing Zone
D = During Extraction (BZ)
OT = Other

Terry Johnson / 7/13/94
FORM COMPLETED BY/DATE

R Haaker 3-27-95
TECHNICAL REVIEWER/DATE

ERM/Golder Los Alamos Project Team

FLAME & PHOTOIONIZATION DETECTOR FIELD DATA FORM

Page 1 of 1

FLAME & PHOTO IONIZATION DETECTOR FIELD DATA

FACILITY CODE OU1078 TA-01 WSWL

LOG DATE 7/14/94

LOCATION ID TA-01 SWMU 1-001

FIELD REP Jim Tolan

TIME (HH:MM)	SAMPLE ID	OBSERVED READING (PROVIDE in PPM) DH	HS	BZ	D	OT	OBSERVATION DEPTH (FT)	COMMENTS
0735	Background			0.0				
0740 to	Continuum			0.0				No OV detected
0830	inMW#53							
	Area							
1130	T6J1			0.0		0.0		In UCP
1130	T6J2			0.0		0.0		"
1131	T6J3			0.0		0.0		"
1458	T6J4			0.0		0.0		"
1512	T6J5			0.0		0.0		"
11:05	T6J7			0.0		0.0		"

Jim Tolan

LOCATION TYPES:
BH - Borehole
SS - Soil Sample
SL - Surface Location
SB - Sample Barrier
TP - Test Pit
WL - Well
OT - Other

OBSERVED READINGS:
DH - Downhole
HS - Headspace
BZ - Breathing Zone
D - During Excavation (BZ)
OT - Other

Terry Johnson / 7/14/94
FORM COMPLETED BY/DATE

R Hacker 3-27-95
TECHNICAL REVIEWER/DATE

134

ERM/Golder Los Alamos Project Team

FLAME & PHOTOIONIZATION DETECTOR FIELD DATA FORM

Page 1 of 1

FLAME & PHOTO IONIZATION DETECTOR FIELD DATA

FACILITY CODE OU1078 TA-01 WSWC

LOG DATE 7/15/94

LOCATION ID TA-01 SWMU 1-001

FIELD REP [illegible]

TIME (HH:MM)	SAMPLE ID	OBSERVED READING (FID/PID) in PPM DH	HS	BZ	D	OT	OBSERVATION DEPTH (FT)	COMMENTS
0730	Background			0.0				
0745 to	BZ Downwind			0.0				
0830	Wind 8 MHSZ			0.0				
0830	TP 7 Jan			0.0		0.0		in VCP
0845	Leaving MHSZ			0.0		1-5		in MHSZ
0855	BZ Downwind			0.0				
0945	TP 7 Jan			0.0		0.0		in VCP
0946	TP 7 Jan			0.0		0.0		in VCP
0950	BZ Downwind			0.0				
1020	Downwind			0.0				
1050	Downwind			0.0				

LOCATION TYPES:
BH - Borehole
SS - Soil Sample
SL - Surface Location
SB - Sediment Bioflux
TP - Test Pit
WL - Well
OT - Other

OBSERVED READINGS:
DH - Downhole
HS - Headspace
BZ - Breathing Zone
D - During Excavation (BZ)
OT - Other

Terra Johnson / 7/15/94
FORM COMPLETED BY/DATE

R. G. H. 3-27-95
TECHNICAL REVIEWER/DATE

DIRECT READING AIR SAMPLING FORM

OU 1075 TA 01 SSHASP No. 07 Date 07 11 94
Project Title [illegible]
Page 1 of 1

Instrument Toxic Organic Vapor Analyzer Model 431-X

Serial Number 1710

Calibration Data*

Type of Gas	Concentration	Instrument Response	Comments	Calibrated by	Date
Zero Air	—	Zero		TLT	07/11/94
Note:	Measures Vapor	Analyzer [illegible]	Extremely	Stable	
Requires Factory Calibration Approximately once per year.					
This instrument was calibrated on 7/8/94 prior to shipment					

* For detector tubes, write 'not applicable'

Measurements/Indications

Time	Location	Meter Reading/Indication	Comments
1330	Trench 1	0.0	Top of VCP
1400 to	Trench 1 Joints	0.0 for all	all Joints [illegible]
1430	1 to 13	readings	VCP

Measurements by Terry Johnson SSO
(Print Name) (Title)

Terry Johnson
(Signature)

* VCP = Vitrified Clay Pipe 11/1/94
6" diameter

ERHS Team Form 10

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DIRECT READING AIR SAMPLING FORM

OU 1078 TA 01 SSHASP No. 08 Date 07 12 94
Project Title USWL
Page 1 of 1

Instrument Toxame Mercury Vapor Model 43/-X

Serial Number 1710

Calibration Data*

Type of Gas	Concentration	Instrument Response	Comments	Calibrated by	Date
Air	—	Zero		TCJ	7/12/94
See Note on 7/11/94 Form					

* For detector tubes, write "not applicable"

Measurements/Indications

Time	Location	Meter Reading/Indication	Comments
1000	T2 J1	0.0	
1030	Storm Drain	0.0	w/in drain
1100	Above lateral at main line	0.1	
1310	~~0~~ T2 B2	0.0	
1410	T3 B2	0.0	
1411	T2 J1 to	0.0	
to 1420	T2 J12	0.0 for all	
		joints (1 – 12)	
1420	T3 B2	0.0	

Measurements by Terry Johnson SSO
(Print Name) (Title)

(Signature)

ER/HS Team Form 10 1/1/94

T = Trench
J = Joint

B2 = Breathing Zone

B2

DIRECT READING AIR SAMPLING FORM

OU 10B TA 01 SSHASP No. 01 Date 07 13 94
Project Title WSOU
Page 1 of 1

Instrument Jerome Mercury Vapor Model 431-X

Serial Number 1710

Calibration Data*

Type of Gas	Concentration	Instrument Response	Comments	Calibrated by	Date
Air	—	Zero		TCT	7/13/94
See note on 7/11/94 form					

* For detector tubes, write "not applicable"

Measurements/Indications

Time	Location	Meter Reading/Indication	Comments
0930	Background	0.0	
0910 to	T3J1 to	0.0 for	w/in VCP
0924	T3J12	all 12 joints	& in BZ
11:35 to	T4J1 to	0.0 for all	w/in VCP
11:34	T4J12	12 joints	BZ
14:46 to	T5J1 To	0.0 for all 12	w/in VCP & in
15:11	T5J12	joints	BZ

Measurements by Terry Johnson SSO
(Print Name) (Title) (Signature)

ERHS Team Form 10 7/1/94

DIRECT READING AIR SAMPLING FORM

07/14/94

OU 1078 TA 01 SSHASP No. 05 Date 07-14-94

Project Title WSOU

Page 1 of 1

Instrument Trace Vapor Analyzer Model 131-X

Serial Number 1710

Calibration Data*

Type of Gas	Concentration	Instrument Response	Comments	Calibrated by	Date
AIR	—	Zero		TCT	7/14/94
		See 7/11/94 form			

* For detector tubes, write "not applicable"

Measurements/Indications

Time	Location	Meter Reading/Indication	Comments
0735	Background	0.0	
1130	T6J1	0.0	
1130	T6T2	0.0	
1131	T1,T3	0.0	
1058	T6J4	0.0	
1512	T6J5	0.0	
1605	T6J7	0.0	
1810	MH#53	0.0	

Measurements by Terry Johnson SSO [signature]
(Print Name) (Title) (Signature)

ER/HS Team Form 10 1/1/94

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DIRECT READING AIR SAMPLING FORM

OU MX TA 01 SSHASP No. 08 Date 07 15 94
Project Title NSWC
Page 1 of 1
Instrument Jerome Mercury Vapor Analyzer Model 431-X
Serial Number 1710

Calibration Data*

Type of Gas	Concentration	Instrument Response	Comments	Calibrated by	Date
AIR	—	Zero		TLT	7/15/94
		See note 7/15/94 form			

* For detector tubes, write "not applicable"

Measurements/Indications

Time	Location	Meter Reading/Indication	Comments
0730	Background	0.0	
0745 to	B7 Combustion	0.0 to	
0830	at 12 Sec intervals	0.1	
0830 TD	T#7 J#3E	0.0	
0845	T# Flowpipe Tower #52	0.0	MH #52
0855	B2 & Area	0.0	
0945	T#7 J#1N	0.0	
0946	T#7 J#2N	0.0	
0950	B2 Downwind	0.0	

Measurements by Terry Johnson SSO Terry Johnson
(Print Name) (Title) (Signature)

ER/HS Team form 10 1/1/94

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Measurements/Indications

Time	Location	Meter Reading/Indication	Comments
1020	B2 Downwind	0.0	
1050	B2 Downwind	0.0	

Measurements by Terry Johnson SSO

(Print Name) (Title) (Signature)

FIGURE 8-7

REAL-TIME AEROSOL FIELD MONITORING DATA FORM

OU 1075 SSHASP No. _____ Date: 7/11/94

Project Title: [illegible]

Page 1 of ____

REAL-TIME AEROSOL FIELD MONITORING DATA

OU 1075 DATE 7/11/94

Calibration Complete [illegible] Model No. PDM-3 # 4243

Calibration Time [illegible] Recalibration Time 1705

FIELD MEASUREMENTS					
LOCATION ID OR DESCRIPTION	TIME (HHMM)	SAMPLE TYPE	ACTIVITY TYPE	CONCENTRATION (mg/m³)	COMMENTS
Trench 1	10:25	Air	Trench Excavation	0.0	
"	11:03	Air	" "	0.0	
"	11:30	Air	" "	0.0	
"	12:00	Air	" "	0.1	
Trench 1	13:00	Air	" "	0.0	
"	14:00	Air	" "	0.0	
"	14:30	Air	" "	0.0	

Measurements by Terry Johnson SSO
(Print Name) (Title)

Terry Johnson
(Signature)

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FIGURE 8-7

REAL-TIME AEROSOL FIELD MONITORING DATA FORM

OU 1079 SSHASP No. 57 Date: 7/12/94

Project Title: 10SWL

Page 1 of 1

REAL-TIME AEROSOL FIELD MONITORING DATA

OU 1079 DATE 7/12/94

Calibration Complete 7/12/94 Model No. DDM-3 # 4543

Calibration Time 06:00 Recalibration Time 20:00

FIELD MEASUREMENTS					
LOCATION ID OR DESCRIPTION	TIME (HH:MM)	SAMPLE TYPE	ACTIVITY TYPE	CONCENTRATION (mg/m³)	COMMENTS
Background	07:00	Air	Background	0.0	
T2J1	10:00	"	"	0.0	
AT Storm Inlet	10:30	"	"	0.0	
Above Lateral	11:00	"	"	0.1	
B2T2	13:10	"	"	0.0	
B2T3	14:10	"	"	0.0	
T2J1	1411	"	"	—	
T2J2	1412	"	"	—	
T2J3	1413	"	"	—	
T2J4	1413	"	"	—	
T2J5	1414 3TS	"	"	—	
T2J6	1414	"	"	—	
T2J7	1414	"	"	—	
T2J8	1415	"	"	—	
T2J9	1415	"	"	—	
T2J10	1416	"	"	—	
T2J11	1416	"	"	—	
T2J12	1416	"	"	—	
T3B2	14:30	"	"	—	
		"	"		

Measurements by Terry Johnson SSO
(Print Name) (Title)

Terry Johnson
(Signature)

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FIGURE 8-7

REAL-TIME AEROSOL FIELD MONITORING DATA FORM

OU 1074 SSHASP No. 08 Date: 7/13/94

Project Title: WSWL

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REAL-TIME AEROSOL FIELD MONITORING DATA

OU 1074 DATE 7/13/94

Calibration Complete 7/13/94 Model No. DDM-3 #4843

Calibration Time 0600 Recalibration Time 1900

FIELD MEASUREMENTS					
LOCATION ID OR DESCRIPTION	TIME (HH:MM)	SAMPLE TYPE	ACTIVITY TYPE	CONCENTRATION (mg/m³)	COMMENTS
Back (ground)	0530	AIR	BACKGROUND	0.0	
Co-home	0900 to	"	"	0.0	
closing	15:30				
excavation					

Terry Johnson

Measurements by Terry Johnson SSO
(Print Name) (Title)

Terry Johnson
(Signature)

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FIGURE 8-7

REAL-TIME AEROSOL FIELD MONITORING DATA FORM

OU 1078 SSHASP No. 08 Date: 7/14/94

Project Title: 6) SWL

Page 1 of ___

REAL-TIME AEROSOL FIELD MONITORING DATA

OU 1078 DATE 7/14/94

Calibration Complete 7/14/94 Model No. DRM-3 #4953

Calibration Time 0[illegible]:00 Recalibration Time 19:20

FIELD MEASUREMENTS					
LOCATION ID OR DESCRIPTION	TIME (HH:MM)	SAMPLE TYPE	ACTIVITY TYPE	CONCENTRATION (mg/m³)	COMMENTS
Background	0735	AIR	Backhoe	0.0	
Continuous	0800	"	"	0.0 to	
Monitoring				0.2	
As Equipment					
Proceeds w/					
2.5 hours					
hindrances					
continuously					
from noon					
14:30					

Measurements by Terry Johnson SSO
(Print Name) (Title)

Terry Johnson
(Signature)

FIGURE 8-7

REAL-TIME AEROSOL FIELD MONITORING DATA FORM

OU 1078 SSHASP No. 08 Date: 7/15/94

Project Title: WSWC

Page 1 of 1

REAL-TIME AEROSOL FIELD MONITORING DATA

OU 1078 DATE 7/15/94

Calibration Complete 7/15/94 Model No. PDM #3 # 4893

Calibration Time 06:00 Recalibration Time ~~[illegible]~~ 12:45

FIELD MEASUREMENTS					
LOCATION ID OR DESCRIPTION	TIME (HHMM)	SAMPLE TYPE	ACTIVITY TYPE	CONCENTRATION (mg/m³)	COMMENTS
Background	0815-0830	AIR	BACKHOE	0.0	
Contam	0745	"	~~[illegible]~~	0.0	
Monitors	0830	"	Backhoe	0.2	
During MHE52			Excavation		
Equipment					
0845 to					
1030					

Measurements by Terry Johnson SSO
(Print Name) (Title)

Terry Johnson
(Signature)

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ORGANICS and MERCURY SCREENING LOG

SECTION 1 (0.0 TO 36.0 FEET EAST OF MANHOLE)

LOCATION	ANALYSIS	Distance from Manhole No. 52 in feet					
		0 - 3	3 - 6	6 - 9	9 - 12	12 - 15	15 - 18
Top of VCP	FID	0.0	0.0	0.0	0.0	0.0	0.0
	PID	0.0	0.0	0.0	0.0	0.0	0.0
	Mercury (each 36 foot interval only)	0.0	0.0	0.0	0.0	0.0	0.0
Bottom of Excavation	FID						
	PID						
	Mercury (each 36 foot interval only)						

LOCATION	ANALYSIS	Distance from Manhole No. 52 in feet					
		18 - 21	21 - 24	24 - 27	27 - 30	30 - 33	33 - 36
Top of VCP	FID	0.0	0.0	0	0	0	0
	PID	0.0	0	0	0	0	0
	Mercury (each 36 foot interval only)	0.0	0	0	0	0	0
Bottom of Excavation	FID						
	PID						
	Mercury (each 36 foot interval only)						

NOTES:

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APPENDIX H

Radiation Survey Forms

RADIATION SCREENING LOG

DATE OF SCREENING: 7/11/94 OU1078 TA-1 SWMU 1-001(s)

SECTION 1 10.0 TO 36.0 FEET EAST OF MANHOLE

LOCATION	ANALYSIS	0 - 3 (J1-J2)	3 - 6 (J2-J3)	6 - 9 (J3-J4)	9 - 12 (J4-J5)	12 - 15 (J5-J6)	15 - 18 (J6-J7)
		Distance from Manhole No. 52 in feet					
Top	Alpha	~~≤100~~ PG		* ≤ 100 cpm	≤100 cpm	≤50 ~~270~~ cpm	≤150 1.
of	Beta	PG ~~222 cpm~~		222 cpm	284	270	262
VCP	Gamma	~~≤~~ PG		"	"	~~≤150~~ 001. "	"
Bottom	Alpha						
of	Beta						
Excavation	Gamma						

LOCATION	ANALYSIS	18 - 21 (J7-J8)	21 - 24 (J8-J9)	24 - 27 (J9-J10)	27 - 30 (J10-J11)	30 - 33 (J11-J12)	33 - 36 (J12-J13)
		Distance from Manhole No. 52 in feet					
Top	Alpha	—	≤250 cpm 3.				
of	Beta	~~787~~ 685 2.	6800 cpm 3.				
VCP	Gamma						
Bottom	Alpha						
of	Beta						
Excavation	Gamma						

NOTES: OU 1078 TA-1 SWMU 1-001 (s) ~~TA-3~~ PG Pipe - manhole excavation screening for α, βγ on top and bottom of VCP (pipe). Monitoring instruments include ESP-1 with HP-260 probe (βγ) and Ludlum 139 w/ air proportional probe (α)

* This may be joint #3 but is Trench 1 joint 1 but is approx. 6 ft east of manhole. and consecutive joints j2 ... etc

1. soil was wet at a broken joint
2. inside joint wet soil Took 3 counts
3. Soil inside J6 very moist. α high hit and βγ over action level

DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: 7/11/94 Sample Time: all day

TA: 1 Bldg: NB Room(s)/Area(s): NWCR TA-1 [illegible]

Printed Name: Gallegos

Mail Stop: M327 Phone: 662-3700

ADDITIONAL INFORMATION

Occurrence No.: N/A

Incident No.: N/A

RWP No.: 96 — 495

DISTRIBUTION

1934 n

JOB DESCRIPTION

(1) Survey barbecue pit area for radium truck

(2) Screening NWCP [illegible] surrounding soil for Pu, α

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
Ludlum 139	003653		0.01	550
~~Ludlum 3000~~				
ESI, HP-2 Nomad	008032		.40	350

Item/Area	Alpha com	Alpha dpm	Beta/Gamma com	Beta/Gamma dpm	Remarks
Barbecue pit (outside)	T43/6 NDA		[illegible]		covered w/ soil
" (inside)	NDA		148		covered w/ soil
" (outside)			126		[illegible]
dump truck (bed)	50		143		asphalt present
Trench 1 Joint 1 - J2	≤100		222		
" J2 - J3	≤100		284		
J3 - J4	≤50		270		
J4 - J5	≤150		26		
J6 - J7	250		6800		above ground, inside
J5 - J6	—		7600		above ground with 18" cover

Tadeo / Gallegos 7-11-94

30.1 Bkg.: 0 - 17

320 Unit

Background (van) = 106 cpm

for determining Pu on vehicles to work

140 Unit

Reviewed by: Gene Marie White 7-27-94

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DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: 2-12-94 Sample Time: 1400

TA: 1 Bldg: NA Room(s)/Area(s): 041078 SUMMA (-001(2))

RSP: Patricia Gallegos Printed Name: Patricia Gallegos

Mail Stop: N327 Phone: 662-3200

ADDITIONAL INFORMATION

Occurrence No.: N/A

Incident No.: N/A

RWP No.: PG 495

DISTRIBUTION

TPU

JOB DESCRIPTION

RX SCREENING AT WORKS AT SUMMA TA1 SUMMA 1-001(2)

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
ESP-1	008032	12/13/94	.38	240, 220, 240, 220 280
NP-300	008032	12/13/94	.38	280
Ludlum 139	003652	12/29/94	.61	≤50
43-32	003652	12/29/94	.61	≤50

Item/Area		Alpha cpm	Alpha dpm	Beta/Gamma cpm	Beta/Gamma dpm	Remarks
T1 S1	Upstream			723		
	Joint 1			419		
S2	Upstream			350		
	J2			736		
S3	Upstream			616		
	J3			350		
S4	Upstream			380		
	J4			2250		
S5	Upstream composite			2500		Sediment broken up
	J5			"		
S6	Upstream			3120		
	J6			5150		sediment in pipe
S7	Upstream			580		
	J7			300		
S8	Upstream			500		
	J8			300		
S9	Upstream			440		
	J9			440		
S10	Upstream			420		
	J10			701		

Reviewed by: Anne Marie White 2-27-94

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DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: 2-13-94 Sample Time:

TA: 1 Bldg: NA Room(s)/Area(s): [illegible]

Signature: Patricia Gallegos Printed Name: Patricia Gallegos

Mail Stop: M327 Phone: 662-3700

ADDITIONAL INFORMATION

Occurrence No.: NA

Incident No.: NA

RWP No.: ~~[illegible]~~ 495

DISTRIBUTION

19346

JOB DESCRIPTION

Pre screening of VCE for pipe excavation
Trenches 3, 4, 5

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
ESP-1	008032	12/13/94	.39	34, 200, 250, 260, 270
HP260	008032	12/13/94	.39	270

Item/Area	Alpha cpm	Alpha dpm	Beta/Gamma cpm	Beta/Gamma dpm	Remarks
T3 011U stream 7 [illegible]			600-700		over - inner sediment
J1			450		yellow - root sediment
52U			700-800		1/2" yellow - roots
J2			1300		white root sediment; [illegible]
53U			750		"
J3			500-700		turned over sediment [illegible]
54U			500-600		white fiber or roots
J4			1900		1/2" yellow sediment on lip of VCE joint
55U			1400		yellow sediment
J5			300-450		1/2" sediment
J6U			500-600		yellow; turned sediment over
J6			1130		"
57U			5000		2" orange-yellow sediment with roots
J7			700		Rust or metal connector about VCE
58U			500-700		rust; 1" sediment
~~58~~ J8			400		1/2" brown sediment with root
59U			400; 600		small 1" dark sediment [illegible] fiber. Outside roots
59 J9			500		rust
510U			350		roots, white fiber, little sediment
510 J10			350		roots, white fiber, 1" sediment

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Reviewed by: Anne Marie White 2-27-94

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DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: 7-13-94 Sample Time:
TA: 1 Bldg: UF Room(s)/Area(s): DUCTS SOUTH (-001(3))
By: Patricia Gallegos Printed Name: Patricia Gallegos
Mail Stop: M327 Phone: 662-3700

ADDITIONAL INFORMATION

Occurrence No.: LOA
Incident No.: NA
RWP No.: 00 ~~[illegible]~~ 495

DISTRIBUTION

19346

JOB DESCRIPTION

By screening at UCP at pipe excavation in Trenches 3, 4, 5

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
ESP-1	008032	12/13/94	.39	270
HP-200	008032	12/13/94	.39	270

Item/Area	Alpha cpm	Alpha dpm	Beta/Gamma cpm	Beta/Gamma dpm	Remarks
T5 S5 J5			8100		yellow-orange [illegible] bell joint
S6 U			6300		at [illegible] 6-8" sediment orange-yellow
J6			350-400		2" sed. in UCP; metal-like [illegible]
S7U			300-400		many roots
J7			800		2" sediment
S8U			600		2" sediment + roots
J8			500		mostly in roots
S9U			400		very clean, limited roots + sediment
J9			300		very little sediment + roots
S10U			1700		yellow-orange material with joint of pipe
J10			350		2"-3" of soil in pipe
S11U			350-400		1" sediment
J11			3000		yellow-orange color in top of bell of UCP
S12U			450		1/2" sediment; minimal root
J12			350		2-3" soil in pipe

Patricia L. Gallegos
7-13-94

Reviewed by: Anne Marie White 7-27-94

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DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: 7-14-94 Sample Time:

TA: 1 Bldg: NA Room(s)/Area(s): [illegible]

Printed Name: Patricia Gallegos

Mail Stop: N322 Phone: [illegible]

ADDITIONAL INFORMATION

Occurrence No.: NA

Incident No.: NA

RWP No.: 495

DISTRIBUTION

19346

JOB DESCRIPTION

DY screening at VCP excavation & Western Sewer Western Transfer manhole(s)

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
ESP-1	008032	12/13/94	.36	280
HP-200	008032	12/13/94	.36	280

Item/Area	Alpha		Beta/Gamma		Remarks
	cpm	cpm	cpm	cpm	
T6 S1 U			200-300		filled with 2"-3" sediment
T6 S1 J6			2000		roots and sediment in 1.0-2" [illegible]
T6 S2 U			2100		No sediment; yellow crack
T6 S2 J2			450		empty ICP
T6 S3 U			1000		1/4" sediment with roots
T6 S3 J3			3700		sediment in lip of bell joint
T6 S4 U			200-300		no sediment
T6 S4 J4			1100		dark sediment 2 min lower in lip of bell joint
T6 S5 U			200-400		broken pipe; no sediment
T6 S5 J5			4500		dark sediment + roots in lip of joint
T6 S6 U			600		filled with topsoil
T6 S6 J6			1000-3000		dark sediment 2+ connection point
T6 S7 U			300-400		no sediment
T6 S7 J7			3000		dark sediment in connection point
Manhole	~~[illegible]~~		200-400		soil on exposed bottom

Patricia Gallegos 7-14-94

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Reviewed by: Anne Marie White 7-27-94

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DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: 7-15-94 Sample Time: _____

TA: 1 Bldg: NA Room(s)/Area(s): [illegible] (1-2) : [illegible]

Patricia Gallegos Printed Name: Patricia Gallegos

Mail Stop: H327 Phone: [illegible]-5700

ADDITIONAL INFORMATION

Occurrence No.: NA

Incident No.: NA

RWP No.: ~~NA~~ RET 495

JOB DESCRIPTION

by screening VCP and manhole (soil-sediment) at Western Sanitary Water [illegible] and by screening of surface of filled VCP and manhole excavation

DISTRIBUTION

143410

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
ESP-1	002032	12/13/94	0.37	280
HP-200	"	"	"	"
(1.) Ludlum 12	006068	12/28/94	0.36	300
44-40	"	"	"	"

Item/Area	Alpha cpm	Alpha dpm	Beta/Gamma cpm	Beta/Gamma dpm	Remarks
(2.) T7S4U East			270-300		[illegible]
T7S4J4 East			200-300		screened surrounding soil
T7S4 East 45° elbow			300-400		[illegible] on interior root mat
T7S4 East manhole grass pile			250-400		roots soil overburden
T7S3U North			400		loose soil
T7S3J3 North			400		loose soil
T7S2U North			1000		underside of root mat
T7S2J2 North			2000		root sediment
Brick of Manhole #52			200-300		
Base (underside) Manhole #52			200-300		
Base (topside) Manhole #52			200-400		some yellow discoloration of concrete / [illegible]
Manhole #52 (MH #52)			300		turned over soil
10 PACES EAST MH #52			300		" (3.)
20 PACES EAST "			280-300		"
30 "			250		"
40 "			250-350		"
50 "			250-300		"
60 "			250-350		"
70 "			280		"
80 "			250		"

Reviewed by: Anne Marie White 7-27-94

Rev. 1/93 - ClearwaterDF

NOTE

(1.) Using this ratemeter for today's screening due to sporadic malfunctioning of ESP-1 w/HP-200 which is mixing readings with not even screening

(2.) SHE is S3E, S3N is S2N, S2N is S1N due to less VCP uncovered

(3.) 1 PACE ≈ 2-3 feet

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DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: [illegible] Sample Time: 1447

Bldg: [illegible] Room(s)/Area(s): [illegible]

RCT: [illegible] Printed Name: [illegible]

Mail Stop: [illegible] Phone: [illegible]

ADDITIONAL INFORMATION

Occurrence No.:

Incident No.:

RWP No.:

DISTRIBUTION

JOB DESCRIPTION

[illegible]

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
RM-30	2645	8/12/94		0.1 mR/hr

Item/Area	Alpha cpm	Alpha dpm	Beta/Gamma cpm	Beta/Gamma dpm	Remarks
[illegible]					≤ BKG.
[illegible]					≤ BKG
[illegible]					≤ BKG.
[illegible]					≤ BKG
[illegible]					≤ BKG
[illegible]	N/A			N/A	≤ BKG
[illegible]	N/A			N/A	≤ BKG
[illegible]					0.3
[illegible]					0.2
[illegible]					≤ BKG
[illegible]					≤ BKG

Rev:1/93 · C:\cordwnfile DFCR

DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: 7-18-94 Sample Time: 09:30

TA: 1 Bldg: NA Room(s)/Area(s): OU078 SWMU-001(S)

RSP Rep: Patricia Gallegos Printed Name: Patricia Gallegos

Mail Stop: M327 Phone: 662-3700

ADDITIONAL INFORMATION

Occurrence No.: NA

Incident No.: NA

RWP No.: NA

DISTRIBUTION

193413

JOB DESCRIPTION

Survey of backhoe to go from OU078(S)SWMU-001 to Symz Nos.

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
Ludlum 12	006068	12-28-94	.34	180
Ludlum 44-40	006068	"	.34	180
Ludlum 139	003653	12-28-94	.61	≤50
Ludlum 43-32	003653	"	.61	

Item/Area	Alpha		Beta/Gamma		Remarks
	cpm	dpm	cpm	dpm	
Tires (4)	0		160	NDA	high 180 (dpm)
Bucket (inside)	0		180		high 220 (dpm)
Bucket (outside)	0		180		
Loader (inside)	≤50		200		
Loader (outside)	0		180		
Footpad	0		140		
Step	0		120		
Balance Feet (Outriggers)	≤50		180		

Patricia Gallegos 7-18-94

MDA = $\bar{b} + 3\sigma$ = 220 cpm

Reviewed by [illegible] 7-22-94

Rev:1/93 - C:\bmrwin\files\DEC

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DIRECT SURVEY RESULTS

SAMPLE DESCRIPTION

Sample Date: 7/20/94 Sample Time: 1184
[illegible] Bldg: ___ Room(s)/Area(s): CIU 1076
RCT: [illegible] Printed Name: Jim Ellison
Mail Stop: 1407 Phone: 54926

ADDITIONAL INFORMATION

☐ Occurrence No.: ___
☐ Incident No.: ___
☐ RWP No.: ___

DISTRIBUTION

JOB DESCRIPTION

[illegible]

INSTRUMENTATION

Instrument	HSE Number	Cal Due Date	Efficiency	Background
RO 2B	2639	8/10/94		0

Item/Area	Alpha cpm	Alpha dpm	Beta/Gamma cpm	Beta/Gamma dpm	Remarks (x RJ/hr)
[illegible] door					≤BKG
[illegible]					≤BKG
front of bed					0.1
middle of bed } [illegible] side					0.1
rear of bed					≤BKG
[illegible]					≤BKG
rear of bed					0.1
middle of bed } [illegible] side					≤BKG
front of bed					≤BKG
[illegible]					≤BKG
[illegible] door					≤BKG

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DAILY ALPHA EFFICIENCY CHECK FORM

DAILY ALPHA EFFICIENCY CHECK

FACILITY CODE LAUL 011078 SWMU 1-001 FIELD REP Patricia Gallegos

LOGGER CODE NA

RATEMETER/SCALER/ANALYZER Ludlum

MODEL NO 139 ~~SERIAL~~ HSE NO 003653 CALIBRATION DATE 6/28/94

WINDOW OUT THRESHOLD NA HIGH VOLTAGE BH-4 documented BATTERY OK

~~ALPHA SCINTILLATION PROBE~~ ASR PROPORTIONAL PROBE/MANUFACTURER Ludlum

MODEL NO 43-32 ~~SERIAL~~ HSE NO 003653 CALIBRATION DATE 6/28/94

SOURCE: 89P047

SERIAL NO 05809 ISOTOPE Pu 239 ACTIVITY 13100 DPM

LOG DATE	TIME (HH:MM)	COUNTING TIME (MIN)	BACKGROUND CPM	GROSS COUNTS	GROSS CPM	NET CPM	EFFICIENCY (NET CPM/DPM)	WITHIN TOLERANCE (Y/N)
7-11-94	0744	NA	<50	NA	8000	7950	0.61	Y
7-12-94	0737	NA	0	NA	8000	8000	0.61	Y
7-13-94	0655	NA	0	NA	8000	8000	0.61	Y
7-14-94	0658	NA	0	NA	8000	8000	0.61	Y
7-15-94	0700	NA	≤50	NA	8000	7950	0.61	Y
7-18-94	0910	NA	≤50	NA	8000	7950	0.61	Y
7-19-94	0740	NA	0	NA	8000	8000	0.61	Y
7-20-94	0750	NA	≤50	NA	8000	7950	0.61	Y
7-21-94	0720	NA	≤50	NA	8000	7950	0.61	Y

Patricia L. Gallegos 7-21-94 — FORM COMPLETED BY/DATE

[signature] 7-22-94 — TECHNICAL REVIEWER/DATE

DAILY ALPHA EFFICIENCY CHECK FORM

DAILY ALPHA EFFICIENCY CHECK

FACILITY CODE LAUL QUICK SIGMA 1-001 FIELD REP Patricia Gallegos

LOGGER CODE NA

RATEMETER/SCALER/ANALYZER Ludlum

MODEL NO 2000 SERIAL NO 004759 CALIBRATION DATE 2-12-94

WINDOW OUT THRESHOLD NA HIGH VOLTAGE ESH-4 (estimated) BATTERY ok

ALPHA SCINTILLATION PROBE/MANUFACTURER LUDLUM

MODEL NO 43-10 SERIAL NO 004759 CALIBRATION DATE 2-12-94

SOURCE: 89PU47
SERIAL NO 05809 ISOTOPE Pu239 ACTIVITY 13100 DPM

LOG DATE	TIME (HH:MM)	COUNTING TIME (MIN)	BACKGROUND CPM	GROSS COUNTS	GROSS CPM	NET CPM	EFFICIENCY (NET CPM/DPM)	WITHIN TOLERANCE (YES)
7/11/94	0700	10	0.1	4466	4466	4466	0.34	Y
7/12/94	0737	10	0.1	4491	4491	4491	0.34	Y
7/13/94	0655	10	0.1	4453	4453	4453	0.34	Y
7/14/94	0658	10	0.3	4504	4504	4504	0.34	Y
7/15/94	0700	10	0	4371	4371	4371	0.33	Y
7/18/94	0910	10	0	4440	4440	4440	0.34	Y
7/19/94	0740	10	0.2	4458	4458	4458	0.34	Y
7/20/94	0750	10	0.1	4301	4301	4301	0.33	Y
7/21/94	0720	10	0.1	4342	4342	4342	0.33	Y

Patricia Gallegos 7-21-94
FORM COMPLETED BY/DATE

TECHNICAL REVIEWER/DATE

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ATTACHMENT 4
BETA-GAMMA EFFICIENCY CHECK FORM
GM PANCAKE

BETA-GAMMA EFFICIENCY CHECK
GM PANCAKE

FACILITY CODE (PUL DUNTA TA-1 SUMMIT PROJECT) LOG DATE 7/11/94
LOGGER CODE NA FIELD REP Fabiana Gallegos
RATEMETER/SCALER: Eberline ACCEPTANCE CODE NA
MODEL NO HP-3750-1 ~~SERIAL NO~~ HSE PG 008032 CALIBRATION DATE 6/13/94
WINDOW OUT THRESHOLD NA HIGH VOLTAGE (SH-undisconnected) BATTERY OK
GM PANCAKE:
MODEL NO UP-710 ~~SERIAL NO~~ HSE PG 008032 CALIBRATION DATE 6/13/94
SOURCE:
SERIAL NO 93TC90321 ISOTOPE Tc^{99} ACTIVITY 666.6 DPM

LOG DATE	TIME (HH:MM)	COUNTING TIME (MIN)	BACKGROUND CPM	GROSS COUNTS	GROSS CPM	NET CPM	EFFICIENCY (NET CPM/DPM)
7/11/94	0806	~~NA~~ 1	127	2770	2770	2643	.40
1. 7/12/94	0753	1	114	1. ~~2670~~	~~2556~~	2556	~~.38~~ .38
7/13/94	0645	1	145	2730	2730	2585	.39
2. 7/14/94	0650	1	143	2540	~~2540~~	2397	.36
7-15-94	0650	1	152	2640	2640	2488	.37

Fabiana Gallegos 7-6-94 — FORM COMPLETED BY/DATE
[illegible] 7-27-94 — TECHNICAL REVIEWER/DATE

NOTE:
1. Gross Count = 2670 and Gross cpm = 2670
2. Gross cpm = 2540

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REMOVABLE ALPHA CONTAMINATION SURVEY DATA FORM

FACILITY CODE LANL OU1079 SWMU 1-001(c)-dic LOG DATE 7/11/94

LOGGER CODE NH FIELD REP Patricia Gallegos

RATEMETER/SCALER/MANUFACTURER Ludlum 2000

MODEL NO 2000 ~~SERIAL NO~~ LSF PCI 004759 CALIBRATION DATE 2/12/94

COUNT TIME 1 WINDOW OUT THRESHOLD 100 HIGH VOLTAGE [illegible] BATTERY ok

ALPHA PROBE MANUFACTURER Ludlum MODEL NO 43-10 ~~SERIAL NO.~~ 004359 CALIBRATION DATE 2/12/94

DATE/TIME OF EFF CHECK 0700 EFFICIENCY .34 CPM/DPM

RELEASE LIMIT 200 dpm/100cm2

COMMENTS Check status of bombers before operation at OU1079 site

ITEM SURVEYED (SPECIFY)	INSTRUMENT READING (cpm)	AREA SURVEYED (cm^2)	ADJUSTED COUNT RATE[1] (cpm/100cm^2)	CONTAMINATION LEVEL[2] (dpm/100cm^2)	WITHIN RELEASE LIMIT? (20 dpm/100 cm^2) (YES/NO)
bomber [illegible]	0	100	0	0	Y
" (in)	0	100	0	0	Y

Patricia A. Gallegos 7-11-94

[1] ADJUSTED COUNT RATE = $\left(\frac{100\ cm^2}{\text{AREA SWIPED IN } cm^2}\right)$ × INSTRUMENT READING

[2] CONTAMINATION LEVEL IN dpm/100 cm^2 = $\frac{\text{ADJUSTED COUNT RATE}}{\text{EFFICIENCY}}$

7/11/94 Patricia Gallegos
FORM COMPLETED BY/DATE

[illegible] 7-27-94
TECHNICAL REVIEWER/DATE

REV 0

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REMOVABLE ALPHA CONTAMINATION SURVEY DATA FORM

FACILITY CODE [illegible] LOG DATE 7-18-94

LOGGER CODE NA FIELD REP Patricia Gallegos

RATEMETER(SCALER)MANUFACTURER Ludlum

MODEL NO 2000 ~~SERIAL~~ NO 004759 CALIBRATION DATE 2-12-94

COUNT TIME 1 minute WINDOW out THRESHOLD NA HIGH VOLTAGE ESN-4 disconnected BATTERY OK

ALPHA PROBE MANUFACTURER Ludlum MODEL NO 43-10 ~~SERIAL~~ NO. 004959 CALIBRATION DATE 2-12-94

DATE/TIME OF EFF CHECK 7-18-94 · 0910 EFFICIENCY 34 CPM/DPM

RELEASE LIMIT 20 dpm/100cm

COMMENTS Release ESP-1 HP-200 BY [illegible] to ESN-4 for a trade

ITEM SURVEYED (SPECIFY)	INSTRUMENT READING (cpm)	AREA SURVEYED (cm^2)	ADJUSTED COUNT RATE[1] (cpm/100cm^2)	CONTAMINATION LEVEL[2] (dpm/100cm^2)	WITHIN RELEASE LIMIT? (20 dpm/100 cm^2) (YES/NO)
HP-200 [illegible]	1	100	1	3	YES
ESP-1 [illegible]	2	100	2	6	YES

[1] ADJUSTED COUNT RATE = $\left(\frac{100\ cm^2}{\text{AREA SWIPED IN } cm^2}\right)$ × INSTRUMENT READING

[2] CONTAMINATION LEVEL IN dpm/100 cm^2 = $\frac{\text{ADJUSTED COUNT RATE}}{\text{EFFICIENCY}}$

Patricia L. Gallegos 7-18-94
FORM COMPLETED BY/DATE

[illegible] 7-27-94
TECHNICAL REVIEWER/DATE

REMOVABLE ALPHA CONTAMINATION SURVEY DATA FORM

FACILITY CODE LOVL QUICK SWMU 1-001(S) LOG DATE 7-18-94

LOGGER CODE NA FIELD REP Patricia L. Gallegos

RATEMETER/SCALER/MANUFACTURER Ludlum

MODEL NO 2000 ~~SERIAL~~ HSE NO 004759 CALIBRATION DATE 2-12-94

COUNT TIME 1 minute

WINDOW out THRESHOLD UP HIGH VOLTAGE ESH-4 documented BATTERY OK

ALPHA PROBE MANUFACTURER Ludlum

MODEL NO 43-10 ~~SERIAL~~ HSE NO. 004759 CALIBRATION DATE 2-12-94

DATE/TIME OF EFF CHECK 7-12-94 EFFICIENCY 0.34 CPM/DPM

RELEASE LIMIT 20 cpm/dpm

COMMENTS Release backface from QUICK SWMU 1-001(S) to Sigma Mess (LBNL-Berkeley)

ITEM SURVEYED (SPECIFY)	INSTRUMENT READING (cpm)	AREA SURVEYED (cm²)	ADJUSTED COUNT RATE[1] (cpm/100cm²)	CONTAMINATION LEVEL[2] (dpm/100cm²)	WITHIN RELEASE LIMIT? (20 dpm/100 cm²) (YES/NO)
Bearing Plates (4)	1	100	1	3	YES
Instrument (inside)	0	100	0	0	YES
Instrument (outside)	0	100	0	0	YES
Boomerang (inside)	1	100	1	3	YES
Boomerang (outside)	0	100	0	0	YES
Frame Front	0	100	0	0	YES
Outrigger	0	100	0	0	YES

Patricia L. Gallegos
Signature
7-18-94

[1] ADJUSTED COUNT RATE = $\left(\frac{100\ cm^2}{\text{AREA SWIPED IN } cm^2}\right)$ × INSTRUMENT READING

[2] CONTAMINATION LEVEL IN dpm/100 cm² = $\frac{\text{ADJUSTED COUNT RATE}}{\text{EFFICIENCY}}$

Patricia L. Gallegos 7-18-94 — FORM COMPLETED BY/DATE

Lisa Hamilton 7-27-94 — TECHNICAL REVIEWER/DATE

07-20-94 Berthold LB770 Control System: LB770 1 Page: 1
10:12 S A M P L E M E A S U R E M E N T

omment: RUN BY BLAIR ART
B770 Number 1 User File: FIELD SCREENING Sample Data File: NONE
amp Set: VICKI Mode: Alpha/Beta
V-s.Counter [V] = 1575 HV-Guard Counter [V] = 1575
t stical Error Definition: 2 standard deviation(s)

ategory List [pCi/g]:

ategory	Alpha Low	Alpha High	Beta Low	Beta High

	1	2	3	4	5
BG Alpha [cpm]	0.630	0.560	0.870	0.630	0.700
BG Beta [cpm]	15.2	13.9	14.0	15.1	15.2
Eff. Alpha	0.038	0.041	0.036	0.043	0.040
Eff. Beta	0.207	0.223	0.223	0.211	0.227
Spillover	0.093	0.091	0.096	0.102	0.093
T(1/2) Alpha [days]	--	--	--	--	--
T(1/2) Beta [days]	--	--	--	--	--
Manuf. Alpha Date	--/--/--	--/--/--	--/--/--	--/--/--	--/--/--
Manuf. Beta Date	--/--/--	--/--/--	--/--/--	--/--/--	--/--/--
Normalization	27.0	27.0	27.0	27.0	27.0

Sample Results

easurement Date 07-20-94 Time 10:12:51
easuring Time [min:sec] Elapsed 0016:41 Preset 0016:40 Cycle 1/1
Guard [cpm] 1218

Det#	Spl#	Spl. Name	ALPHA pCi/g	ALPHA %Error	ALPHA Cat	BETA pCi/g	BETA %Error	BETA Cat	pCi/g
1	30	6084	231.0	17.2	1	2092	2.41	1	[illegible]
2	31	6092	3.72	> 100	1	20.5	44.6	1	[illegible]
3	32	6100	148.0	22.9	1	169.0	9.67	1	[illegible]
4	33	6083	2.19	> 100	1	21.6	46.2	1	[illegible]
5	34	6087	5.61	> 100	1	12.3	71.6	1	[illegible]
6	35	6089	4.37	> 100	1	24.7	37.1	1	[illegible]
7	36	6088	12.8	98.1	1	17.7	48.8	1	[illegible]
8	37	6093	77.0	30.9	1	73.8	16.5	1	[illegible]
9	38	6095	9.23	> 100	1	18.4	51.6	1	[illegible]
10	39	6091	22.5	67.6	1	34.8	31.2	1	[illegible]
		6090	20.2			45.8			[illegible]

utlier Screening

t#	Outlier(> 3.0S)	Measurem.= (S-deviations) 1	2	3	4	5	6	7	8	9	10
3b	1	0.6	-0.7	4.0	0.6	0.8	-0.4	-1.5	-0.2	0.8	0.0

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CST-9 Radiochemistry Screening Data

TA-01 MRAL2

Date: 7/14/94 Comments: Gross Alpha/Beta/Gamma
Analyst:

Gross Gamma Screening Data (MDA 2.16)

Sample #	Result	Uncertainty	Units
AAB6084	44.96	2.16	pCi/g

Gross Alpha/Beta Screening Data
(Alpha MDA 83.28 Beta MDA 90.73)

Sample #	Alpha	Uncertainty	Beta	Uncertainty	Units
AAB6084	33.21	104.27	199.64	137.51	pCi/g

APPENDIX I

Personnel Frisk Record Forms

E2 ~~VISITOR~~ SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Alfonso A. Rodriguez	7/11/94	4:14	4:45	1-001	E2
Alan McAnaney	7/11/94	4:14	4:45	1-001	E2
Terry Jolly	7/11/94	16:14	16:40	1-001	E2
Lawrence Hyl	7/13/94	12:48	"	"	"

EZ ~~VISITOR~~ SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Randy Raybal	7-11-94	950	1200	1-009(S)/	EZ
Terry Johnson	7-11-94	950	1200	"	"
Tami Wiggins	11 July 94	0954	1200	"	EZ
Patricia L. Gallegos	7/11/94	0954	1200	"	EZ
DONALD VELARDE	7/11/94	0954	11:55	"	EZ
~~DONALD VELARDE~~	" " "	0954		"	EZ
Waldo R. Ulibarri	7-11-94	0955	1148	"	EZ
Danny Katzman	7-11-94	950	1200	"	EZ
CARL A. NEWTON	7-11-94	1120	1130	"	EZ
Terry Johnson	7-11-94	1300	1609	"	EZ
Randy Raybal	7-11-94	1:00 pm	3:35		
Patricia L. Gallegos	7-11-94	1300		"	EZ
Tami Wiggins	11 July 94	1304		"	EZ
Danny Katzman	11 July 94	1305	3:35	"	EZ
DONALD VELARDE	7-11 94	1305	3:35	"	EZ

E2 ~~VISITOR~~ SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Terry Johnson USNS	7/12/94	1255	1521	1-001	E-2
T Wiggins	11 July 94	1300	1405	"	"
L Kyl	7-12-94	13:00			
RM Dixon	7-12-94	13:00	13:15		
Chuck Vian	7-12-94	13:00	15:00		
Patricia Gallegos	7-12-94	1300	1338	"	"
DAVE FENN	7/12/94	1300	1306	"	"
Randy Raybal	7-12-94	1:05	330		
Alfonso A Rodriguez	7/12/94	1:05	3:30		
DONALD VELARDE	7/12/94	1:10	3:30	"	"
Lupe A Gallegos	7-12-94	1:10	1405	"	"
Joe Lowe	7/12/94	1:30	1405	"	"
Tami Wiggins	12 July 94	1417		"	"
[illegible]	12 July 94	14:20	1520	"	"
Randy Raybal	7-12-94	340	6:00 pm		
Patricia Gallegos	7-12-94	325		"	"

E2 VISITOR SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
DONALD YELARDE	7-12-94	3:25	7:50	1-001	E2
Alfonso A. Rodriguez	7/12/94	3:45	1950	1-001	E2
Tarni Wiggins	12 July 94	1550	1945	"	E2
Terry Johnson	12 July 94	1550	1810	1-001	E2
DAVE FRANK	12 July 94	1550	1852	1-001	E2
Waldo Ulibarri	7/12-94	1605	1805	"	E2
Danny Coleman	7-12-94	1605	1810	"	"
Joe Dallegge	7-12-94	16:05	16:20	"	"
Joe Lovato	7/12/94	1650	1750	"	"
Donald Yelarde	7/12/94	1650	1945	"	"
Joe Dallegge	7/12/94	17:00	17:15	"	"
Alfonso A. Rodriguez	7/12/94	16:50	17:45	"	"
Randy Roybal	7-12-94	6:12	755		
Patricia Gallegos	7-12-94	1812	1954	"	"
Terry Johnson	7-12-94	1815	1945	"	"
Waldo Ulibarri	7-12-94	1920	755	"	E2

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E2 ~~VISITOR~~ SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Ferrel Johnson	7/12/94	0830	110	1-001	E2
Randy Raynell	7/12/94	0815	945	1-001	E2
Alicia Gallegos	7/12/94	0837	1120	1-001(s)	E2
Donald Yelarde	7/12/94	0837	9:00	1-001(S)	E2
Alfonso A. Rodriguez	7/12/94	0837	9:40	1-001(S)	E2
Tami Wiggins	113023	0840	1120	"	E2
Dave Frank	115880	0840	1115	1-001 (S)	E2
Jack Elliott	115438 7/12/94	0850	0950	"	E2
Robert Dimmick	7/12/94	0850	0945	"	E2
Joe Kanik	7/12/94	0850	0945	"	E2
Waldo R Wilbanks	7/12/94	0901	1003	"	E2
Alfonso A. Rodriguez	7/12/94	9:48	11:10		
Randy Raynell	7-12-94	848	1110	"	"
Donald Yelarde	7-12-94	9:50	11:00	"	"
Barry Katzman	7-12-94	837	953	"	"
Joe Dallegra	7-12-94	9:55	11:06	"	"

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E2 ~~VISITOR~~ SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
[illegible]	[illegible]	0130	1209	[illegible]	[illegible]
Al Frank 115550	7/13/94	0130	1209	1-101	E2
Randy Roybal	7-13-94	7:40	9:20		
Lupe A Gallegos	7-13-94	7:40	8:30	"	"
Donald Velarde	7-13-94	7:42	2:00	"	"
Patricia Gallegos	7-13-94	0750	1210	"	"
Alfonso A. Rodriguez	7/13/94	0750	8:30	"	"
Tami Wiggins	13 July 94	0814	1209	"	"
Alfonso A. Rodriguez	7/13/94	09:09	1205	"	"
Waldo R. Ulibarri	7-13-94	0910	1205	"	E2
Lorenzo F. Duran	7-13-94	9:10	1205	"	"
Nick Gallegos	7-13-94	"	1205	"	"
Randy Roybal	7-13-94	9:30	12:05		
Lupe Gallegos	7-13-94	9:35	12:05	"	"
Danny Trujillo	7-13-94	10:32	1243	"	"

E2 ~~VISITOR~~ SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Terry Johnson	7/13/94	12:55	1741	1.001	E 2
Randy Raybal	7-15-94	1:00	250		
Danny Trujillo	7-13-94	1:10	3:35	"	"
Donald Velarde	7-13-94	1:10	3:35	"	"
Lupe Gallegos	7/13/94	1:10	3:35	"	"
Patricia Gallegos	7/13/94	1:14	1:42	"	"
Dan Frank	7/13/94	1:24	4:05	"	"
Alfonso Rodriguez	7/13/94	1:14	3:35	"	"
T Wiggins	13 July 94	1320	1740	"	"
Randy Raybal	7-13-94	2:45	3:50	"	"
Randy Raybal	7-13-94	4:05	5:35	"	"
Lupe Gallegos	7 13 94	4:06	5:30	"	"
Donald Velarde	7-13-94	4:06	5:30	"	"
Danny Trujillo	7-13-94	4:07	5:30	"	"
Alfonso R. Rodriguez	7/13/94	4:07	5:30	"	"

EZ VISITOR SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Terri Johnson 115883	7/14/94	[illegible]	1205	1-001	Exclusion Zone
Tammi Higgins	14 July 94	0717	1205	"	" "
Dave Frank	14 July 94	0719	1147	1-051	EZ
Olivia Gallegos		0730	1205	"	"
Randy Raybal	7-14-94	7:32	930	"	"
Alfonso A. Rodriguez	7/14/94	7:32	9:30	"	"
Lupe A Gallegos	7/14/94	7:35	9:30	"	"
Donald Velarde	7/14/94	7:35	9:30	"	"
Joe Lomas	7/14/94	0755		"	"
Waldo R. Ulibarri	7/14/94	0825	10:50	"	EZ
Danny Estrada	7/14/94	0933	1033	"	"
CARL NEWTON	7-14-94	0935	1020	"	EZ
Randy Raybal	7-14-94	9:45	1205	"	"
Donald Velarde	7-14-94	9:45	12:00	"	"
Lupe Gallegos	7/14/94	9:46	12:00	"	"
Alfonso A. Rodriguez	7/14/94	10.00	12:00		

EZ ~~VISITOR~~ SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Danny Trujillo	7-14-94	7:30	1200	1-001	EZ
Terry Johnson	7-14-94	14:10	1850	1-001	EZ
Kandy Kaufman	7-14-94	2:16	1850		
Donald Clarke	7-14-94	2:12	16:30	"	"
Lupe Gallegos	7-14-94	2:14	1850	"	"
Danny Trujillo	7-14-94	2:14	1850	"	"
Patricia Gallegos	7-14-94	2:20	1850	"	"
Alfonso Rodriguez	7/14/94	2:15	1850		
T Wiggins	14 July 94	14:35	1850	"	"
Dave Frank	14 July 94	1435	1850	"	"
Mike Bell	14 July 94	1515	1850		
Waldo Ulibarri	7-14-94	1635	1850	"	EZ
Lupe Gallegos	7/14/94	1639	1850		

E2 ~~VISITOR~~ SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Terry Johnson 115813	7-15-94	07:20	12:30	1-001	E2
Randy Roybal 106685	7-15-94	7:20	9:15		
DONALD VELARDE 058300	7-15-94	7:20	9:35	1-001	E2
Lupe Gallegos	7-15-94	7:20	9:35	"	"
Patricio Gallegos	7-15-94	07:20	12:30	"	"
T Wiggins	15 July 94	07:40	12:30	"	"
DAVE FRANK	15 Jul 94	0740	1230	"	"
Danny Trujillo	7.15.94	8:00	8:30	"	"
Alfonso A. Rodriguez	7/15/94	8:50	10:35		
Lupe Gallegos	7/15/94	10:00	11:30		
DONALD VELARDE	7/15/94	10:00	12:30		
Alfonso A. Rodriguez	7/15/94	10:00	12:30		
Jeff Schroeder	7/15/94	10:13	11:12		
Randy Roybal	7-15-94	11:20	12:26		
Randy Roybal	7-15-94	1:25			
DONALD VELARDE	7-15-94	13:37	3:00	"	"

E2 VISITOR SIGN IN LOG

NAME	DATE	TIME IN	TIME OUT	SWMU ID	ZONE ENTERED
Lupe Gallegos	7-15-94	13:40	15:00		
Tami Wiggins	15 July 94	13:40	1540		
Terry Johnson	15 July 94	13:40			
Felicia L Gallegos	7-15-94	13:50	15:49		
Tony Elliott	7/15/94	1445			
Alfredo Rodriguez	7/15/94	1451	4:00		
DAVE FRANK	7/15/94	1506	1606		
Lupe Gallegos	2/15-94	15:15	3:50		
DONALD VELARDE	2/15/94	15:15	3:50		

PERSONNEL FRISK RECORD FORM

DATE: 7/11/94

RATEMETER MODEL #: ESP-1	PROBE MODEL #: HP 210	LOCATION: OU 1074 SWMU 1-001 (c)	α CONTAMINATION CRITERIA[1]:	SKIN NA	CLOTHES NA
SERIAL #: [illegible]	SERIAL #: 008032	BACKGROUND: Skin 100cpm, Clothing [illegible]	β,γ CONTAMINATION CRITERIA[2]:	SKIN 130	CLOTHES 250

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING[3]
WALDO 090381 LIBBARI	[illegible]	[illegible]	✓	✓				[illegible]
Rhudy Kyzer 106646	[illegible]	[illegible]	✓	✓				[illegible]
	1300	1330	✓	✓				180 cpm
Tammi Wiggins 113023	[illegible]	[illegible]	✓	✓				[illegible]
	1300	1200	✓	✓				230 cpm
Danny Koterman 114847	[illegible]	[illegible]	✓	✓				[illegible]
	1330	1530	✓	✓				190 cpm
Terry Thomson 115893	[illegible]	[illegible]	✓	✓				[illegible]
	1200	1200	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
Pedro Gallegos 115906	[illegible]	[illegible]	✓	✓				[illegible]
	1300	1300						
Donald Velez 083001	[illegible]	[illegible]	✓	✓				[illegible]
	1300	1325	✓	✓				190 cpm

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = Meter Reading / eff

[2]β,γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[signature] 7-27-94

TECHNICAL REVIEWER/DATE

PERSONNEL FRISK RECORD FORM

DATE: 7-11-94

RATEMETER MODEL #:	PROBE MODEL #:	LOCATION:	α CONTAMINATION CRITERIA[1]:	SKIN	CLOTHES
EP-1	HP-210	OU 1028 SWMU 1-01(c)		NA	NA
RATEMETER SERIAL #: 008032	PROBE SERIAL #: 008032	BACKGROUND: Skin 100 cpm, clothes 150 cpm	β-γ CONTAMINATION CRITERIA[2]:	150 cpm	250 cpm

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
CAL NEWTON 052102	[illegible]	[illegible]	✓	✓				[illegible]
Alfonso Rodriguez 097850	[illegible]	[illegible]	✓	✓				[illegible]
Alex Dominguez 104771	[illegible]	[illegible]	✓	✓				[illegible]

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 cpm = $\frac{\text{Meter Reading}}{\text{eff}}$

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[illegible] 7-17-94

TECHNICAL REVIEWER/DATE

PERSONNEL FRISK RECORD FORM

DATE: 7-12-94

RATEMETER MODEL #: [illegible]
SERIAL #: 008032

PROBE MODEL #: HP-210
SERIAL #: 008032

LOCATION: [illegible]
BACKGROUND: [illegible]

α CONTAMINATION CRITERIA[1]: SKIN [illegible] CLOTHES [illegible]

β-γ CONTAMINATION CRITERIA[2]: SKIN [illegible] CLOTHES [illegible]

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
115843 Terry Johnson	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
113023 Tommy Wiggins	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Rexly Rogers to [illegible] Clayton	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Patrick Gallegos 115966	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]						
	[illegible]	[illegible]						
	[illegible]	[illegible]						
Dave Frank 115880	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]						
Alfonso Rodriguez 097800	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Donald Velarde 082001	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = Meter Reading / eff

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

(Hand frisking not performed)

[illegible] 7-27-94
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α Background 50 cpm

α skin contamination criteria 70 cpm

α clothing contamination criteria ≥ 300 dpm = meter reading / efficiency .61 Rxl of 3

1.B β reading unless noted

[illegible] cpm

PERSONNEL FRISK RECORD FORM

DATE: 7-12-94

RATEMETER MODEL #:	PROBE MODEL #:	LOCATION:	α CONTAMINATION CRITERIA[1]:	SKIN	CLOTHES
EDI-1	HP 210	[illegible]		NA	[illegible]
SERIAL #:	SERIAL #:	BACKGROUND:	β-γ CONTAMINATION CRITERIA[2]:	SKIN	CLOTHES
[illegible]	[illegible]	150		180	250

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
John Ellict 115438	[illegible]	[illegible]	✓	✓				[illegible]
Robert Dinwiddie 086223	[illegible]	[illegible]	✓	✓				[illegible]
Joe Loucks ~~[illegible]~~ 107159	[illegible]	[illegible]	✓	✓				[illegible]
Denny Katzman 114847	[illegible]	[illegible]	✓	✓				[illegible]
Lupe Gallegos 81171	[illegible]	[illegible]	✓	✓				[illegible]
Waldo Ulibarri 090381	[illegible]	[illegible]	✓	✓				[illegible]
Ray Lujan 056053	[illegible]	[illegible]	✓	✓				[illegible]

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = Meter Reading / eff

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[signature] 7-27-94

TECHNICAL REVIEWER/DATE

PERSONNEL FRISK RECORD FORM

DATE: 3-12-94

RATEMETER MODEL #: ESP 1	PROBE MODEL #: HP-210	LOCATION:	α CONTAMINATION CRITERIA[1]:	SKIN NA	CLOTHES
SERIAL #:	SERIAL #:	BACKGROUND:	β-γ CONTAMINATION CRITERIA[2]:	SKIN	CLOTHES

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
Chuck Vigil 086351								
Lawrence Vigil 14736								

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = Meter Reading / eff

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

7-27-94

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α Ratimeter - Ludlum 139 w/ 43-32 probe
Background Stepon (Alpha frisking not performed)

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PERSONNEL FRISK RECORD FORM

DATE: 7-13-94

RATEMETER MODEL #: [illegible]
PROBE MODEL #: [illegible]
LOCATION: [illegible]
SERIAL #: [illegible]
SERIAL #: [illegible]
BACKGROUND: [illegible]

α CONTAMINATION CRITERIA[1]: SKIN [illegible] CLOTHES [illegible]
β-γ CONTAMINATION CRITERIA[2]: SKIN [illegible] CLOTHES [illegible]

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
Patricia Gallegos 115916	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	1315	[illegible]	[illegible]	[illegible]				[illegible]
Tammi Wiggins 113023	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Terry Johnson 115693	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	1210	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Donny Katzenel 114847								
Ricky Reybal 106648	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	1210	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Alfonso Rodriguez 097850	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	1210	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	1238	[illegible]	[illegible]				[illegible]
Lupe Gallegos 81171	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	1210	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = $\frac{\text{Meter Reading}}{\text{eff}}$

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[illegible] 7-27-94

TECHNICAL REVIEWER/DATE

PERSONNEL FRISK RECORD FORM

DATE: 7-13-94

RATEMETER MODEL #:	PROBE MODEL #:	LOCATION: CU 1029, TA-1 SWMU 1-001(b)	α CONTAMINATION CRITERIA[1]:	SKIN: NA	CLOTHES: NA
SERIAL #: 009032	SERIAL #: 002-57	BACKGROUND: 150	β-γ CONTAMINATION CRITERIA[2]:	SKIN: 150	CLOTHES: 200

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
Dave Frank 115990	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
	[illegible]	[illegible]	✓	✓	[illegible]			[illegible]
	[illegible]	[illegible]	✓	✓	[illegible]			[illegible]
	[illegible]	[illegible]	✓	✓	[illegible]			[illegible]
	[illegible]	[illegible]	✓	✓	[illegible]			[illegible]
David Velarde 083001	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
	[illegible]	1210	✓	✓	[illegible]			[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
	[illegible]	1230	✓	✓				150
			✓	✓				
Waldo Ulibarri 090391	[illegible]	1210	✓	✓				150
Lonnie Duran 104771	[illegible]	[illegible]	✓	✓				[illegible]
Nick Ceballes 081241	[illegible]	[illegible]	✓	✓				[illegible]
					✓			
Denny Trujillo 112579	[illegible]	[illegible]	✓	✓				[illegible]
	1310	1340	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
Lawrence Vigil 94730	[illegible]	[illegible]	✓	✓				[illegible]

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = $\frac{\text{Meter Reading}}{\text{eff}}$

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[illegible] 7-22-94

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	IN	OUT	HANDS	FEET	MAX READING
1. Dave Frank	1650	1703	✓	✓	220 [illegible]

PERSONNEL FRISK RECORD FORM

DATE: 7-14-94

RATEMETER MODEL #:	PROBE MODEL #:	LOCATION:	α CONTAMINATION CRITERIA[1]:	SKIN	CLOTHES
EDP-1	HP-270	Solid Waste Tank		N/A	N/A
SERIAL #:	SERIAL #:	BACKGROUND:	β-γ CONTAMINATION CRITERIA[2]:	SKIN	CLOTHES
[illegible]	[illegible]	150 (1.)		100	200

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
Patricia Gallegos 115966	[illegible]	[illegible]	✓	✓				[illegible]
	1430	1445	✓	✓				180
Tamara Wiggins 113025	[illegible]	[illegible]		✓				[illegible]
	1430	1045	✓	✓				[illegible]
Terry Johnson 115893	[illegible]	[illegible]	✓	✓				[illegible]
	1040	1000	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
Dave Frank 115880	[illegible]	[illegible]	✓	✓				[illegible]
	1020	1010	✓	✓				[illegible]
	1010	[illegible]	✓	✓				[illegible]
	1300	1345	✓	✓				[illegible]
Ruben Reybal 106648	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
Donald Velarde 083001	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				210 max.
	[illegible]	[illegible]	✓	✓				[illegible]
	1310	1345	✓	✓				[illegible]
Lupe Gallegos 81171	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				100
	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	1035	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 200 dpm = $\frac{\text{Meter Reading}}{\text{eff}}$

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[illegible] 7-27-94

TECHNICAL REVIEWER/DATE

(1.) 1810 used Ludlum 12 w/ 44-40, HSE # [illegible] / cal date [illegible] to monitor

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PERSONNEL FRISK RECORD FORM

DATE: 7-14-94

RATEMETER MODEL #:	PROBE MODEL #:	LOCATION:	α CONTAMINATION CRITERIA[1]:	SKIN	CLOTHES
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
SERIAL #:	SERIAL #:	BACKGROUND:	βγ CONTAMINATION CRITERIA[2]:	SKIN	CLOTHES
[illegible]	[illegible]	[illegible]		18c	[illegible]

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
Hector Rodriguez 97950	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Joe Lewis 107159	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Danny Trujillo 112579	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Willie Ulibarri 090381	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Danny Katzman 114647	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Carl Newton 082102	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
Herbie Bell 094479	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = $\frac{\text{Meter Reading}}{\text{eff}}$

[2]βγ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[illegible] 7-14-94

TECHNICAL REVIEWER/DATE

PERSONNEL FRISK RECORD FORM

DATE: 7-15-94

RATEMETER MODEL #:	PROBE MODEL #:	LOCATION:	α CONTAMINATION CRITERIA[1]:	SKIN	CLOTHES
1. E-1	HP-200	[illegible] TA-1, [illegible]		NA	NA
SERIAL #: 009032	SERIAL #: 009032	BACKGROUND: 150	β-γ CONTAMINATION CRITERIA[2]:	SKIN 150	CLOTHES 250

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
Terry Johnson 116893	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	1550						ND
Randy Rybicki 106648	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]						ND
	[illegible]	[illegible]						[illegible]
	1500	1530	✓	✓				ND
Donald Valerde 099001	[illegible]	[illegible]	✓	✓				[illegible]
	1500	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]						[illegible]
	1515	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
Luis Gallegos 91171	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
	1500	[illegible]	✓	✓				ND
Patricia Gallegos 115966	[illegible]	[illegible]	✓	✓				[illegible]
	1500	1530	✓	✓				[illegible]
Dave Frank 115960	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
	1500							
Tanni Gallegos 113023	[illegible]	[illegible]	✓	✓				[illegible]
	1500	1530	✓	✓				ND

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = Meter Reading / 4π

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[illegible] 7-27-94

TECHNICAL REVIEWER/DATE

1. In addition: Lanthanum 140, HSE# 00-00[illegible]; Iodine 131-40 HSE# 00[illegible]

PERSONNEL FRISK RECORD FORM

DATE: [illegible]

RATEMETER MODEL #:	PROBE MODEL #:	LOCATION:	α CONTAMINATION CRITERIA[1]:	SKIN	CLOTHE
[illegible]	HP200	[illegible]		NA	NA
SERIAL #:	SERIAL #:	BACKGROUND:	β-γ CONTAMINATION CRITERIA[2]:	SKIN	CLOTHE
[illegible]	[illegible]	150		1400	200

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READ
Danny Trujillo 112579	[illegible]	[illegible]	✓	✓				[illegible]
Alfonso Rodriguez 097950	[illegible]	[illegible]	✓	✓				[illegible]
	[illegible]	1200	✓	✓				[illegible]
	[illegible]	[illegible]	✓	✓				[illegible]
Jeffrey Schroeder 107109	[illegible]	[illegible]	✓	✓				[illegible]
John Eliott 115438	[illegible]	[illegible]	✓	✓				[illegible]

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = $\frac{\text{Meter Reading}}{\text{eff}}$

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[illegible] 2-27-91

TECHNICAL REVIEWER/DATE

Page 2 of 2

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PERSONNEL FRISK RECORD FORM

DATE: 7-18-94

RATEMETER MODEL #:	PROBE MODEL #:	LOCATION:	α CONTAMINATION CRITERIA[1]:	SKIN	CLOTHES
Ludlum 12.	Ludlum 44-40	Sym Uka + [illegible]		n/a	n/a
SERIAL #:	SERIAL #:	BACKGROUND:	β-γ CONTAMINATION CRITERIA[2]:	SKIN	CLOTHES
00601[illegible]	[illegible]	160		160	250

NAME/ID	TIME IN	TIME OUT	HANDS	FEET	TORSO	FACE	LEGS	MAX READING
Alfonso Rodriguez 097850	[illegible]	[illegible]	✓	✓				[illegible]
	1440	1540	✓	✓				180
Donald Velarde 085001	[illegible]	[illegible]	✓	✓				160
	1300	1340	✓	✓				160

[1]α CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ 300 dpm = $\frac{\text{Meter Reading}}{\text{eff}}$

[2]β-γ CONTAMINATION CRITERIA: SKIN ≥ BACKGROUND PLUS 3σ / CLOTHES ≥ BACKGROUND PLUS 100 cpm

[signature] 7-27-94

TECHNICAL REVIEWER/DATE

APPENDIX J

Radioactive Material Transfer Forms

MEMO

ERM/GOLDER ASSOCIATES - LOS ALAMOS PROJECT TEAM

To: Carl Newton, EES-3

From: Tami Wiggins TW

Date: 09 September 94

Re: Radioactive Material Transfer forms (RMTFs) for July for the Western Sanitary Waste Line

---

Attached are the Radioactive Material Transfer forms (RMTFs) you requested for the shipments of pipe sections from our work at the Western Sanitary Waste Line in July. Scott Allen (BUS-6, 667-0996) prepared these forms. He told me that there are no "manifests" associated with the two transfers of our materials; the transfers were considered on-site shipments and required only the attached RMTFs.

Note that these shipments took place on 18 and 20 July. The first RMTF is dated 15 July (Friday), but the actual transfer of materials did not occur until 18 July (Monday) (based on my field notes and John Elliott's [ESH-1] signature on the form). The second RMTF is dated 18 July (Monday), but the actual transfer of materials took place on 20 July (Wednesday) (based on my field notes, Patricia Gallegos's [RSP] field notes, and Elliott's signature). In both cases, I believe the forms were prepared in advance in anticipation of shipments that, due to time and personnel constraints, were delayed.

Also, for the record, the EPA provisional waste generator ID numbers for the shipments were NMP 3600-40785 (18 July) and NMP 3600-40797 (20 July).

I hope this helps. Please let me know if you need any additional information!

cc: ERM/Golder Project File 19346.04

LOS ALAMOS NATIONAL LABORATORY

RADIOACTIVE MATERIAL TRANSFER FORM

Mod. 51

RM No. 17469	SM No.	Cost Code / Prog Code / Cost Acct / Wk Pkg: 9103 / M3173 / 0000	Date: 7-15-94

GENERAL INSTRUCTIONS: This form is an official shipping document for transporting radioactive material within LANL boundaries. Type or print all entries. Emergency Response Guide Information must be attached to this document. Distribution of completed forms is indicated below.

FROM				TO			
Name: Armendariz (Carl Newton)				Name: Henry Norris			
Telephone: 7876	Group: [illegible]	TA: 3000	Building: Trinity Drive	Telephone: 73322	Group: FSS-DO	TA: 60	Building: Sigma Mesa

Item A	No. of Pkgs.	Proper Shipping Name	Hazard Class	UN/NA Number	Quantity (Grams)
	1	Radioactive Material, LSA N.O.S.	7	UN2912	N/A

Radionuclide (s)	Physical Form	Chemical Form	Activity	Label Category	Transport Index
U238					
Pu239	Solid	Elemental	447pCi	N/A	N/A

Fissile Class	DOE or USNRC Identification Number	Additional Description (s)
Exempt 3.7-2GPH	N/A	Exclusive USE

Gross Weight	Rad. Level (Surface)	Required Placards	Packaging Used	Packaged By	Z Number	Date
10000	0.2	Radioactive	STP	Scott Allen	096762	7-15-94

Item B	No. of Pkgs.	Proper Shipping Name	Hazard Class	UN/NA Number	Quantity (Grams)
		7/15/94 3:24hr			

Radionuclide (s)	Physical Form	Chemical Form	Activity	Label Category	Transport Index

Fissile Class	DOE or USNRC Identification Number	Additional Description (s)

Gross Weight	Rad. Level (Surface)	Required Placards	Packaging Used	Packaged By	Z Number	Date

Radiation Control Technician (Signature)	Z Number	Date
[illegible]	115433	7/15/94

Pro-Force Representative (Signature)	Z Number	Date	Tamper ID

EMERGENCY RESPONSE TELEPHONE NUMBER: (505) 667-6211

EMERGENCY CONTACT TELEPHONE NUMBERS FOR ON-SITE TRANSFERS

Name	Z Number	Group	Telephone Number	Emergency Response Guide Number(s)
Carl Newton	072102	ESS-3	699 1684	Item A 62
Tammy Wiggins	113033	SR-Milan	662 3700	Item B

SHIPPER'S CERTIFICATION

This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Shipper (Signature)	Z Number	Mail Stop	Date
[illegible]	096762	P274	7-15-94

ADDITIONAL TRANSPORTATION INFORMATION

Driver/Transporter	Z Number	Transport Vehicle License Tag Number

Estimated Date and Time of Arrival	Material Received by	Z Number	Date

Form 1586 (4/94)

GUIDE 162 — ERG92

POTENTIAL HAZARDS

HEALTH HAZARDS

Radiation presents minimal risk to lives of persons during transportation incidents.

Low radiation hazard when material is inside container. If material is released from package or bulk container, hazard will vary from little to moderate, depending on the type and amount of radioactivity, the kind of material it is in, and/or the surfaces it is on.

Full-load shipments and packages often do not have "RADIOACTIVE" labels.

Occasionally, packages may have a "RADIOACTIVE" label and a second hazard label; usually the second hazard is greater than the radiation hazard.

Some radioactive materials cannot be detected by commonly available instruments.

Spilled radioactive materials usually will be visible if packaging fails.

Runoff from control of cargo fire may cause low-level pollution.

FIRE OR EXPLOSION

Some of these materials may burn, but most do not ignite readily.

Radioactivity does not change flammability or other properties of the materials.

EMERGENCY ACTION

Priority response actions may be performed before taking radiation measurements.

Priorities are life saving, control of fire and other hazards, and first aid.

Isolate hazard area and deny entry. Notify Radiation Authority of accident conditions.

Keep unnecessary people at least 150 feet upwind of spill; greater distances may be necessary for people downwind, or if advised by Radiation Authority.

Uninjured persons or equipment with suspected contamination should be detained or isolated; delay cleanup until instructions are received from Radiation Authority.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide adequate protection.

CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, CALL CHEMTREC AT 1-800-424-9300.

If water pollution occurs, notify the appropriate authorities.

FIRE

Do not move damaged packages; move undamaged packages out of fire zone.

Small Fires: Dry chemical, CO_2, water spray or regular foam.

Large Fires: Water spray, fog or regular foam.

SPILL OR LEAK

Do not touch damaged containers or spilled material.

Small Liquid Spills: Cover with sand, earth or other noncombustible absorbent material.

Dike to collect large liquid spills or cargo fire control water.

Cover powder spill with plastic sheet or tarp to minimize spreading.

FIRST AID

Use first aid treatment according to the nature of the injury.

If persons have contacted released material, use standard hazmat procedures for care of contaminated persons, for transport of the injured, and for notifications to authorities.

Radioactive material, LSA. NOS., 7, UN2912

07/20/94 12:31 5056665355 LANL MAT-2 MAIL PAGE

2nd Floor

LOS ALAMOS NATIONAL LABORATORY

RADIOACTIVE MATERIALS TRANSFER

RM No. 07521	SM No.	Cost Code / Prog Code / Cost Acct / WX Prg: 5503 / M7178 / 0000	Date 7-18-94

GENERAL INSTRUCTIONS: This form is an official shipping document for transporting radioactive material within LANL boundaries. Type or print all entries. Emergency Response Guide information must be attached to this document. Distribution of completed forms is indicated below.

FROM	Name	Telephone	Group	TA	Building	Room
	Armando Armendariz (Carl Newton)	7 8672	ESH-1	3000	Trinity Drive	

TO	Name	Telephone	Group	TA	Building	Room
	Henry Nunez	73322	J55-DO	60	Silver Mesa	

Item	No. of Pkgs.	Proper Shipping Name	Hazard Class	UN/NA Number	Quantity (Grams)
A	1	Radioactive Material, LSA, N.O.S.	7	UN2912	N/A

Radionuclide (s)	Physical Form	Chemical Form	Activity	Label Category	Transport Index
U238. Pu239	Solid	Elemental	447pCi	N/A	N/A

Specific Class	DOE or USNRC Identification Number	Additional Description (s)
Exempt 2-[illegible]	N/A	Exclusive USE

Gross Weight	Rad. Level (Surface)	Required Placards	Packaging Used	Packaged By	Z Number	Date
10000	0.1mR/hr Radioactive	STD	Scott Allen		096762	7-[illegible]-94.

Item	No. of Pkgs.	Proper Shipping Name	Hazard Class	UN/NA Number	Quantity (Grams)
B					

Radionuclide (s)	Physical Form	Chemical Form	Activity	Label Category	Transport Index

Specific Class	DOE or USNRC Identification Number	Additional Description (s)

Gross Weight	Rad. Level (Surface)	Required Placards	Packaging Used	Packaged By	Z Number	Date

HMTF REVIEW
APPROVED ☑
DISCREPANCY ☐
7/20/94 12:39pm TM

Radiation Control Technician (Signature)	Z Number	Date
[signature] ESH-1	115438	7/20/94

Performing Organization Representative (Signature)	Z Number	Date	Tamper ID

EMERGENCY RESPONSE TELEPHONE NUMBER: (505) 667-6211

EMERGENCY CONTACT TELEPHONE NUMBERS FOR ON-SITE TRANSFERS

Name	Z Number	Group	Telephone Number	Emergency Response Guide Number(s)
Carl Newton	092102	ESH-3	699 1684	Item A 62
Tammy Wiggins	113023	SP-Killer	662 3700	Item B

SHIPPER'S CERTIFICATION

This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Shipper (Signature)	Z Number	Mail Stop	Date
[signature]	096762	P274	7-[illegible]-94

ADDITIONAL TRANSPORTATION INFORMATION

Driver/Transporter	Z Number	Transport Vehicle License Tag Number

Estimated Date and Time of Arrival	Material Received By	Z Number	Date

Form 1516 (4/94)

195

POTENTIAL HAZARDS

HEALTH HAZARDS

Radiation presents minimal risk to loss of persons during transportation accidents.

Low radiation hazard when material is inside container. If material is released from package or bulk container, hazard will vary from little to moderate, depending on the type and amount of radioactivity, the kind of material it is in, and/or the surfaces it is on.

Fulldose shipments and packages often do not have "RADIOACTIVE" labels.

Occasionally, packages may have a "RADIOACTIVE" label and a second hazard label, usually the second hazard is greater than the radiation hazard.

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Runoff from control of cargo fire may cause localized pollution.

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Radioactivity does not change flammability or other properties of the materials.

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Priorities are life saving, control of fire and other hazards, and first aid.

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Keep unnecessary people at least 150 feet upwind of spill; greater distances may be necessary for people downwind, or if advised by Radiation Authority.

Uninjured persons or equipment with suspected contamination should be detained or isolated; delay cleanup until instructions are received from Radiation Authority.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide adequate protection.

CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, CALL CHEMTREC AT 1-800-424-9300.

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Dike to collect large liquid spills or large fire control water.

Cover powder spill with plastic sheet or tarp to minimize spreading.

FIRST AID

Use first aid treatment according to the nature of the injury.

If persons have contacted released material, use standard hazmat procedures for care of contaminated persons, for transport of the injured, and for notifications to authorities.

Radioactive Material, LSA. NOS., 7, UN 2912

RADIOACTIVE LSA FORM

Exclusive use vehicle will be loaded by the consignor, unloaded by the consignee and no other material will be carried in/on the cargo carrying body. Material is not to be transferred to another cargo carrying body unless directed by consignor, consignee or his authorized agent.

PT-18.0 (6/93)