Department of Energy
Albuquerque Operations Office
P. O. Box 5400
Albuquerque, New Mexico 87185-5400

February 29, 2000

Ms. Mary Ann Scott
6211 W. Northwest Highway
2102 Preston Tower
Dallas, TX 75225

Dear Ms. Scott:

The Department of Energy (DOE) has completed the investigation of your property located at 133 La Senda Road in White Rock, New Mexico. The purpose of this investigation was to evaluate the possible presence of residual contaminants relating to the historical use of the property by a private individual as a small-scale laboratory. This investigation represents a follow-up to the investigation previously performed at the property under the direction of the New Mexico Environment Department (NMED) and was intended to fill data gaps identified in the October 1999 Science Applications International Corporation (SAIC) investigation report prepared for NMED.

The DOE sampling activity occurred in December 1999 and laboratory results were validated on February 14, 2000. The NMED was present throughout the on-site investigation. The DOE report is enclosed.

The DOE's investigation focused on locating and sampling the two dry wells identified in the NMED report and collecting confirmation samples around the location found in the NMED investigation to be above background for uranium-238.

The results of the DOE investigation can be summarized as follows:

- The presence of the two dry wells was verified and three samples were taken in and adjacent to each dry well.

- Samples of the soils underlying the dry wells (4 to 13 feet below the ground surface) had some inorganic constituents that were above the "background" sample values. Trace levels of some volatile organic constituents were also detected.

- Uranium isotope activities at two sample locations in front of the east shed are elevated above the activity found in the single "background" sample taken on the property.

DOE performed an initial risk assessment, which indicates that no unacceptable health risk is presented by the levels of contaminants found by both SAIC and our investigations

on your property. NMED has concurred with the results and conclusions of this assessment.

The DOE will not take any further action at the site.

Several other questions have occurred over the last nine months as we discussed your concerns about resale or past damages due to your inability to sell your residence. I will present each question and response as follows:

Question: What is DOE's liability associated with Mr. Elliott's operating a laboratory at the La Senda residence?

Response: Contractors performing work for DOE, unless their contracts create an agency relationship, are independent contractors responsible for their own activities. To the best of DOE's knowledge, Mr. Elliott held subcontract(s) to perform work for DOE contractors, and an agency relationship was not established. Therefore, DOE cannot assume legal responsibility for Mr. Elliott's actions.

Question: Why isn't DOE doing any clean up of the La Senda property?

Response: In order for the Government to spend or pay money there must be a basis in law or contract. As indicated in the above response, the DOE cannot assume legal responsibility for Mr. Elliott's actions.

In any event, DOE's assessment indicates that no unacceptable health risk is presented by the levels of contaminants found by both NMED's and our investigations on your property, and NMED has concurred with the findings of this assessment. These risk-based clean-up levels are the same standards used for making any clean-up decisions within the State of New Mexico. Therefore, no remedial action is necessary.

Question: Can DOE purchase the La Senda property?

Response: In order for the Government to spend or pay money there must be a basis in law or contract. While the DOE has the authority to purchase property for fair market value if the property is necessary for a governmental purpose, in this case there is no such need.

At your request, the DOE would be pleased to present the findings of the investigation to lenders and prospective purchasers.

Question: Why did DOE quickly respond to the Pecos property to remove radioactive materials for Mr. Elliott, whereas DOE will not take actions with regards to the La Senda property?

Response: According to the "Site Investigation of the La Senda Property," Mr. Elliott was licensed in 1984 by the State of New Mexico to receive radioactive materials at the Pecos facility. The DOE (Fernald) shipped depleted uranium hexafluoride to Mr. Elliott at the Pecos property in 1985, and the Government retained ownership of this material. DOE has not performed any "clean-up" of the Pecos property. The only DOE action was specifically to remove DOE-owned material.

DOE committed to conduct sampling at the La Senda property in May 1999. As you are aware, two surveys have now been completed. The results of the DOE's investigation are included in the enclosed report and indicate no basis for further remediation.

I understand that the events associated with the sale of this property have been very difficult for you. I assure you that the DOE has done everything possible within the limits of our authority to address your concerns. I thank you for your cooperation and patience during the DOE's sampling activity. If you have any questions regarding the report or this response, please call me at (505) 845-6210.

Sincerely,

for W. John Arthur, III
Assistant Manager for
Office of Environmental
Operations and Services

Enclosure

cc w/o enclosure:
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Brian Costner, S-1, HQ

La Senda Road Investigation Results

White Rock, New Mexico

Prepared for the Department of Energy,
Albuquerque Office

Prepared by Sandia National Laboratories, New Mexico
Environmental Restoration Project

February 2000

LA SENDA ROAD INVESTIGATION RESULTS
WHITE ROCK, NEW MEXICO

Prepared for:

U.S. Department of Energy
Albuquerque Office

Prepared by:

Sandia National Laboratories/New Mexico
Environmental Restoration Project
Albuquerque, New Mexico

February 29, 2000

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List of Abbreviations/Acronyms

DOE	Department of Energy
DU	depleted uranium
ER	Environmental Restoration
GPR	ground penetrating radar
JCNNM	Johnson Controls Northern New Mexico
LANL	Los Alamos National Laboratory
NMED-OB	New Mexico Environment Department DOE Oversight Bureau
RAP	Radiation Assessment Program
SAIC	Science Applications International Corporation
SAP	sampling and analysis plan
SNL/NM	Sandia National Laboratories/New Mexico
SVOC	semivolatile organics
U	uranium
VOC	volatile organics
µg/L	micrograms per liter

1.0 Introduction

The U.S. Department of Energy (DOE) in coordination with the New Mexico Environment Department DOE Oversight Bureau (NMED-OB) has completed a follow-up screening investigation at a private residence in White Rock, New Mexico. The investigation was initiated to confirm previous sampling results and to address data gaps in the previous study conducted by NMED-OB's contractor, Science Applications International Corporation (SAIC) (1999). A review of the SAIC report by the NMED-OB (NMED-OB 1999, see Attachment 1) indicated that some additional sampling was needed to better characterize the site.

Based on a historical site assessment performed by SAIC, the former owner of the property used part of the residence as a laboratory, although his NMED-regulated laboratory was located in Pecos, New Mexico (SAIC 1999). One of the potential constituents of concern at the residence was depleted uranium (DU), which has been used at the Pecos facility and could have been used at his residence in White Rock. The NMED-OB established the scope of the first investigation and used an independent environmental contractor (SAIC) to perform the work in September/October 1999 (see Attachment 2 for report text). Their investigation found very little residual contamination at the site, although one sample location at the front of a storage shed was found to have uranium (U)-238 activity above the background screening level. Additionally, the NMED investigation found architectural plans indicating the existence of two dry wells but an investigation of these wells was not performed at that time (SAIC 1999). In their review of the report, the NMED-OB recommended collecting some confirmation samples and investigating the dry wells. In consideration of funding restrictions by the NMED-OB at the time and because of the potential for radiological contamination at the site, the DOE agreed to perform the recommended sampling and analysis to obtain the additional data in the most expedient manner.

The follow-up investigation described in this report specifically addresses the NMED-OB comments on the results of the SAIC investigation. The NMED-OB was involved during the entire investigation conducted by the DOE and its contractor, Sandia National Laboratories/New Mexico (SNL/NM), and representatives from the NMED-OB were present during on-site activities.

This report presents the objectives of the investigation, site description, summary of previous investigations, sampling and analysis activities, and results of the radiological and chemical analyses.

1.1 Objectives

This report presents the results of environmental sampling activities conducted at 133 La Senda Road, a private residence located in White Rock, New Mexico. The field investigation was performed by the SNL/NM Environmental Restoration (ER) Project under the direction of the DOE, Albuquerque Office in November and December 1999. Sample results were received from the analytical laboratory by SNL/NM in February 2000.

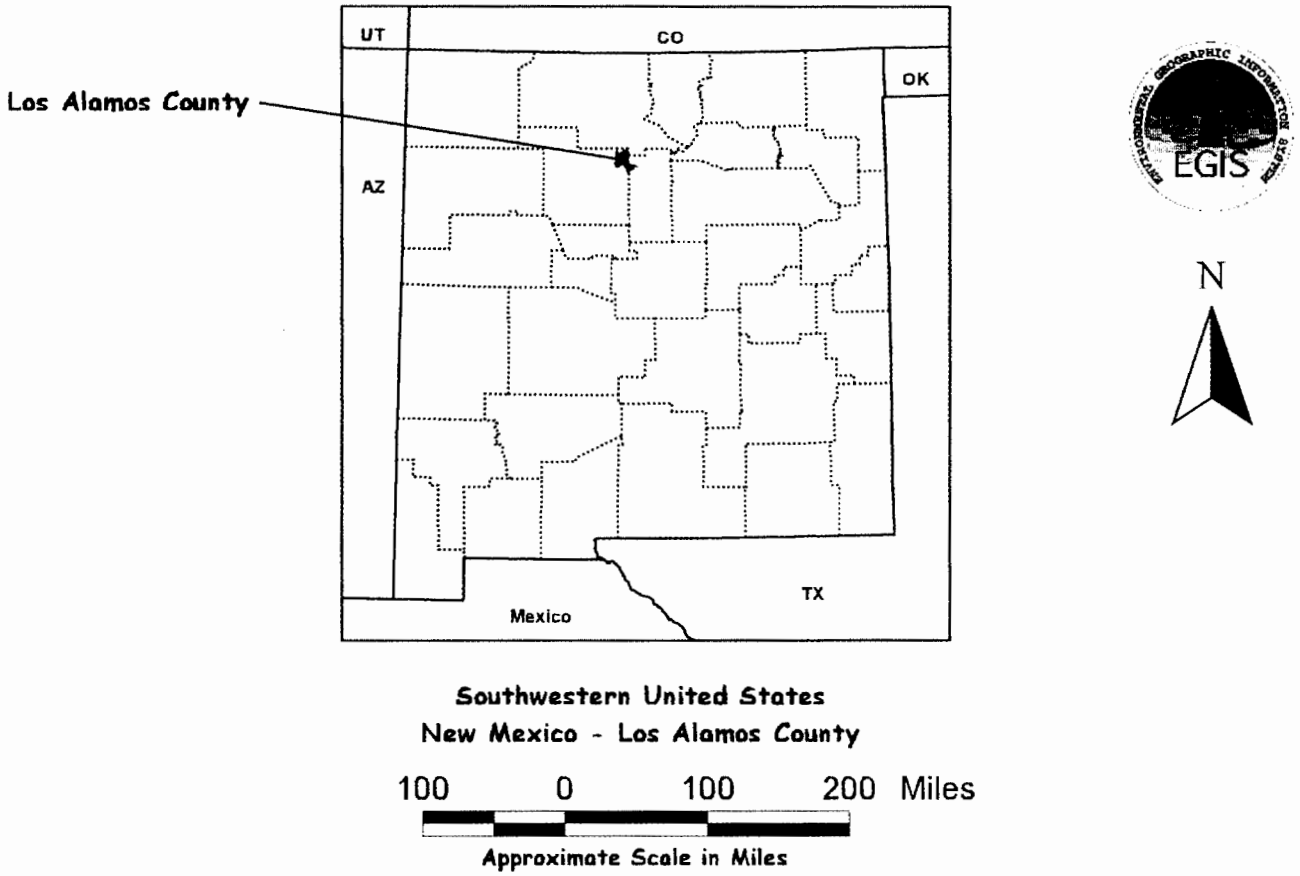
The objectives of this investigation were to perform the specific activities recommended by the NMED-OB, which were:

1. Collect several additional samples at the east shed location to verify the results of the one sample collected during the first investigation.
2. Verify the location of the two dry wells shown on architectural plans for the house.
3. Collect and analyze samples beneath the dry wells.

1.2 Site Description

The information in this section was derived from the site investigation of the La Senda property report (SAIC, 1999). A detailed description of the site and its history is provided in that report. The site is a private residence located at 133 La Senda Road, in the La Senda subdivision in White Rock, New Mexico (Figure 1). The house is about 4000 square feet, with an attached two-car garage (Figure 2). The house was built around 1981 and was remodeled in the 1990s, including the addition of a bedroom and bathroom and two patios on the northern side of the house. The lot is approximately 2.02 acres. Two large storage buildings are located north of the house. A Morgan storage shed was located near the northeast corner of the house but is no longer present (SAIC 1999).

The former owner of the property used the studio on the north side of the house as a research laboratory from circa 1981 until 1994 (SAIC 1999). Research could have been conducted there that involved the use and storage of chemicals, chemical solutions, chemical powders, and DU. Chemicals included metals, organic compounds, acids, bases, solvents, and possibly asbestos (SAIC, 1999). The storage sheds contained a variety of chemicals in liquid and powder form at the time the current owner purchased the property. All materials have been removed from the property.



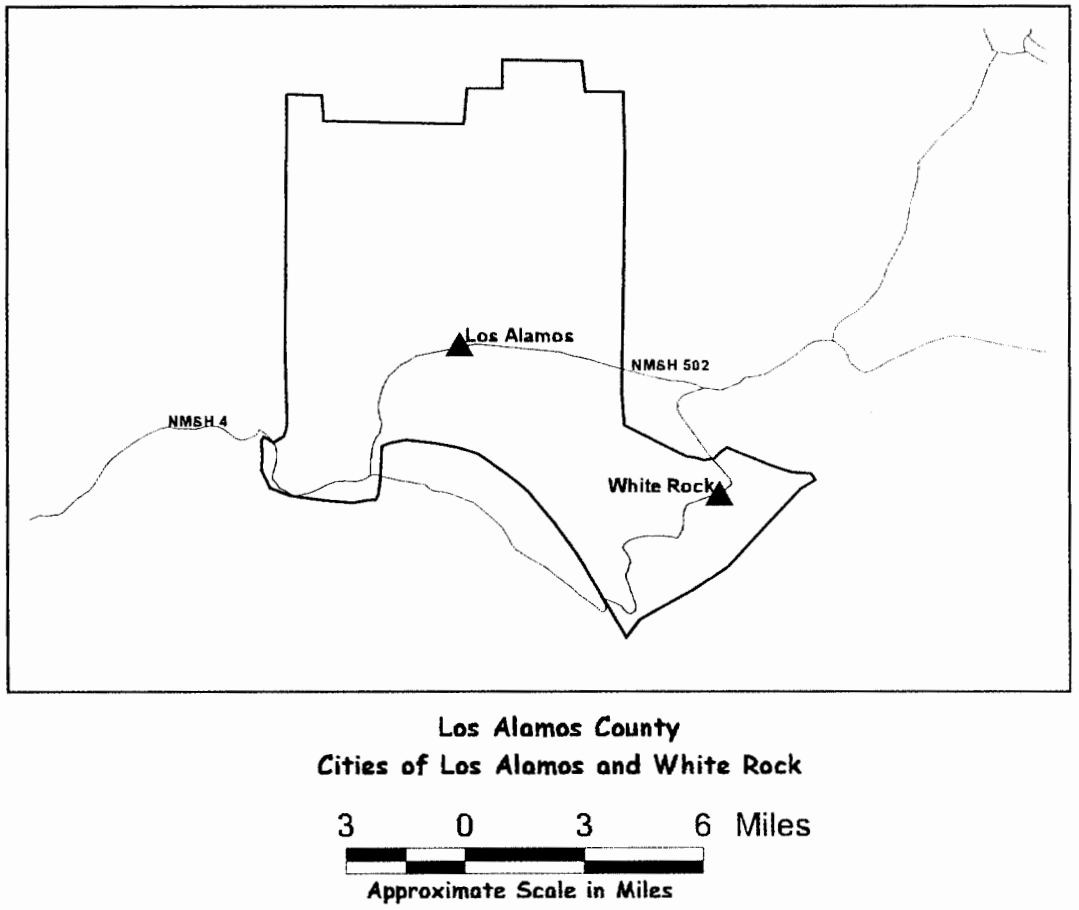


Figure 1. Project Area Location Map

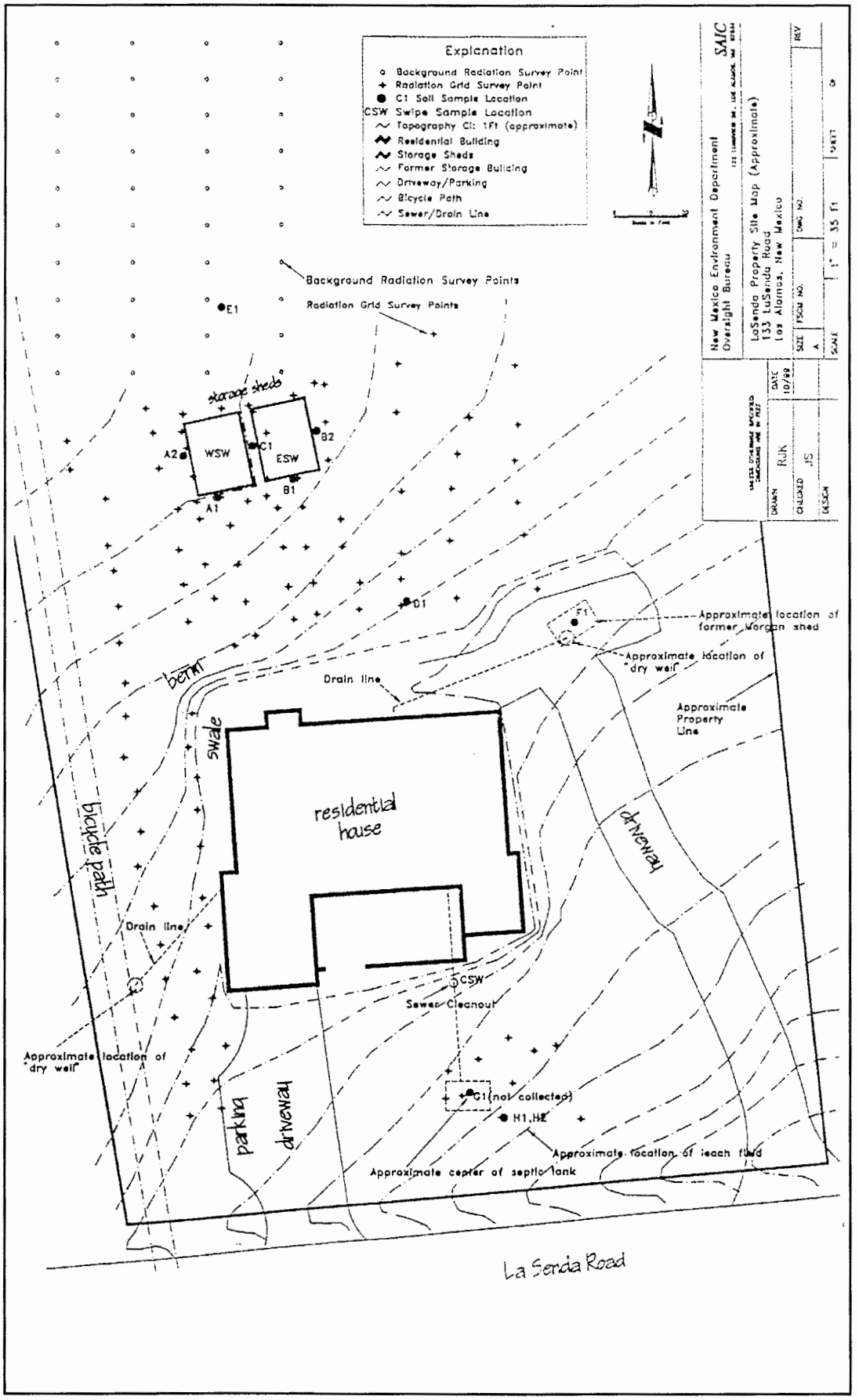


Figure 2. Sample Locations for the NMEDOB Investigation Conducted by Science Applications International Corporation (SAIC), October 1999. Source: SAIC 1999b

The site is vegetated with native grasses, piñon, juniper, and ponderosa trees. The property is located on the Pajarito Plateau at elevations ranging from 6,427 feet at the southeast side of the property to 6,442 feet at the northwest side of the property. The total topographic relief across the site is 15 feet. Surface drainage is from the northwest to the southeast. Recent landscaping of the site has modified the original site plan and site conditions including surface drainage patterns. The two storage buildings have not been modified. The site has one to three feet of silty soil and gravel material overlying basalt bedrock. The thickness of the basalt is several hundred feet. Depth to groundwater is approximately 600 feet (SAIC 1999).

1.3 Previous Investigations

The initial investigation of the 133 La Senda Road residence was conducted by SAIC in September and October of 1999, under contract to the NMED-OB. The purpose of their investigation was to evaluate possible impacts from the storage and use of materials by the former property owner. SAIC first collected any available data and information on the site. Based on the information gathered during the historical site assessment SAIC performed the following tasks:

- A radiological survey of the house and property.
- Surface soil sampling in areas identified to have potential residual contamination (e.g., around existing and former storage sheds).
- Sampling of the soil in the leach field.
- Laboratory analysis of soil and swipe samples for total metals, gross alpha and beta, and isotopic uranium; plus semivolatile organic compounds (SVOCs) in the septic system.

The locations of the SAIC ground survey and soil samples are shown on Figure 2 (taken from the SAIC report). Based on a thorough radiological survey of the laboratory and property, SAIC found no significant radiological anomalies. One background soil sample was collected at the site. The report states that the results of the soil sampling indicated a slightly elevated U-238 isotopic concentration in comparison to the single background sample collected at the site. The elevated soil sample was collected in front of the doorway of the east shed (Figure 2). No constituents of concern were found in the septic tank or leach field.

During the latter part of the SAIC investigation, the architectural plans for the house and property were obtained (Dority 1981). These plans showed two dry wells that were designed to receive

non-septic wastewater (Figure 2). The design of each dry well was an unlined pit about 6 feet deep that was filled with rounded river rock and overlain by a soil cover (Figure 3). One dry well was shown east of the house (Figure 2) with one drainline from a sink in the studio/laboratory in the back of the house. The other dry well was shown on the western side of the property and with drains entering in from a bathroom shower and from a floor drain in the garage. The plans showed the drain lines to be constructed of 2-inch nominal diameter plastic pipe. At the time of the SAIC investigation, it was unclear if these dry wells had actually been constructed. The house plans had been obtained towards the end of the SAIC investigation and no work was performed by SAIC to verify the existence of the dry wells or to collect soil samples from them. In their report, SAIC recommended further investigation to locate the dry wells (SAIC 1999).

The NMED-OB's review (Attachment 1) of the SAIC report recommended that the existence of the dry wells be verified and, if present, soil samples should be collected (NMED-OB, 1999). Additional soil samples were also recommended in front of the east shed to confirm the elevated U-238 activity.

2.0 DOE Investigation

The purpose of the DOE investigation was to address the data gaps identified in the SAIC report and respond to the NMED-OB's review comments. DOE placed this investigation as a high priority and sought the most timely and efficient means to conduct the investigation.

2.1 Field Investigation

On November 17, 1999, representatives of the DOE, NMED-OB, SNL/NM ER, and the property owner's representatives met at the residence to discuss the scope of work. NMED-OB verbally approved the scope of work to be performed by the DOE. The activities to be conducted were:

- Locate the two dry wells and sample the underlying soil for constituents associated with historic use of the site.
- Collect three confirmation samples from the front of the east shed, a background soil sample, and a surface soil sample near the eastern property boundary (nearest neighbor).

2.1.1 Locating Dry Wells

Since the property changed ownership, the house has been extensively remodeled and an addition was added to the back of the house. No physical evidence exists to show the location of the dry wells and it was believed by the members of the DOE investigation team that the plans could not

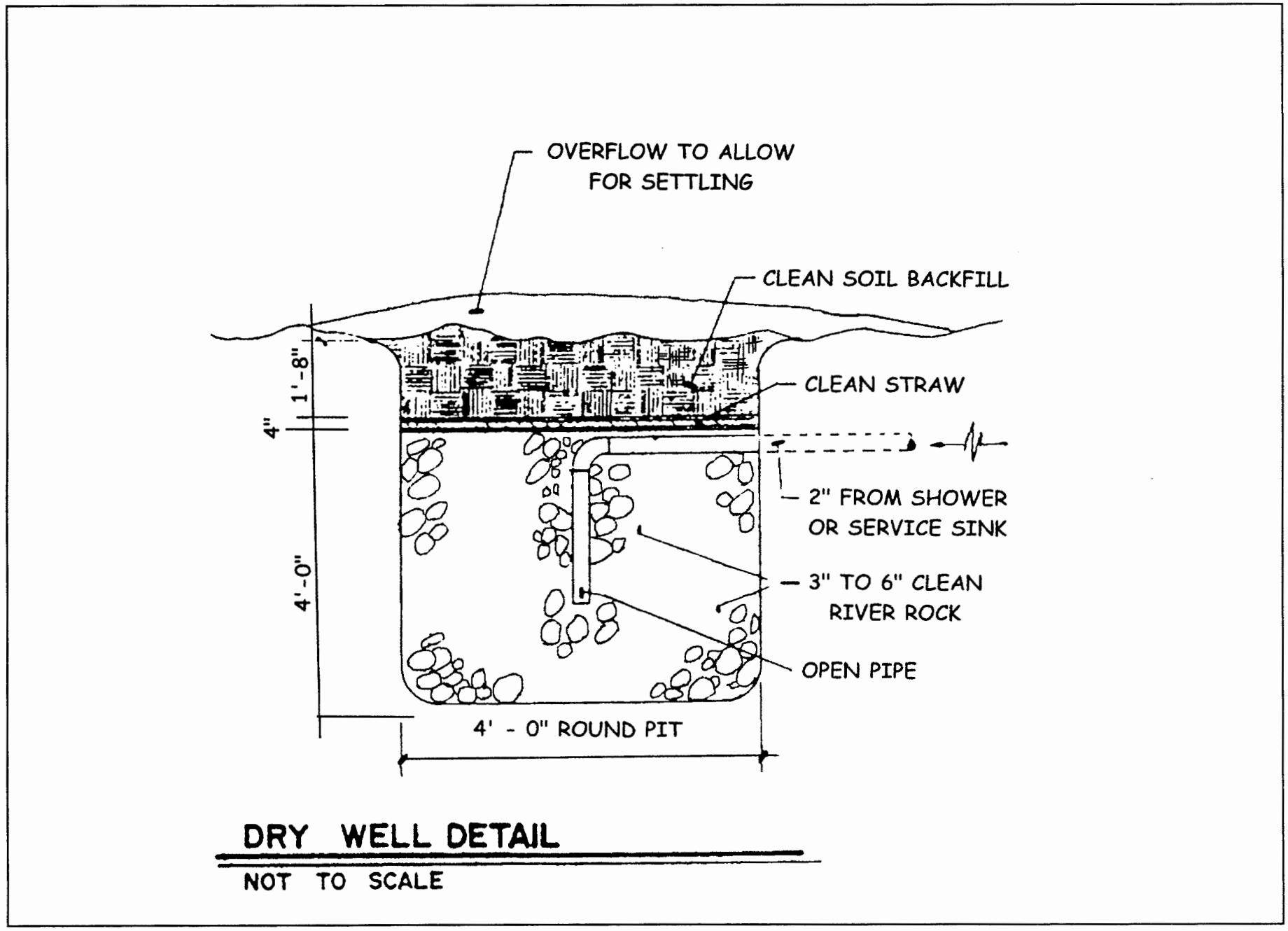


Figure 3. Schematic of dry well construction from building plans

be relied on to accurately indicate the dry well locations. It was agreed during the November 17 site visit that the best way to determine the location of the dry wells was to use a drain snake or camera in the drains. The sink located in the studio/laboratory had been removed and the drainpipe was sealed behind sheet rock. During the DOE investigation, the property owner's representatives cut the sheet rock wall to expose the drainpipe. It was determined at that time that the pipe did not connect to the septic system, which is located in the front of the property. Therefore, it was deemed likely that this drain did connect to a dry well located on the eastern portion of the property, perhaps as shown in the drawings under what is presently the gravel driveway. The plans for the western dry well placed it 30 feet east of the garage but no physical evidence of the well in this area could be found.

On December 8, 1999, personnel from Johnson Controls Northern New Mexico (JCNNM), used a stainless-steel wire line, a metal detector, and a ground penetrating radar (GPR) to approximate the locations of the two dry wells at the residence. Personnel from JCNNM, SNL/NM ER, DOE, NMED-OB, and the property owner's representatives were present during JCNNM's work.

The SNL/NM Radiation Assessment Program (RAP) team was deployed at the time of the JCNNM task to check for radiological activity on the equipment used in the drainpipes. The RAP team tested the accessible areas of the drainpipes, the sink traps, and shower drain for radioactivity and performed some independent verification surveys of the property. A report on their results is attached (Appendix A). The RAP team detected no levels of radioactivity above background.

The locations of the dry wells were not determined during the JCNNM work; however, approximate locations for the two wells were estimated using the GPR.

2.1.2 Sampling Activities

A site-specific sampling and analysis plan (SAP) was written for the dry well excavation and soil sampling at the site (SNL/NM 1999a). Sampling procedures and analytical methods are provided in the SAP (Attachment 3). The SNL/NM ER team conducted the excavating and soil sampling activities in accordance with the SAP (SNL/NM 1999a) and Health and Safety Plan (SNL/NM 1999b). Sampling procedures used by SNL/NM are approved by the NMED and are documented as field operating procedures (SAP 1999a). Photocopies of photographs of the field investigation are provided in Appendix C.

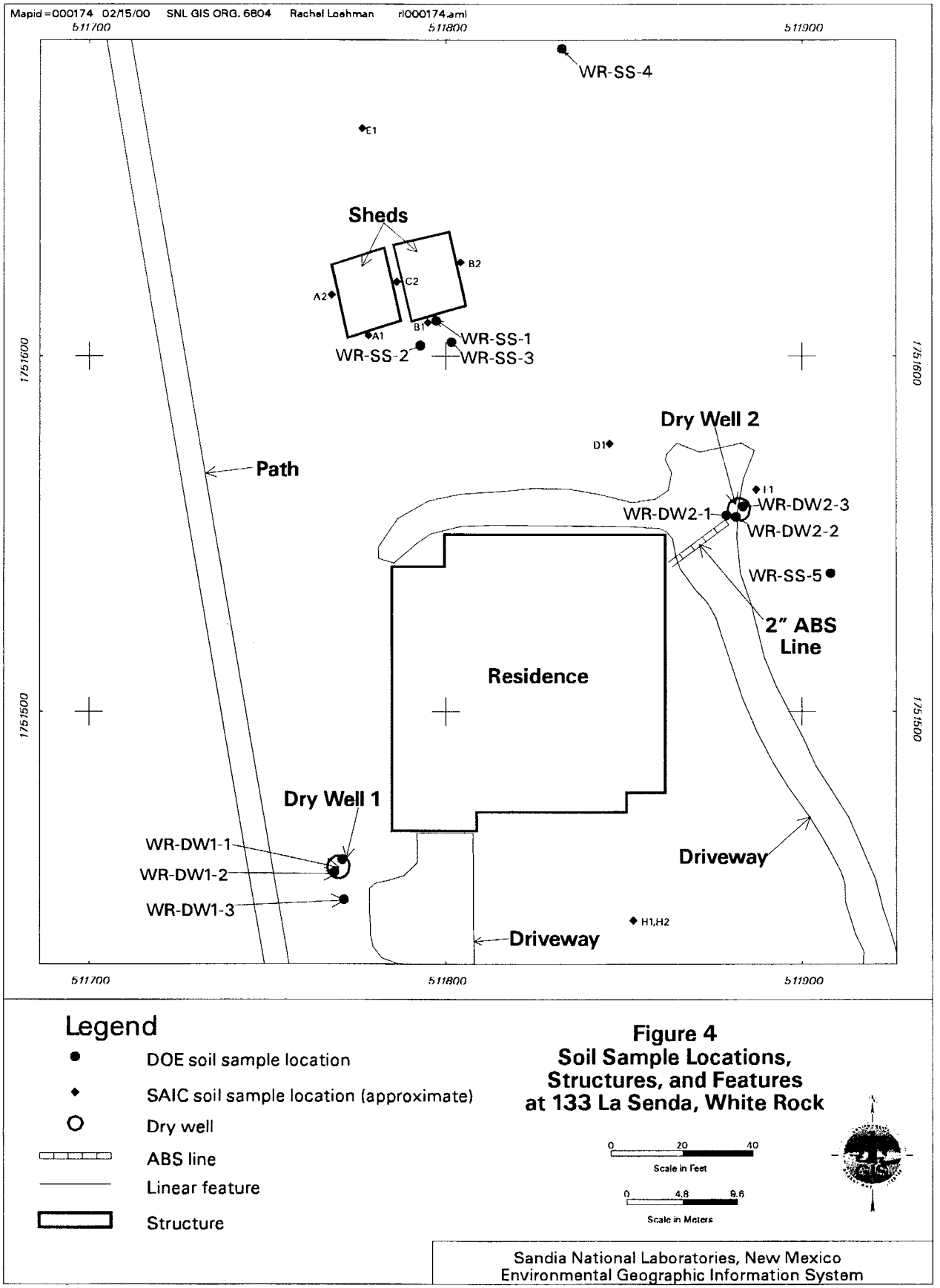
During the field investigation, the DOE project manager and an NMED-OB representative were present. The property owner's representatives were informed of the activities and were present during most of the field activities. The SNL/NM ER team that conducted the excavation and sampling included a task leader, assistant task leader, and four field technicians.

Figure 4 shows the locations of the dry wells and both the DOE (surveyed) and SAIC (approximated) sample locations at the site. For the DOE investigation, a total of 12 soil samples were collected (11 locations plus one duplicate). Three soil samples were collected for laboratory analyses from within or adjacent to each of the dry wells. Five surface soil samples were also collected for laboratory analyses. Three samples (WR-SS-1, -2, and -3) were collected in front of the east shed, one background sample (WR-SS-4) was collected north of the sheds, and one sample (WR-SS-5) was collected in the wooded area east of the house.

A backhoe was first used to try and expose the dry wells. Because the exact location of the dry wells were unknown several attempts at each location were necessary before the dry wells were located. At both locations the 2-inch diameter, acrylonitrile butadiene styrene, Type 1 drainpipe was first uncovered and then followed to where it ended in the dry well. Swipe samples of drain lines leading into the dry wells were analyzed and no radioactivity levels above background were detected (Appendix B).

Both dry wells were uncased holes that had been dug into the native soil and volcanic bedrock and filled with 3- to 6-inch diameter rounded rock, as shown in the architectural plans (Figure 3). About 18 inches of soil was placed above the fill rock. The fill rock appeared to extend from the bottom of the soil to a depth of 6 to 13 feet below ground surface (see photos in Appendix C). Soil underlying the rock fill was sandy silt with angular gravel. In the dry well on the eastern side of the property (DW-2) many of the rocks appeared to be coated with calcium carbonate or silica, indicating water might have been discharged into the dry well.

After the locations of the dry wells were determined using a backhoe, soil samples were collected from several locations in the dry well using a hollow-stem auger and split-spoon sampler. The auger was advanced to the bottom of the fill rock and a split-spoon sampler with acetate liners was then used to collect soil samples. If an inadequate amount of sample was collected for a full sample suite, a borehole was augered next to the first hole and the remainder of the sample set was collected.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I1
WR-DW2-3
WR-DW2-1
WR-DW2-2
WR-SS-5
2" ABS Line
Residence
Dry Well 1
WR-DW1-1
WR-DW1-2
WR-DW1-3
Driveway
H1,H2
Driveway
Legend
DOE soil sample location
SAIC soil sample location (approximate)
Dry well
ABS line
Linear feature
Structure
Figure 4
Soil Sample Locations,
Structures, and Features
at 133 La Senda, White Rock
0 20 40
Scale in Feet
0 4.8 9.6
Scale in Meters
Sandia National Laboratories, New Mexico
Environmental Geographic Information System

Three sample sets were collected from each dry well area for the parameters described below. The soil and rock were field screened using an alpha frisker and a beta/gamma frisker. A photoionization detector was used to screen for volatile organics (VOC) in the soils.

At the eastern dry well, DW-2, the pipe was cut by the backhoe during the excavation. Before repairing the drainpipe the NMED-OB requested that water be flushed through the line and a sample collected. Four gallons of water was poured through the drainpipe from the house, however, no water came out at the other end. It is possible that the drainpipe had been broken or bent during the house remodeling several years ago. The drainpipe leading into the dry well was sealed upon completing the dry well sampling activity.

2.1.3 Analyses

A U.S. Environmental Protection Agency-certified analytical laboratory, General Engineering Laboratories of Charleston, South Carolina, under contract to SNL/NM, performed the analyses for total metals plus uranium, VOCs, SVOCs, gamma-emitting radionuclides, and uranium isotopes. Test methods are shown on Table 1. Samples were shipped via the SNL/NM Sample Management Office to the analytical laboratory.

Table 1

Analytical Parameters and Test Methods for Soil Samples

Analytical Parameter	Test Method
Volatile organic compounds	EPA 8260
Semivolatile organic compounds	EPA 8270
TAL metals + uranium	EPA 6010/7000 Series
Radionuclides	
Uranium isotopes	EPA 900
Alpha/gamma-emitting radionuclides	EPA 901.1

EPA = U.S. Environmental Protection Agency.
TAL = Target analyte list.

2.1.4 Quality Control

Quality control requirements for sample analyses are specified in the SNL/NM Quality Assurance Program Plan and summarized in Table 2. Two rinsate samples (decontamination water from cleaning sampling equipment) were collected and analyzed for the full suite of analyses. One rinsate sample was collected after the soil samples had been collected from the west dry well (DW-2) and one after the completion of surface soil sampling. Trip

Table 2

Quality Control Sample Analyses

Field		Laboratory	
☒ Duplicate samples	10% or 1	☐ Replicate	5% or NA
☐ Field blank		☒ LCS	5% or 1 per batch
☒ Trip blank	1 per shipment	☒ DCS	5% or 1 per batch
☒ Other (please describe)	1	☒ MS	5% or 1 per batch
Equipment rinsate		☒ MSD	5% or 1 per batch
		☒ Method blank	1 per analytical batch
		☒ Surrogate spike	all GC/MS samples

DCS = Duplicate control sample.
GC/MS = Gas chromatograph/mass spectrometer.
LCS = Laboratory control sample.
MS = Matrix spike.
MSD = Matrix spike duplicate.
NA = Not applicable.

blanks for VOCs were placed in the coolers containing the VOC samples. One duplicate soil sample was collected in front of the east shed.

2.1.5 Data Validation

Data validation was performed on the analytical results in accordance with the data validation procedure: "Data Validation Procedure for Chemical and Radiochemical Data," AOP 00-03 Rev. 0, SNL/NM December 1999. The data validation report and the raw data packages are available on request.

2.2 Analytical Results

Analytical results are tabulated on Tables 3 through 7. A copy of the laboratory result sheets for the field samples and quality assurance samples are contained in Appendix D. This section summarizes the analytical results.

As described above, eleven locations were sampled at the site during the DOE investigation. Because the constituents of concern (with the exception of VOCs and SVOCs) are also naturally occurring, it is necessary to compare the sample concentrations with background (presumably undisturbed) levels. A wide range of background concentrations in soils could be expected due to variations in soil development, rock type, vegetation type and density, precipitation amounts,

Table 3

Summary of Results for Gamma Spectroscopy Analyses, La Senda Investigation, December 1999

Sample Attributes			Activity (pCi/g)							
Sample ID (Figure 4)	Sample No	Lab No.	Uranium-235		Uranium-238		Thorium-232		Cesium-137	
			Result	Error	Result	Error	Result	Error	Result	Error
Background Sample WR-SS-4	50796-003	9901451017	0.084	+/-0.153	0.869	+/-1.53	1.34	+/-0.16	0.15	+/-0.0516
WR-SS-1	50792-003	9901451013	0.164	+/-0.177	2.56	+/-1.97	1.06	+/-0.141	0.115	+/-0.0482
WR-SS-1-DU	50793-003	9901451014	0.148	+/-0.212	2.91	+/-0.76	0.928	+/-0.138	0.085	+/-0.053
WR-SS-2	50794-003	9901451015	0.13	+/-0.177	1.61	+/-1.72	0.988	+/-0.127	0.117	+/-0.033
WR-SS-3	50795-003	9901451016	0.042	+/-0.119	3.25	+/-1.99	0.829	+/-0.119	0.036	+/-0.0493
WR-SS-5	50797-003	9901451018	0.064	+/-0.0847	0.924	+/-0.512	0.896	+/-0.135	0.457	+/-0.0741
WR-DW1-1	50783-003	9901451038	0.02	+/-0.0909	1.38	+/-1.05	0.565	+/-0.0811	-0.006	+/-0.0171
WR-DW1-2	50784-003	9901451039	0.178	+/-0.21	1.6	+/-1.19	0.756	+/-0.104	0.03	+/-0.0214
WR-DW1-3	50785-003	9901451040	0.064	+/-0.186	2.02	+/-0.69	0.266	+/-0.0604	0.022	+/-0.0218
WR-DW2-1	50787-003	9901451035	0.064	+/-0.166	0.491	+/-0.957	0.539	+/-0.0791	0.012	+/-0.0275
WR-DW2-2	50788-003	9901451036	0.085	+/-0.113	0.681	+/-0.899	0.274	+/-0.0673	0.021	+/-0.0265
WR-DW2-3	50789-003	9901451037	0.075	+/-0.155	2.38	+/-1.33	0.583	+/-0.0824	0.066	+/-0.0279

DU = Duplicate sample.
DW = Dry well.
pCi/g = Picocuries per gram.
SS = Sediment sample.
WR = White Rock.

Table 4

Summary of Results for Uranium Isotopic Analyses, La Senda Investigation, December 1999

Sample Attributes						Activity (pCi/g)					
Sample ID (Figure 4)	Sample Date	Sample Time	COC No. Sample No.-Fraction	Lab ID	Sample Depth (ft)	Uranium-233/234 Result	Uranium-233/234 Error[a]	Uranium-235 Result	Uranium-235 Error[a]	Uranium-238 Result	Uranium-238 Error[a]
Background sample WR-SS-4	12/17/99	1505	603004 50796-003	9901451017	0-0.5	0.725	+/-0.128	0.02	+/-0.0198	0.705	+/-0.126
WR-SS-1	12/17/99	1253	603004 50792-003	9901451013	0-0.5	0.984	+/-0.165	0.084	+/-0.0422	2.77	+/-0.353
WR-SS-1-DU	12/17/99	1301	603004 50793-003	9901451014	0-0.5	0.874	+/-0.144	0.046	+/-0.0278	1.9	+/-0.251
WR-SS-2	12/17/99	1310	603004 50794-003	9901451015	0-0.5	0.751	+/-0.134	0.031	+/-0.0262	0.837	+/-0.144
WR-SS-3	12/17/99	1320	603004 50795-003	9901451016	0-0.5	0.974	+/-0.16	0.047	+/-0.0297	1.49	+/-0.216
WR-SS-5	12/17/99	1441	603004 50797-003	9901451018	0-0.5	0.689	+/-0.127	0.063	+/-0.0339	0.725	+/-0.131
WR-DW1-1	12/20/99	1527	603002 50783-003	9901451038	9-10	0.942	+/-0.162	0.064	+/-0.0357	1.02	+/-0.17
WR-DW1-2	12/20/99	1527	603002 50784-003	9901451039	9-10	0.979	+/-0.184	0.058	+/-0.0402	1.03	+/-0.186
WR-DW1-3	12/20/99	1620	603002 50785-003	9901451040	4-5	1.84	+/-0.276	0.063	+/-0.0394	1.54	+/-0.241
WR-DW2-1	12/20/99	1118	603003 50787-003	9901451035	5-6	1.11	+/-0.177	0.041	+/-0.0298	1.13	+/-0.179
WR-DW2-2	12/20/99	1315	603003 50788-003	9901451036	13-14	0.395	+/-0.0887	0.026	+/-0.0238	0.467	+/-0.0972
WR-DW2-3	12/20/99	1425	603003 50789-003	9901451037	9-10	0.92	+/-0.162	0.053	+/-0.0395	1.3	+/-0.205

[a]Two standard deviations about the mean detected activity.

COC = Chain of custody.
DU = Duplicate sample.
DW = Dry well.
ft = Foot (feet).
ID = Identification.
pCi/g = Picocuries per gram.
SS = Sediment sample.
WR = White Rock.

Table 5

Summary of Results for Total Metal Analyses, La Senda

Sample Attributes						Analytes[a]					
Sample ID (Figure 4)	Sample Date Time	ARCOC	Sample No.	Lab No.	Units	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium
Background Sample WR-SS-4	12/17/99 1505	603004	50796-002	9901451011	mg/kg	10800	ND (0.08)	3.28	140	0.785	0.507
WR-SS-1	12/17/99 1253	603004	50792-002	9901451007	mg/kg	**12600**	ND (0.08)	**3.87**	**219**	**0.849**	**0.627**
WR-SS-1-DU	12/17/99 1301	603004	50793-002	9901451008	mg/kg	**12000**	ND (0.08)	**3.48**	**280**	0.781	**0.563**
WR-SS-2	12/17/99 1310	603004	50794-002	9901451009	mg/kg	**12400**	ND (0.08)	**3.82**	**209**	0.779	**0.574**
WR-SS-3	12/17/99 1320	603004	50795-002	9901451010	mg/kg	**10900**	ND (0.08)	**3.78**	**224**	0.66	0.512
WR-SS-5	12/17/99 1441	603004	50797-002	9901451012	mg/kg	9440	ND (0.08)	2.5	138	0.66	**0.521**
WR-DW1-01	12/20/99 1527	603002	50783-002	9901451032	mg/kg	9290	ND (0.08)	2.75	**229**	0.349 J	0.24 J
WR-DW1-02	12/20/99 1527	603002	50784-002	9901451033	mg/kg	10300	ND (0.08)	**3.97**	**359**	0.458 J	0.298 J
WR-DW1-03	12/20/99 1620	603002	50785-002	9901451034	mg/kg	3960	ND (0.08)	**5.85**	**736**	0.187 J	0.151 J
WR-DW2-1	12/20/99 1118	603003	50787-002	9901451029	mg/kg	10000	ND (0.08)	**4.58**	175	0.474 J	0.22 J
WR-DW2-2	12/20/99 1315	603003	50788-002	9901451030	mg/kg	10200	ND (0.08)	2.04	88.8	0.154 J	0.34 J
WR-DW2-3	12/20/99 1425	603003	50789-002	9901451031	mg/kg	**11000**	ND (0.08)	**3.93**	184	0.463 J	**9.34**

Sample Attributes						Analytes[a]					
Sample ID (Figure 4)	Sample Date Time	ARCOC	Sample No.	Lab No.	Units	Calcium	Chromium	Cobalt	Copper	Iron	Lead
Background Sample WR-SS-4	12/17/99 1505	603004	50796-002	9901451011	mg/kg	12700	9.75	5.77	10.6	12600	10.5
WR-SS-1	12/17/99 1253	603004	50792-002	9901451007	mg/kg	**64200**	9.68	5.34	**10.9**	11300	10.6
WR-SS-1-DU	12/17/99 1301	603004	50793-002	9901451008	mg/kg	**83900**	9.15	5.07	**12.4**	10700	9.29
WR-SS-2	12/17/99 1310	603004	50794-002	9901451009	mg/kg	**63200**	9.63	5.23	10.2	11400	9.85
WR-SS-3	12/17/99 1320	603004	50795-002	9901451010	mg/kg	**93400**	8	4.4	10.6	9100	8.37
WR-SS-5	12/17/99 1441	603004	50797-002	9901451012	mg/kg	**18800**	8.59	4.18	**21.6**	10300	**11.3**
WR-DW1-01	12/20/99 1527	603002	50783-002	9901451032	mg/kg	**59300**	8.58	9.8	**19.2 J**	**16100**	4.71
WR-DW1-02	12/20/99 1527	603002	50784-002	9901451033	mg/kg	**104000**	8.13	**7.29**	**11.3 J**	10400	5.22
WR-DW1-03	12/20/99 1620	603002	50785-002	9901451034	mg/kg	**233000**	2.61	3.57	ND (0.1)	3350	1.64
WR-DW2-1	12/20/99 1118	603003	50787-002	9901451029	mg/kg	**99500**	7.01	4.35	ND (0.1)	8890	5.15
WR-DW2-2	12/20/99 1315	603003	50788-002	9901451030	mg/kg	**28300**	8.05	**18.3**	**41.6**	**29900**	6.44
WR-DW2-3	12/20/99 1425	603003	50789-002	9901451031	mg/kg	**74100**	**17.6**	5.2	**11.2 J**	10500	6.7

Refer to footnotes at end of table.

Table 5 (Continued)
Summary of Results for Total Metal Analyses, La Senda

Sample Attributes						Analytes[a]					
Sample ID (Figure 4)	Sample Date Time	ARCOC	Sample No.	Lab No.	Units	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium
Background Sample WR-SS-4	12/17/99 1505	603004	50796-002	9901451011	mg/kg	3250	302	ND (0.015)	10.4	1860	ND (0.146)
WR-SS-1	12/17/99 1253	603004	50792-002	9901451007	mg/kg	**4020**	259	**0.04**	9.97	**2240**	ND (0.146)
WR-SS-1-DU	12/17/99 1301	603004	50793-002	9901451008	mg/kg	**3780**	255	**0.02 J**	9.23	**2120**	ND (0.146)
WR-SS-2	12/17/99 1310	603004	50794-002	9901451009	mg/kg	**4180**	259	**0.03**	9.73	**2130**	ND (0.146)
WR-SS-3	12/17/99 1320	603004	50795-002	9901451010	mg/kg	**4200**	189	**0.02 J**	8.71	1790	ND (0.146)
WR-SS-5	12/17/99 1441	603004	50797-002	9901451012	mg/kg	2900	251	**0.03**	8.03	1830	ND (0.146)
WR-DW1-01	12/20/99 1527	603002	50783-002	9901451032	mg/kg	**9790**	259	ND (0.015)	**24.5**	1310	**0.684**
WR-DW1-02	12/20/99 1527	603002	50784-002	9901451033	mg/kg	**9380**	227	**0.0199 J**	**17.9**	1640	**0.363 J**
WR-DW1-03	12/20/99 1620	603002	50785-002	9901451034	mg/kg	**10100**	55.1	**0.0475**	**10.5**	590	ND (0.146)
WR-DW2-1	12/20/99 1118	603003	50787-002	9901451029	mg/kg	**15800**	160	**0.04**	**11**	1600	**0.446 J**
WR-DW2-2	12/20/99 1315	603003	50788-002	9901451030	mg/kg	**17100**	**392**	**0.2**	**46.1**	565	**1.39**
WR-DW2-3	12/20/99 1425	603003	50789-002	9901451031	mg/kg	**13600**	176	**0.167**	**14.6**	1400	**0.895**

Sample Attributes						Analytes[a]					
Sample ID (Figure 4)	Sample Date Time	ARCOC	Sample No.	Lab No.	Units	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc
Background Sample WR-SS-4	12/17/99 1505	603004	50796-002	9901451011	mg/kg	ND (0.1)	89.7	ND (0.2)	0.448	19.9	31.6
WR-SS-1	12/17/99 1253	603004	50792-002	9901451007	mg/kg	ND (0.1)	**128**	ND (0.2)	**5.21**	**20.7**	**35.2**
WR-SS-1-DU	12/17/99 1301	603004	50793-002	9901451008	mg/kg	ND (0.1)	**151**	ND (0.2)	**4.55**	19.8	31
WR-SS-2	12/17/99 1310	603004	50794-002	9901451009	mg/kg	ND (0.1)	**111**	ND (0.2)	**0.834**	**20.8**	31.6
WR-SS-3	12/17/99 1320	603004	50795-002	9901451010	mg/kg	ND (0.1)	**111**	ND (0.2)	**3.25**	17.5	26.9
WR-SS-5	12/17/99 1441	603004	50797-002	9901451012	mg/kg	ND (0.1)	73	ND (0.2)	**0.482**	17	30.3
WR-DW1-01	12/20/99 1527	603002	50783-002	9901451032	mg/kg	ND (0.1)	**722**	**2.04**	**0.835**	**25.6**	**46.6**
WR-DW1-02	12/20/99 1527	603002	50784-002	9901451033	mg/kg	ND (0.1)	**751**	**1.46**	**1.22**	18.2	**44.8**
WR-DW1-03	12/20/99 1620	603002	50785-002	9901451034	mg/kg	ND (0.1)	**760**	**1.46**	**1.35**	11.7	24.2
WR-DW2-1	12/20/99 1118	603003	50787-002	9901451029	mg/kg	ND (0.1)	**704**	**1.49**	**0.648**	19.6	**35.9**
WR-DW2-2	12/20/99 1315	603003	50788-002	9901451030	mg/kg	ND (0.1)	**2080**	**2.92**	0.39	**45**	**63.7**
WR-DW2-3	12/20/99 1425	603003	50789-002	9901451031	mg/kg	ND (0.1)	**585**	0.915 J	**1.9**	**21.5**	**41.9**

[a] Mercury Analysis Federal - 7471 Cold Vapor Hg in Solid; Metals Analysis - ICP Federal 6010 TAL Metals Soil Federal; Uranium metals analysis - ICPMS Federal 3050S/6020.

ARCOC = Analysis Request and Chain of Custody.
DW = Dry well.
Hg = Mercury.
ICP = Inductively Coupled Plasma.
ICPMS =
ID = Identification.
J = Estimated value, analyte concentration fell below the detection limit and above the effective practicable quantitation limit.
mg/kg = Milligrams per kilogram.
ND ( ) = Not detected above the detection limit shown in parenthesis.
SS = Surface soil sample.
TAL = Target analyte list.
WR = White Rock.

Table 6

Maximum, Mean, and Background Concentrations for Inorganic Constituents

Parameters	Maximum Conc. NMED & DOE samples (mg/kg)	Mean Conc. NMED &DOE samples (mg/kg)	Background Concentration (mg/kg)			
			Site location DOE sample	Site location NMED sample	Los Alamos Min—Max	Los Alamos Vicinity Upper Tolerance Limit
Antimony	2.4 (ND)	1.1	0.08 (ND)	2.2 (ND)	0.1–1	0.83
Arsenic	5.85	3.8	3.28	4.8	0.3– 9.3	8.17
Barium	736	229.6	140	180	21–410	295
Beryllium	1.1	0.66	0.785	1	0.04– 3.95	1.83
Cadmium	9.34	0.92	0.507	0.55 (ND)	0.2– 2.6	0.4
Chromium, total	17.6	9.6	9.75	11	1.9– 36.5	19.3
Cobalt	18.3	6.4	5.77	8.4	1–9.5	8.64
Copper	43	15.0	10.6	13	0.25–16	14.7
Lead	13	8.2	10.5	13	2–28	22.3
Mercury	0.2	0.08	0.015 (ND)	0.11 (ND)	0.05– 0.1	0.1
Manganese	392	239	302	400	76–1,100	671
Nickel	46.1	13.2	10.4	13	1–29	15.4
Selenium	1.39	0.49	0.146 (ND)	0.55 (ND)	0.1–1.7	1.52
Silver	1.2 (ND)	0.56	0.1 (ND)	1.1 (ND)	NC	NC
Thallium	2.92	1.07	0.2 (ND)	1.5	0.063–1	0.73
Uranium	5.21	1.9	0.448	--	0.2–3.6	NC
Vanadium	45	21.6	19.9	27	4–56.5	39.6
Zinc	190	43.7	31.6	32	14–75.5	48.8

DOE = U.S. Department of Energy.
mg/kg = Milligram(s) per kilogram.
ND = Nondetected.
NC = Not calculated.
NMED = New Mexico Environment Department.

Table 7

Summary of Results of Volatile Organic Compound Analyses, La Senda Investigation, December 1999

Sample Attributes			VOCs (EPA 8260)[a,b] (µg/kg)								
Record Number[c]	Sample ID (Figure 4)	Sample Depth (ft)	Xylenes (total)	Toluene	Ethylbenzene	M, P - Xylenes	Acetone	2-Butanone	4-Isopropyltoluene	Chloroform	Methylene chloride
603004	WR-SS-1	0.0	0.67 J (0.0)	ND (1.0)	0.60 J (0.0)	0.67 J (0.0)	1.1 J (0.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)
603004	WR-SS-1-DU	0.0	0.78 J (0.0)	0.85 J (0.0)	0.95 J (0.0)	0.78 J (0.0)	ND (5.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)
603004	WR-SS-2	0.0	0.83 J (0.0)	0.82 J (0.0)	0.81 J (0.0)	0.83 J (0.0)	ND (5.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)
603004	WR-SS-3	0.0	0.63 J (0.0)	0.86 J (0.0)	0.64 J (0.0)	0.63 J (0.0)	ND (5.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)
603004	WR-SS-4	0.0	0.83 J (0.0)	0.69 J (0.0)	0.95 J (0.0)	0.83 J (0.0)	ND (5.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)
603004	WR-SS-5	0.0	1.1 J (0.0)	**1.3**	**1.6**	1.1 J (0.0)	ND (5.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)
603003	WR-DW2-2	9.0	0.99 J (1.0)	**26.8**	ND (2.0)	0.99 J (0.0)	2.1 J (0.0)	**39.2**	ND (1.0)	ND (1.0)	ND (1.0)
603003	WR-DW2-3	9.0	1.3 J (1.0)	**37.6**	ND (2.0)	1.3 J (0.0)	4.0 J (0.0)	**36.3**	**4.2**	ND (1.0)	ND (1.0)
603002	WR-DW1-1	9.0	ND (3.0)	ND (1.0)	ND (2.0)	ND (2.0)	**36.0**	ND (5.0)	**5.8**	ND (1.0)	ND (1.0)
603002	WR-DW1-2	9.0	ND (3.0)	ND (1.0)	ND (2.0)	ND (2.0)	**12.1**	ND (5.0)	**5.1**	ND (1.0)	ND (1.0)
603002	WR-DW1-3	9.0	ND (3.0)	ND (1.0)	ND (2.0)	ND (2.0)	2.1 J (0.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)
Quality Assurance/Quality Control Sample (µg/L)											
603004	WR-SS-TB	NA	ND (3.0)	ND (1.0)	ND (1.0)	ND (2.0)	2.1 J (0.0)	ND (5.0)	ND (1.0)	**1.1**	ND (1.0)
603002	WR-DW1-TB	NA	ND (3.0)	ND (1.0)	ND (1.0)	ND (2.0)	1.4 J (0.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)
603003	WR-DW2-R	NA	ND (3.0)	ND (1.0)	ND (1.0)	ND (2.0)	2.4 J (0.0)	ND (5.0)	ND (1.0)	ND (1.0)	**1.2**
603003	WR-DW2-TB	NA	ND (3.0)	ND (1.0)	ND (1.0)	ND (2.0)	1.5 J (0.0)	ND (5.0)	ND (1.0)	ND (1.0)	0.6 J (1.0)

[a] EPA November 1986.

[b] Values in bold exceed background soil concentrations.

[c] Analysis request/chain of custody.

EPA = U.S. Environmental Protection Agency.
ER = Environmental Restoration.
DW = Dry well.
ft = Foot (feet).
ID = Identification.
J ( ) = The reported value is greater than or equal to the method detection limit (MDL) but is less than the practical quantitation limit for on-site laboratory analyses or the reporting detection limit for off-site laboratory analyses, shown in parenthesis.
µg/kg = Microgram(s) per kilogram.
µg/L = Microgram(s) per liter.
ND ( ) = Not detected above the MDL, shown in parenthesis.
SS = Surface soil sample.
SWMU = Solid waste management unit.
VOC = Volatile organic compound.
WR = White Rock.

drainage characteristics and other factors. For this investigation, one sample was collected to be used as a background sample (WR-SS-4) in a location believed to be undisturbed (Figure 4). This background sample in addition to the background sample collected for the NMED investigation (SAIC 1999) are used for comparison with the remaining samples collected at the site. A much larger data set (39 to 174 samples) for background concentrations of inorganic and radiochemical constituents in soils are available for the Los Alamos area, and included samples from the vicinity of White Rock (Ryti et al. 1998). Using a larger set of background data provides a more realistic range of naturally occurring constituents in the specific area.

2.2.1 Radiochemical Results

Sample aliquots were analyzed for radiological constituents in soil by gamma and alpha spectroscopy. Alpha spectroscopy provides better accuracy than gamma spectroscopy. Although a number of radioisotopes are counted with gamma spectroscopy, only four isotopes have a long enough half-life to be significant. These are U-235, U-238, thorium-232, and cesium-137. The gamma spectroscopy results are shown in Table 3 and uranium isotope analyses with alpha spectroscopy are shown in Table 4.

The gamma spectroscopy analysis indicated that two samples (WR-SS-1 and WR-SS-3) were slightly elevated above the one site background for U-238. One sample (WR-SS-5) was about twice the background result for cesium-137. This is a fallout radionuclide and is within the Los Alamos National Laboratory (LANL) background activities.

For isotopic uranium analyses by alpha spectroscopy, the background soil sample (WR-SS-4) had an activity of 0.725 ±0.128 pCi/g. The activity in the background sample in the SAIC report was 0.69 ±0.12 piC/g. The Los Alamos vicinity background activity for U-238 is 2.29 piC/g. In comparison with the site background levels, two soil sample locations (WR-SS-1/WR-SS-1-DU, and WR-SS-2) appeared to be slightly elevated in U-238 but are comparable to the LANL background activity. These surface soil samples were collected in front of the east shed. The location of the highest activity detected in this sampling activity was adjacent to the SAIC sample located with an elevated U-238 activity (Figure 4). The two results are in good agreement given analytical error and the difference in activities is probably due to matrix (soil) and analytical variability.

2.2.2 Metal Results

Table 5 presents the analytical results for total metals from the DOE investigation. Table 6 provides the concentrations of each constituent of concern at the site, the results of the two background samples collected at the site, and the background values from the Los Alamos study (Ryti et al. 1998).

As discussed in the SAIC report, one or two background samples do not provide a statistical basis for determining background concentrations and, therefore, samples containing higher concentrations of metal constituents are not necessarily above background conditions. Additionally, the uncertainties are greater when comparing the background samples, collected at the surface, to the dry well samples, collected at depths of 5 to 13 feet below ground surface. Besides the differences in depths, there may be constituents in the dry well soils that are derived from the river rock fill. This may be difficult to distinguish from constituents derived from wastewater discharged into the dry wells.

Metallic uranium concentrations at two locations (WR-SS-1/WR-SS-DU and WR-SS-3) were slightly elevated above the site background values (Table 5). These same two locations also had slightly elevated U-238 values reported by alpha spectroscopy and gamma spectroscopy (Tables 3 and 4), discussed above. Uranium concentrations at these locations as well as the dry well samples are comparable to uranium concentrations for soils reported in the background study with ranges from 0.2 to 3.6 milligrams per kilogram by the Los Alamos National Laboratory (Ryti et al. 1998) and summarized in Table 6.

Several samples had metal results that were above the maximum site or Los Alamos upper tolerance limit background levels (Table 5 and 6). Relative to background, cadmium was elevated in WR-DW2-3, cobalt was elevated in WR-DW2-2, copper was elevated in WR-DW2-2, mercury was slightly elevated in WR-DW2-2 and WR-DW2–3 and, vanadium was slightly elevated in WR-DW2-2. Thallium was slightly elevated in all the dry well samples with the exception of WR-DW2-3. In general, soil samples from the dry wells appear to have higher concentrations of alkaline metals (sodium, calcium, magnesium) and some trace metals (thallium, cobalt, selenium, nickel, and copper) than any of the surface soil samples.

2.2.3 VOCs and SVOCs

Table 7 presents analytical results for VOCs. No SVOCs were detected in any of the soil samples. Trace levels of VOCs typically associated with hydrocarbon fuels, were detected at

very low levels (26.8 and 37.6 micrograms per liter [µg/L]) in two samples from DW-2 (east dry well). Low concentrations of acetone (12.1 and 36 µg/L) were detected in the two samples collected from DW-1 (west dry well). Trace levels of VOCs associated with hydrocarbon fuels were detected in one surface sample, WR-SS-5. Other detections of VOCs are estimated concentrations and are not believed to be indicative of site-related contamination.

2.3 Discussion of Results

The ratio between U-234 and U-238 is about 1:1 if the uranium is naturally occurring. Depleted uranium is made by extracting U-234 for fission processes. A sample with DU therefore appears to be enriched in U-238, relative to U-234. Some disequilibrium can occur in nature due to natural weathering processes. A U-238 to U-234 ratio of 7 or greater is probably due to manmade DU. Any ratio (U-238/U-234) less than 4 is probably due to naturally occurring uranium. Samples with uranium isotope ratios between 4 and 7 are of questionable origin. The samples collected at the site that have slightly elevated uranium activities have U-238/U-234 ratios of between 2 and 4. For these elevated samples at the La Senda property, it cannot be definitely stated whether the samples contain DU or naturally occurring uranium.

Some differences in the nonradiological inorganic results exist between the background samples and, in particular, the dry well samples. These differences might be attributed to variations in rock and soil types as well as to the depth the sample was collected (surface for the background and 5 to 13 feet below ground surface). In the dry wells, evapotranspiration and sorption of constituents derived from tap water could explain many of the elevated levels of some metals. When water was discharged into the dry wells, the very small concentrations of inorganic constituents in the water would be concentrated naturally in the soils underlying the wells by these natural processes. Other elevated metals might be attributed to disposal of various materials into the drains. The potential for exposure by occupants to any metals that might have accumulated in the dry wells is presumed to be low, given the low levels present and the design of the dry wells, which essentially creates a barrier for exposure.

3.0 Summary and Conclusions

In summary, the findings of this investigation are:

- Two dry wells were found on the property, one on the eastern side and one on the western side of the property. The west dry well (DW-1) is connected to the master bedroom shower and to a drain in the floor of the garage. The east dry well (DW-2)

was connected to a sink located in the back studio/laboratory. Sufficient soil was present to collect samples for analytical analyses at both these locations.

- Uranium isotope activities and metallic uranium concentrations are elevated above the site background activities in two sample locations in front of the east shed, similar to the sample collected at the same location in the NMED investigation. These activities and concentrations are comparable to background ranges for the Los Alamos area (Ryti et al. 1998).

- VOCs were detected at trace levels in some samples collected from the dry wells and one surface sample located near the driveway. One of these compounds (acetone) is a common household product while the other compounds (butanone, toluene, ethylbenzene) are common constituents in petroleum-derived products.

- Soil underlying the dry wells also had some alkaline and trace metals that had higher concentrations than the background comparisons. The elevated concentrations are probably due to both evapotranspiration and sorption processes of wastewater.

In conclusion the NMED has the authority responsible for regulating hazardous materials and must make the determination whether there is any contamination on the property that requires cleanup. However, based solely on comparisons with site and regional background concentrations, it is concluded that cleanup at the site will likely not be required.

4.0 References

Dority, Alex, April 1981, Residence for Guy and Glo Elliot, Architectural drawings, A.I.A. Architects, 10 sheets, Santa Fe, New Mexico.

New Mexico Environment Department DOE Oversight Bureau (NMEDOB), November 5, 1999. NMED report recommendations, electronic transmittal from Stephen Yanicak to Mary Ann Scott.

Ryti, R.T., Longmire, P.A., Broxton, D.E., Reneau, S.L., McDonald, E.V. (Ryti et al.), 1998, "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," prepared for the Los Alamos National Laboratory Environmental Restoration Project, September 22, 1998.

Science Applications International Corporation (SAIC), 1999, "Site Investigation of the La Senda Property, Los Alamos, New Mexico," prepared by Science Applications International Corporation prepared for New Mexico Environment Department DOE Oversight Bureau, Santa Fe, New Mexico, October 1999.

Sandia National Laboratories/New Mexico (SNL/NM), 1999a, "Site Specific Sampling and Analysis Plan for the La Senda Investigation," prepared for the Department of Energy Albuquerque Office by Sandia National Laboratories, New Mexico, Environmental Restoration Project, December 1999.

Sandia National Laboratories/New Mexico (SNL/NM), 1999b, "Site Specific Health and Safety Plan for the La Senda Investigation," Sandia National Laboratories, New Mexico, Environmental Restoration Project, December 1999.

APPENDIX A

RADIATION ASSESSMENT PROGRAM REPORT

DOE F 1325.8

United States Government **Department of Energy**

Albuquerque Operations Office

Memorandum

DATE: December 13, 1999

REPLY TO: ERP:WSD:JES

SUBJECT: Region 4 Radiological Assistance Program (Rap) Response to private residence in White Rock, NM on December 8, 1999

TO: John M. McBroom, Director, Office of Emergency Operations (SO-40), DOE Headquarters

The following is for Office of Emergency Operations information. In accordance with DOE Order 5530.3, "Radiological Assistance Program" paragraph 11.b., Reporting Requirements, the following is a summary report of the deployment of a Radiological Assistance Program (RAP) team from Sandia National Laboratory (LANL) to a private residence in White Rock, NM

On December 8, 1999, the Sandia RAP team deployed to a private residence in White Rock, New Mexico to support activities associated with locating waste water drains and dry wells on the property. All radiological survey results were within expected variations in background activity.

The owner of the private residence had previously contacted various personnel at DOE and requested assistance in locating and surveying some potentially contaminated waste water wells that had been installed by the previous property owner. The former owner is an ex-employee of the Los Alamos National Laboratory. The scope of the operation performed, on December 8th , was to run a steel "snake" down two waste water drains to determine the locations of the drain pipes and each associated dry waste water well.

The RAP team responsibility was to perform radiation and contamination measurements in support of those activities. The team surveyed the interior of the house to establish background radiation levels, checked the drain and well locating equipment prior, during, and after usage and assess any exposures and contamination levels the workers may have encountered during their activities.

Nothing of any significance above background radiation levels was encountered during the entire operation.

Attached is a copy of the DOE AL Operations Center Incident Log and the Sandia deployment report.

Pictures and detailed survey analysis sheets of the event are available upon request.

If you or your staff have any questions or require additional information, please contact me at (505) 845-5581, email at jstraka@doeal.gov. or Kathleen Chabai, (505) 845-4113, kchabai@doeal.gov

James E. Straka
Manager, Region 4
Radiological Assistance Program

2 Attachments
cc:
T. Black, SO-42, HQ
M. O'Shaughnessy, SO-42, HQ
R. Inlow, OOM, AL
J. Arthur, OEOS, AL
S. Goodrum, ONDP, AL
M. Baca, WSD, AL
T. Loughead, OPA, AL
T. Trujillo, ERD, AL
B. Jenks, WMD, AL
R. Arkin, ERP/WSD, AL
J. Stickney, ERP/WSD, AL
T. Gutierrez, ERP/WSD, AL
W. Simpson, ERP/WSD, AL
S. Anderson, ERP/WSD, AL
K. Chabai, ERP/WSD, AL
S. Centore, BNL
M. Cornell, OAK
S. Johnson, OR
C. Edwards, SR
E. Jascewsky, CH
S. Morreale, ID
K. Beecher, RL
B. Bell, LAAO
J. Haynie, ESH-10, LANL
W. Flor, ESH-10, LANL
D. Boyer, WIPP/Westinghouse
J.R. Galle, CAO
R. Inglis, Mason-Hanger, Pantex
D. Steffes, KAO
R. Stump, SNL/A

Attachment 1

ALOC Time line - RAP Deployment 12/8/99

NOTE: All times are in local Mountain Standard Time.

0832 - Jim Straka briefed the ALOC that a SNL/NM RAP team would deploy to a private residence in White Rock, NM. The response was the result of a request from the property owner on or about 12/3/99. At that time, the owner identified to Tony Trujillo, AL/ERD, that there was reason to suspect the property water plumbing and wells may contain depleted uranium. Tony had briefed Jim on December 3rd. Jim expected to depart for White Rock about 0900 hours.

0835 - Per a request from Jim Straka, the ALOC contacted the DOE Headquarters EOC, and briefed him on the pending deployment. Mr. Williams (EOC) was asked to notify applicable Headquarters agencies and especially brief Mr. Jose Maisonet.

1102 - Kathleen Chabai, ERP, briefed the ALOC that she received a telephone call from Jim Straka. Jim and the RAP team members were meeting at a previously identified point in White Rock, and expected to depart for the residence in a few minutes. A member of the New Mexico State Environmental Department was accompanying the RAP team along with 2 members of the Los Alamos County Fire Department.

1118 - Jim Straka contacted the ALOC and briefed that the RAP Team/Group were departing for the residence.

1353 - DOE Headquarters contacted the ALOC with several questions concerning the RAP deployment. Kathleen Chabai responded and answered the questions.

1412 - Mr. Richard Stump, SNL RAP Team member, contacted Kathleen Chabai and stated that the deployment was terminating and nothing above background was found at the residence. The team took pictures and departed the residence at about 1400 hours.

1441 - Jim Straka contacted the ALOC and requested that the Headquarters EOC be contacted and briefed on the deployment results. Also, that Jose Maisonet is briefed. Mr. Yates of the HQ EOC was contacted and briefed. Mr. Yates confirmed that the HQ EOC would contact and brief all required HQ agencies.

No further ALOC involvement with this incident was recorded.

Attachment 2

SNL RAP Deployment Report

Richard B. Stump
SNL RAP Captain

December 9, 1999

Summary:

On December 8, 1999, the Sandia RAP team deployed to a private residence in White Rock, New Mexico to support a site survey of the residence. All radiological surveys that were performed are within expected variations in background activity.

Details:

The owner of the private residence had previously contacted various personnel at DOE and requested assistance in locating and surveying some potentially contaminated drains that had been installed by a previous owner. The scope of the operation was to run a "snake" down the two drains and determine the location of the drainpipes as well as the dry wells connected to the drains. The RAP team responsibility was to perform radiation and contamination measurements in support of those activities.

The RAP team consisted of Dave Steffes (Team Leader/DOE/KAO), Richard Stump (RAP Captain/SNL), Tami Toops (Public Affairs/DOE/KAO), Brenda Townsend (RCT/SNL) and Jim Keagy (RCT/SNL). The team departed Albuquerque at 8:40 am, arrived in White Rock at 10:30 am, and met with the RRC and other personnel participating in the operation. The group held a short pre-job briefing and then proceeded to the residence. Upon arrival, one RCT and the RAP captain entered the house, performed an initial survey, and took digital photos. No contamination or radiation levels above natural background were detected.

Prior to starting the attempts to push the "snake" down the pipe, all equipment was monitored by the RCT. Upon removal of the "snake" from the drainpipe, the "snake" was monitored and no contamination was found. At one point during the operation, the gloves of one of the personnel showed a reading above background, but after a short period of decay, the reading was background. The initial reading was determined to be from radon. Continued attempts were made to get the "snake" to the dry wells with no success. Each time the "snake" was removed, monitoring was performed and no contamination was found.

APPENDIX B
RADIATION FIELD SCREENING RESULTS

Survey Number: S28089

RADIOLOGICAL SURVEY FORM

Location	Requester/Dept.	Date	Time	Duration
Offsite/other	Paul Freshour #6134	121799	1200-1700	2.5

Purpose	Request #	RWP #	RPIR #
Movement.	N/A	RWP0869	N/A

Instrument and Probe Type and Serial Number		Surveyor(s) Printed Name	Surveyor(s) Signature
ASP-1/HP-260/#2230	N/A	John P. Kilbane	John P. Kilbane
ASP-1/AC-3/#2397	N/A	N/A	N/A
Bicron Micro Rem #B496B	N/A	N/A	N/A

#	Item Description/Location	BETA-GAMMA CONTAMINATION Counting Data Attached ☒ Yes ☐ No: %Eff. cpm	20 Bkg cpm	/Radionuclide dpm / 100 cm² (1)	U238 (2) T/R/F	ALPHA CONTAMINATION Counting Data Attached ☒ Yes ☐ No: %Eff cpm	50 Bkg cpm	/Radionuclide dpm / 100 cm² (1)	U238 (2) T/RF	RADIATION SURVEY Bkg. .009 mrem/hr (3)	Distance
1	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
2	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
3	Samples #50793-001, 50793-002, 50793-003, 50793-004	≤100	100	ND	T	≤0	0	ND	T	≤.009	Contact
4	Samples #50792-001, 50792-002, 50792-003, 50792-004	≤100	100	ND	T	≤0	0	ND	T	≤.009	Contact
5	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
6	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
7	Samples #50794-001, 50794-002, 50794-003, 50794-004	≤100	100	ND	T	≤0	0	ND	T	≤.009	Contact
8	Samples #50795-001, 50795-002, 50795-003, 50795-004	≤100	100	ND	T	≤0	0	ND	T	≤.009	Contact
9	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
10	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
11	Margaret's boots	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
12	(3) pair of gloves	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
13	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
14	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
15	Samples #50792-001, 50792-002, 50792-003, 50792-004	≤100	100	ND	T	≤0	0	ND	T	≤.009	Contact

Note (1): If area other than 100 cm², record as dpm/probe, or dpm/LAW. Note (2): Total/Removable/Fixed. Note (3): Indicate type, of other than gamma (i.e., η or β).

Remarks **NOTE: Release the exterior of sample containers only. Release the sampling equipment after sampling. This job was done @ a private residence in White Rock New Mexico.**

Reviewed by: Date: 1/3/00

Survey #S28089

RADIOLOGICAL SURVEY FORM CONTINUATION

#	Item Description/Location	BETA-GAMMA ACTIVITY				ALPHA ACTIVITY				RADIATION SURVEY	
		cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	mrem/hr (3)	Distance
16	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
17	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
18	Samples #50796-001, 50796-002, 50796-003, 50796-004	≤100	100	ND	T	≤0	0	ND	T	≤.009	Contact
					N						
					A						

(1) If area other than 100 cm², record as dpm/probe, or dpm/LAW. (2) Total/Removable/Fixed (3) Indicate type, if other than ganna (i.e., η, α, β

Survey No. 528089

Radiation Protection Sample Diagnostics (7578) BLDG 6921

Smear Analysis IAW Procedure RPSD-09-02

Date: 12/18/99

Counting Unit id: 1 (SNL# S674564)

RPSD Batch ID: **93117502**

Batch Ended: 12/18/99 14:14

Crosstalk Correction: Applied

ANALYZED BY RT PRESTON

REVIEWED BY: RT Preston 12/18/99

Customer ID: **Bldg WHITE ROCK SAMPLES & EQUIP.; KILBANE, JP (7127) 12/17**

Alpha activity action level (DPM): 20.00

Beta activity action level (DPM): 1000.00

Confidence Level: 95.00%

High Voltage Setting: 1390

Application Revision: 3

Application Version: Standard

Alpha efficiency log file: pu238ab

Alpha Efficiency: 34.77%

Alpha to Beta Crosstalk: 13.19%

Alpha Background (CPM): 0.1

Alpha Correction Factor: 1.000

Beta efficiency log file: cl36ab

Beta Efficiency: 54.98%

Beta into Alpha Crosstalk: 1.36%

Beta Background (CPM): 2.25

Beta Correction Factor: 1.000

	Alpha Activity				Beta Activity				count	Alpha	Beta	Time
ID	DPM	error	flags	MDA	DPM	error	flags	MDA	Time	CPM	CPM	Complt
1	-0.53	1.86	<MDA	8.05	7.88	3.39	<AL	9.19	2.00	-0.10	4.25	13:37
2	2.91	2.45	<AL	7.39	2.98	2.69	<MDA	9.40	2.00	0.90	1.75	13:40
3	-0.34	1.76	<MDA	7.01	0.49	2.16	<MDA	9.20	2.00	-0.10	0.25	13:42
4	-0.32	1.74	<MDA	6.85	-0.43	1.95	<MDA	9.20	2.00	-0.10	-0.25	13:44
5	-0.34	1.76	<MDA	7.01	0.49	2.16	<MDA	9.20	2.00	-0.10	0.25	13:46
6	4.64	2.93	<AL	6.94	0.07	2.16	<MDA	9.51	2.00	1.40	0.25	13:48
7	-0.37	1.77	<MDA	7.16	1.41	2.35	<MDA	9.20	2.00	-0.10	0.75	13:50
8	-0.37	1.77	<MDA	7.16	1.41	2.35	<MDA	9.20	2.00	-0.10	0.75	13:53
9	-0.34	1.76	<MDA	7.01	0.49	2.16	<MDA	9.20	2.00	-0.10	0.25	13:55
10	2.86	2.47	<AL	7.66	4.83	2.99	<AL	9.40	2.00	0.90	2.75	13:57
11	1.41	1.70	<AL	6.30	-3.35	1.11	<MDA	9.31	2.00	0.40	-1.75	13:59
12	-0.32	1.74	<MDA	6.85	-0.43	1.95	<MDA	9.20	2.00	-0.10	-0.25	14:01
13	-0.32	1.74	<MDA	6.85	-0.43	1.95	<MDA	9.20	2.00	-0.10	-0.25	14:03
14	1.29	1.77	<MDA	7.13	1.27	2.35	<MDA	9.31	2.00	0.40	0.75	14:06
15	-0.30	1.73	<MDA	6.69	-1.36	1.72	<MDA	9.21	2.00	-0.10	-0.75	14:08
16	-0.25	1.70	<MDA	6.33	-3.21	1.11	<MDA	9.21	2.00	-0.10	-1.75	14:10
17	-0.34	1.76	<MDA	7.01	0.49	2.16	<MDA	9.20	2.00	-0.10	0.25	14:12
18	-0.30	1.73	<MDA	6.69	-1.36	1.72	<MDA	9.21	2.00	-0.10	-0.75	14:14

Survey Number: S28090

RADIOLOGICAL SURVEY FORM

Location	Requester/Dept.	Date	Time	Duration
Offsite/other	Paul Freshour #6134	121799	1000-1700	9.0

Purpose	Request #	RWP #	RPIR #
Job Coverage.	N/A	RWP0869	N/A

Instrument and Probe Type and Serial Number		Surveyor(s) Printed Name	Surveyor(s) Signature
ASP-1/HP-260/#2230	N/A	John P. Kilbane	John P. Kilbane
Bicron Micro Rem #B496B	N/A	N/A	N/A
ASP-1/AC-3/#2390	N/A	N/A	N/A

#	Item Description/Location	BETA-GAMMA CONTAMINATION Counting Data Attached ☒ Yes ☐ No				ALPHA CONTAMINATION Counting Data Attached ☒ Yes ☐ No				RADIATION SURVEY	
		%Eff. cpm	15 Bkg cpm	/Radionuclide dpm/100 cm² (1)	U238 (2) T/R/F	%Eff cpm	50 Bkg cpm	/Radionuclide dpm/100 cm² (1)	U238 (2) T/RF	Bkg .010 mrem/hr (3)	Distance
A	Surface soil @ eastside location	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
B	Soil & telephone wire	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
C	Paul Freshours feet & knees	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
D	John Kilbanes feet & knees	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
E	Soil @1' below surface	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
F	Soil as it is being excavated	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
G	Surface soil @ new eastside location	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
H	Excavated soil	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
I	Location of soil sampling #WR-SS-1, 2 & 3 (surface soil) behind house	≤120	120	ND	T	≤0	0	ND	T	≤.010	Contact
J	Soil after collection for samples	≤120	120	ND	T	≤0	0	ND	T	≤.010	Contact
K	25' tape measure	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
L	(2) small pieces of rebar	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
1	Inlet & outlet of drain line (exposed area)	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
M	Excavated soil	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
2	Interior of bucket	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact

Note (1): If area other than 100 cm², record as dpm/probe, or dpm/LAW. Note (2): Total/Removable/Fixed. Note (3): Indicate type, of other than gamma (i.e., η or β).

Remarks **NOTE: Survey of the soil & rocks that were being excavated to verify that the dry wells & the interior of the pipes contained no contamination. This survey was performed @ a private residence in White Rock New Mexico. Swipes #'s 2-7 were on the Scat Trac Serial #MI3157.**

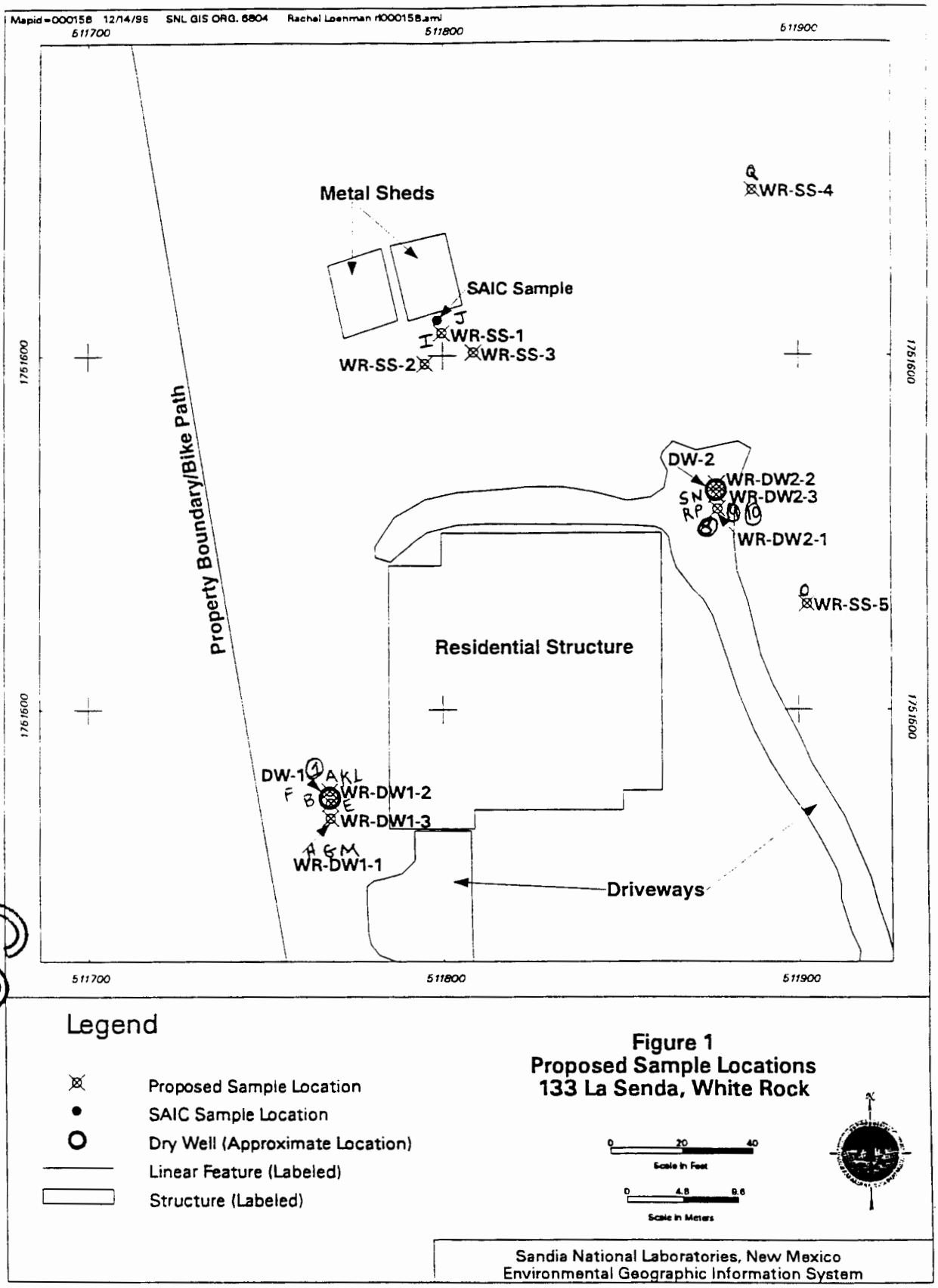
Reviewed by: [signature] Date: 1/12/00

Survey #S28090

RADIOLOGICAL SURVEY FORM CONTINUATION

#	Item Description/Location	BETA-GAMMA ACTIVITY				ALPHA ACTIVITY				RADIATION SURVEY	
		cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	mrem/hr (3)	Distance
3	Exterior of bucket	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
4	Left front tire	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
5	Left rear tire	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
6	Right front tire	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
7	Right rear tire	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
N	Surface soil @ new location on westside of house	≤120	120	ND	T	≤0	0	ND	T	≤.010	Contact
O	Surface soil @ sample location WR-SS-5	≤100	120	ND	T	≤0	0	ND	T	≤.010	Contact
P	Soil from excavation	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
Q	Surface soil @ sample location #WR-SS-4	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
R	Excavated soil	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
S	Soil in hole & rocks from the edge of the dry bed	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
8	Broken piece of PVC pipe	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
9	Interior of PVC pipe in hole (left side)	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
10	Interior of PVC pipe in hole (right side)	≤100	100	ND	T	≤0	0	ND	T	≤.010	Contact
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(1) If area other than 100 cm², record as dpm/probe, or dpm/LAW. (2) Total/Removable/Fixed (3) Indicate type, if other than ganna (i.e., η, α, β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511700
511800
511900
1761600
Metal Sheds
WR-SS-4
SAIC Sample
WR-SS-1
WR-SS-2
WR-SS-3
Property Boundary/Bike Path
DW-2
WR-DW2-2
WR-DW2-3
WR-DW2-1
WR-SS-5
Residential Structure
DW-1
WR-DW1-2
WR-DW1-3
WR-DW1-1
Driveways
Legend
Proposed Sample Location
SAIC Sample Location
Dry Well (Approximate Location)
Linear Feature (Labeled)
Structure (Labeled)
Figure 1
Proposed Sample Locations
133 La Senda, White Rock
0 20 40
Scale in Feet
0 4.8 9.6
Scale in Meters
N
Sandia National Laboratories, New Mexico
Environmental Geographic Information System

COPY

#528090

Radiation Protection Sample Diagnostics (7578) BLDG 6921

Smear Analysis IAW Procedure RPSD-09-02

Date: 12/18/99

Counting Unit id: 1 (SNL# S674564)

RPSD Batch ID: **93117501**

Batch Ended: 12/18/99 13:35

Crosstalk Correction: Applied

ANALYZED BY RT PRESTON

REVIEWED BY: RT Preston 12/18/99

Customer ID: **Bldg WHITE ROCK EQUIP. & DRAIN; KILBANE, JP (7127) 12/17**

Alpha activity action level (DPM): 20.00

Beta activity action level (DPM): 1000.00

Confidence Level: 95.00%

High Voltage Setting: 1390

Application Revision: 3

Application Version: Standard

Alpha efficiency log file:	pu238ab
Alpha Efficiency:	34.77%
Alpha to Beta Crosstalk:	13.19%
Alpha Background (CPM):	0.1
Alpha Correction Factor:	1.000
Beta efficiency log file:	cl36ab
Beta Efficiency:	54.98%
Beta into Alpha Crosstalk:	1.36%
Beta Background (CPM):	2.25
Beta Correction Factor:	1.000

	Alpha Activity				Beta Activity				count	Alpha	Beta	Time
ID	DPM	error	flags	MDA	DPM	error	flags	MDA	Time	CPM	CPM	Complt
1	0.90	1.99	<MDA	9.06	16.98	4.49	<AL	9.28	2.00	0.40	9.25	13:16
2	-0.34	1.76	<MDA	7.01	0.49	2.16	<MDA	9.20	2.00	-0.10	0.25	13:18
3	-0.34	1.76	<MDA	7.01	0.49	2.16	<MDA	9.20	2.00	-0.10	0.25	13:20
4	-0.41	1.80	<MDA	7.43	3.26	2.69	<MDA	9.20	2.00	-0.10	1.75	13:22
5	-0.30	1.73	<MDA	6.69	-1.36	1.72	<MDA	9.21	2.00	-0.10	-0.75	13:24
6	-0.43	1.81	<MDA	7.57	4.19	2.84	<AL	9.20	2.00	-0.10	2.25	13:26
7	-0.30	1.73	<MDA	6.69	-1.36	1.72	<MDA	9.21	2.00	-0.10	-0.75	13:29
8	-0.30	1.73	<MDA	6.69	-1.36	1.72	<MDA	9.21	2.00	-0.10	-0.75	13:31
9	4.61	2.94	<AL	7.09	0.99	2.35	<MDA	9.51	2.00	1.40	0.75	13:33
10	1.34	1.74	<MDA	6.83	-0.57	1.95	<MDA	9.31	2.00	0.40	-0.25	13:35

Survey Number: S28092

RADIOLOGICAL SURVEY FORM

Location	Requester/Dept.	Date	Time	Duration
Offsite/other	Paul Freshour #6134	122099	0945-1630	9.0

Purpose	Request #	RWP #	RPIR #
Other /see remarks	N/A	RWP0869	N/A

Instrument and Probe Type and Serial Number		Surveyor(s) Printed Name	Surveyor(s) Signature
ASP-1/HP-260/#2230	N/A	John P. Kilbane	John P. Kilbane
ASP-1/AC-3/#2390	N/A	N/A	N/A
Bicron Micro Rem #B496B	N/A	N/A	N/A

#	Item Description/Location	BETA-GAMMA CONTAMINATION Counting Data Attached ☒ Yes ☐ No: %Eff cpm	.15 Bkg cpm	/Radionuclide dpm / 100 cm² (1)	U238 (2) T/R/F	ALPHA CONTAMINATION Counting Data Attached ☒ Yes ☐ No: %Eff cpm	50 Bkg cpm	/Radionuclide dpm / 100 cm² (1)	U238 (2) T/RF	RADIATION SURVEY Bkg. .011 mrem/hr (3)	Distance
A	Snake for drain line	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
B	30' Tape measure	≤100	100	ND	T	≤0	0	ND	T	N/A	N/A
C	River rock	≤120	120	ND	T	≤0	0	ND	T	≤.011	Contact
1	Samples #50787-001(1of2), 50787-001 (2of2), 50787-002, 50787-003, 50787-004	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
2	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
3	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
4	Samples #50788-001, 50788-002, 50788-003, 50788-004	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
5	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
6	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
7	(2) Steel sampling heads	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
8	Steel sampler rods	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
9	Steel sampler rods	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
10	Snake for drain line	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
11	Subsite Electronics case & conections 75T	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
12	Case (exterior)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact

Note (1): If area other than 100 cm², record as dpm/probe, or dpm/LAW. Note (2): Total/Removable/Fixed. Note (3): Indicate type of other than gamma (i.e., η or β).

Remarks **NOTE: Release the exterior of samples only. Release oif the sampling equipment and the heavy equipment. This survey was Performed @ a private residence in White Rock New Mexico.**

Reviewed by: Date: 1/17/00

Survey #S28092

RADIOLOGICAL SURVEY FORM CONTINUATION

#	Item Description/Location	BETA-GAMMA ACTIVITY				ALPHA ACTIVITY				RADIATION SURVEY	
		cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	mrem/hr (3)	Distance
13	Case (interior)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
14	Metrotech receiver	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
15	Transmitter	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
16	Case	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
17	Grounding stake	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
18	(1) pair of white work gloves	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
19	(1) pair of brown work gloves	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
20	Auger bit from location #WR-DW2-2	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
21	Auger bit from location #WR-DW2-2	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
22	Auger bit from location #WR-DW2-3	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
23	Auger bit from location #WR-DW2-3	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
24	Left tire (Hurricane sampler)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
25	Right tire (Hurricane sampler)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
26	Controls (Hurricane sampler)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
27	Auger bit	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
28	Auger bit	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact

(1) If area other than 100 cm², record as dpm/probe, or dpm/LAW. (2) Total/Removable/Fixed (3) Indicate type, if other than ganna (i.e., η, α, β

Survey #S28092

RADIOLOGICAL SURVEY FORM CONTINUATION

#	Item Description/Location	BETA-GAMMA ACTIVITY				ALPHA ACTIVITY				RADIATION SURVEY	
		cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	mrem/hr (3)	Distance
29	Samples #50789-001, 50789-002, 50789-003	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
30	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
31	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
32	Steel sample rods	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
33	Steel sample rods	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
34	Steel sample rods	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
35	(2) Steel sampling heads	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
36	Dry rod	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
37	Dry rod	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
38	Dry rod	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
39	Case for snake	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
40	Wire to snake	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
41	Steel sample rod	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
42	Steel sample rod	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
43	Samples #50783-001, 50783-002, 50783-004	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
44	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact

(1) If area other than 100 cm², record as dpm/probe, or dpm/LAW. (2) Total/Removable/Fixed (3) Indicate type, if other than ganna (i.e., η, α, β

Survey #S28092

RADIOLOGICAL SURVEY FORM CONTINUATION

#	Item Description/Location	BETA-GAMMA ACTIVITY				ALPHA ACTIVITY				RADIATION SURVEY	
		cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	mrem/hr(3)	Distance
45	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
46	Steel sample rod	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
47	Auger	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
48	Auger	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
49	Samples #50784-001, 50784-002, 50784-003	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
50	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
51	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
52	Steel sample rod	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
53	Samples #50785-001, 50785-002, 50785-003	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
54	Sampling trowel	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
55	Mixing bowl	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
56	Scatrrak #MI3157 (left front tire)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
57	Scatrrak #MI3157 (left rear tire)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
58	Scatrrak #MI3157 (right front tire)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
59	Scatrrak #MI3157 (right rear tire)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
60	Scatrrak #MI3157 (interior of bucket)	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact

(1) If area other than 100 cm², record as dpm/probe, or dpm/LAW. (2) Total/Removable/Fixed (3) Indicate type, if other than ganna (i.e., η, α, β

Survey #S28092

RADIOLOGICAL SURVEY FORM CONTINUATION

#	Item Description/Location	BETA-GAMMA ACTIVITY				ALPHA ACTIVITY				RADIATION SURVEY	
		cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	mrem/hr(3)	Distance
61	Scattrak #MI3157 (interior bucket)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
62	Scattrak #MI3157 (exterior bucket)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
63	Scattrak #MI3157 (exterior bucket)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
64	Scattrak #MI3157 (under carriage)	≤100	10	ND	T	≤0	O	ND	T	≤.011	Contact
65	Scattrak #MI3157 (under carriage)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
66	Scattrak #MI3157 (seat)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
67	Scattrak #MI3157 (floor)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
68	Scattrak #MI3157 (controls)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
69	Hurricane sampler on Bobcat #S789860 (left & right supports)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
70	Hurricane sampler on Bobcat #S789860 (left track)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
71	Hurricane sampler on Bobcat #S789860 (left track)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
72	Hurricane sampler on Bobcat #S789860 (right track)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
73	Hurricane sampler on Bobcat #S789860 (right track)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
74	Hurricane sampler on Bobcat #S789860 (seat)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
75	Hurricane sampler on Bobcat #S789860 (floor)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact
76	Hurricane sampler on Bobcat #S789860 (controls)	≤100	100	ND	T	≤0	O	ND	T	≤.011	Contact

(1) If area other than 100 cm², record as dpm/probe, or dpm/LAW. (2) Total/Removable/Fixed (3) Indicate type, if other than ganna (i.e., η, α, β

Survey #S28092

RADIOLOGICAL SURVEY FORM CONTINUATION

#	Item Description/Location	BETA-GAMMA ACTIVITY				ALPHA ACTIVITY				RADIATION SURVEY	
		cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	cpm	Bkg. cpm	dpm / 100 cm² (1)	(2) T/R/F	mrem/hr (3)	Distance
77	**Hurricane sampler on Bobcat #S789860 (controls)**	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
78	**Yellow booties worn by the workers**	≤100	100	ND	T	≤0	0	ND	T	≤.011	Contact
					N						
					A						

(1) If area other than 100 cm², record as dpm/probe, or dpm/LAW. (2) Total/Removable/Fixed (3) Indicate type, if other than ganna (i.e., η, α, β

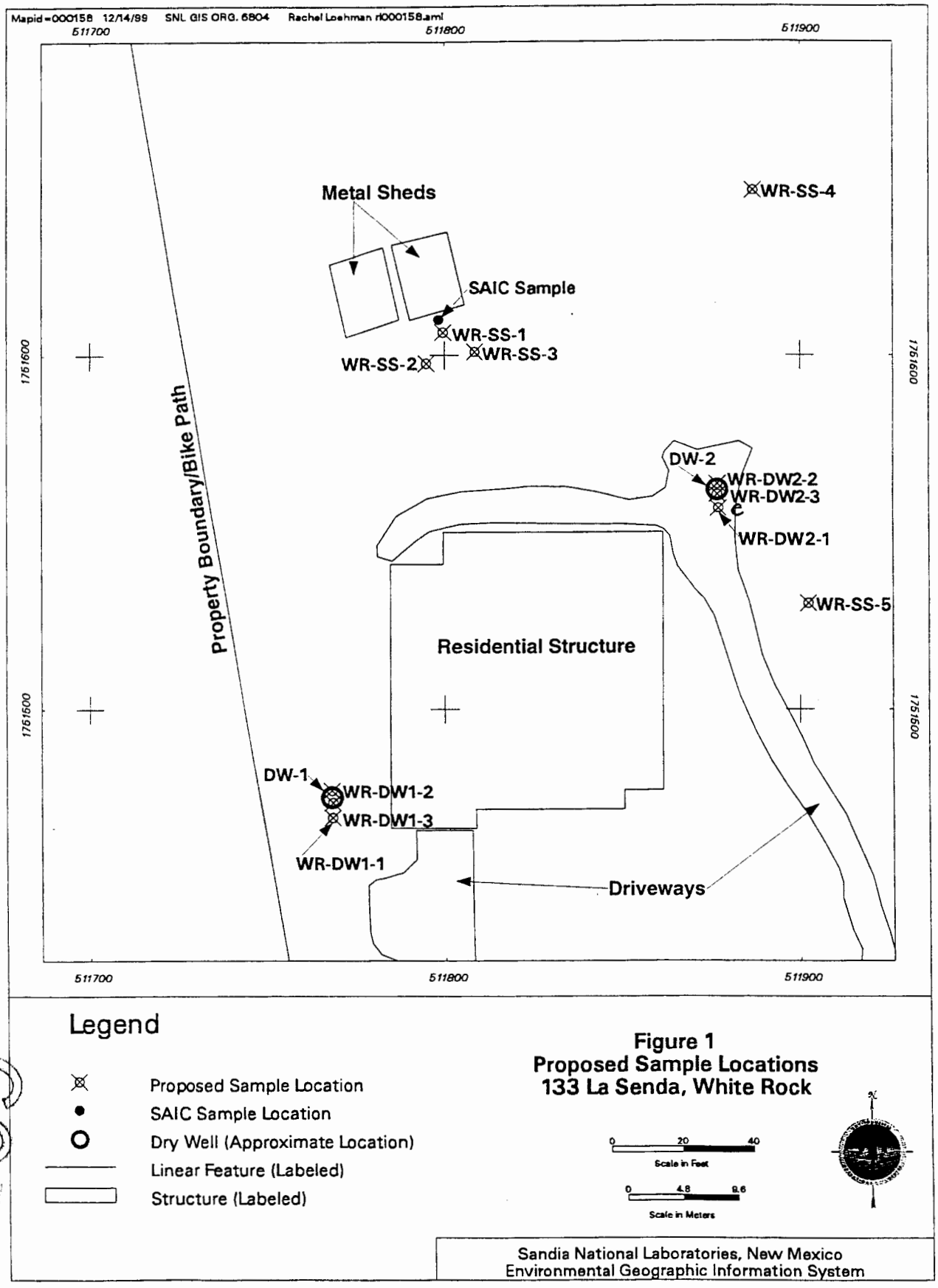

Figure 1
Proposed Sample Locations
133 La Senda, White Rock

Sandia National Laboratories, New Mexico
Environmental Geographic Information System

Radiation Protection Sample Diagnostics (7578) BLDG 6921

Smear Analysis IAW Procedure RPSD-09-02

Date: 12/21/99

Counting Unit Id: 1 (SNL# S674564)

RPSD Batch ID: **93118301**

Batch Ended: 12/21/99 09:11

Crosstalk Correction: Applied

ANALYZED BY RT PRESTON

REVIEWED BY: RT Preston 12/21/99

Customer ID: **Bldg WHITE ROCK SAMPLES + EQUIP.; KILBANE, JP (7127) 12/20**

Alpha activity action level (DPM): 20.00

Beta activity action level (DPM): 1000.00

Confidence Level: 95.00%

High Voltage Setting: 1390

Application Revision: 3

Application Version: Standard

Alpha efficiency log file: pu238ab
Alpha Efficiency: 34.77%
Alpha to Beta Crosstalk: 13.19%
Alpha Background (CPM): 0.1
Alpha Correction Factor: 1.000

Beta efficiency log file: cl36ab
Beta Efficiency: 54.98%
Beta into Alpha Crosstalk: 1.36%

Beta Background (CPM): 2.25
Beta Correction Factor: 1.000

	Alpha Activity				Beta Activity							
ID	DPM	error	flags	MDA	DPM	error	flags	MDA	count Time	Alpha CPM	Beta CPM	Time Complt
1	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	7:41
2	6.23	4.79	<AL	12.59	2.70	3.75	<MDA	14.82	1.00	1.90	1.75	7:42
3	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	7:43
4	-0.23	3.36	<MDA	10.80	-4.13	1.95	<MDA	14.25	1.00	-0.10	-2.25	7:44
5	-0.50	3.51	<MDA	13.43	6.96	4.57	<AL	14.22	1.00	-0.10	3.75	7:45
6	-0.23	3.36	<MDA	10.80	-4.13	1.95	<MDA	14.25	1.00	-0.10	-2.25	7:47
7	3.00	3.39	<AL	11.80	-0.71	2.69	<MDA	14.53	1.00	0.90	-0.25	7:48
8	3.00	3.39	<AL	11.80	-0.71	2.69	<MDA	14.53	1.00	0.90	-0.25	7:49
9	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	7:50
10	-0.69	3.62	<MDA	14.64	14.35	5.89	<AL	14.20	1.00	-0.10	7.75	7:51
11	-0.50	3.51	<MDA	13.43	6.96	4.57	<AL	14.22	1.00	-0.10	3.75	7:53
12	3.00	3.39	<AL	11.80	-0.71	2.69	<MDA	14.53	1.00	0.90	-0.25	7:54
13	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	7:55
14	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	7:56
15	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	7:57
16	2.91	3.45	<AL	12.65	2.98	3.75	<MDA	14.53	1.00	0.90	1.75	7:58
17	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	7:59
18	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	8:01
19	3.05	3.36	<AL	11.29	-2.56	1.95	<MDA	14.54	1.00	0.90	-1.25	8:02
20	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	8:03
21	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	8:04
22	2.91	3.45	<AL	12.65	2.98	3.75	<MDA	14.53	1.00	0.90	1.75	8:05

Radiation Protection Sample Diagnostics (7578) BLDG 6921

Smear Analysis IAW Procedure RPSD-09-02

Date: 12/21/99

Counting Unit id: 1 (SNL# S674564)

RPSD Batch ID: **93118301**

Batch Ended: 12/21/99 09:11

Crosstalk Correction: Applied

ANALYZED BY RT PRESTON

REVIEWED BY: RT Preston 12/21/99

Customer ID: **Bldg WHITE ROCK SAMPLES + EQUIP.; KILBANE, JP (7127) 12/20**

Alpha activity action level (DPM): 20.00

Beta activity action level (DPM): 1000.00

Confidence Level: 95.00%

High Voltage Setting: 1390

Application Revision: 3

Application Version: Standard

Alpha efficiency log file: pu238ab
Alpha Efficiency: 34.77%
Alpha to Beta Crosstalk: 13.19%
Alpha Background (CPM): 0.1
Alpha Correction Factor: 1.000

Beta efficiency log file: cl36ab
Beta Efficiency: 54.98%
Beta into Alpha Crosstalk: 1.36%
Beta Background (CPM): 2.25
Beta Correction Factor: 1.000

	Alpha Activity				Beta Activity							
ID	DPM	error	flags	MDA	DPM	error	flags	MDA	count Time	Alpha CPM	Beta CPM	Time Complt
23	3.00	3.39	<AL	11.80	-0.71	2.69	<MDA	14.53	1.00	0.90	-0.25	8:07
24	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	8:08
25	2.95	3.42	<AL	12.24	1.13	3.26	<MDA	14.53	1.00	0.90	0.75	8:09
26	-0.46	3.48	<MDA	13.08	5.11	4.18	<AL	14.22	1.00	-0.10	2.75	8:10
27	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	8:11
28	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	8:12
29	6.32	4.75	<AL	11.72	-1.00	2.69	<MDA	14.82	1.00	1.90	-0.25	8:14
30	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	8:15
31	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	8:16
32	6.09	4.85	<AL	13.66	8.24	4.93	<AL	14.80	1.00	1.90	4.75	8:17
33	3.09	3.36	<AL	10.71	-4.41	1.95	<MDA	14.54	1.00	0.90	-2.25	8:18
34	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	8:19
35	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	8:20
36	-0.23	3.36	<MDA	10.80	-4.13	1.95	<MDA	14.25	1.00	-0.10	-2.25	8:22
37	-0.23	3.36	<MDA	10.80	-4.13	1.95	<MDA	14.25	1.00	-0.10	-2.25	8:23
38	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	8:24
39	3.00	3.39	<AL	11.80	-0.71	2.69	<MDA	14.53	1.00	0.90	-0.25	8:25
40	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	8:26
41	-0.23	3.36	<MDA	10.80	-4.13	1.95	<MDA	14.25	1.00	-0.10	-2.25	8:28
42	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	8:29
43	-0.23	3.36	<MDA	10.80	-4.13	1.95	<MDA	14.25	1.00	-0.10	-2.25	8:30
44	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	8:31

COPY

Radiation Protection Sample Diagnostics (7578) BLDG 6921

Smear Analysis IAW Procedure RPSD-09-02

Date: 12/21/99

Counting Unit id: 1 (SNL# S674564)

RPSD Batch ID: **93118301**

Batch Ended: 12/21/99 09:11

Crosstalk Correction: Applied

ANALYZED BY RT PRESTON

REVIEWED BY: RTPreston 12/21/99

Customer ID: **Bldg WHITE ROCK SAMPLES + EQUIP.; KILBANE, JP (7127) 12/20**

Alpha activity action level (DPM): 20.00

Beta activity action level (DPM): 1000.00

Confidence Level: 95.00%

High Voltage Setting: 1390

Application Revision: 3

Application Version: Standard

Alpha efficiency log file: pu238ab
Alpha Efficiency: 34.77%
Alpha to Beta Crosstalk: 13.19%
Alpha Background (CPM): 0.1
Alpha Correction Factor: 1.000

Beta efficiency log file: cl36ab
Beta Efficiency: 54.98%
Beta into Alpha Crosstalk: 1.36%

Beta Background (CPM): 2.25
Beta Correction Factor: 1.000

	Alpha Activity				Beta Activity							
ID	DPM	error	flags	MDA	DPM	error	flags	MDA	count Time	Alpha CPM	Beta CPM	Time Compl
45	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	8:32
46	6.23	4.79	<AL	12.59	2.70	3.75	<MDA	14.82	1.00	1.90	1.75	8:33
47	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	8:35
48	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	8:36
49	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	8:37
50	-0.55	3.53	<MDA	13.75	8.80	4.93	<AL	14.22	1.00	-0.10	4.75	8:38
51	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	8:39
52	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	8:40
53	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	8:42
54	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	8:43
55	-0.55	3.53	<MDA	13.75	8.80	4.93	<AL	14.22	1.00	-0.10	4.75	8:44
56	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	8:45
57	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	8:46
58	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	8:47
59	3.00	3.39	<AL	11.80	-0.71	2.69	<MDA	14.53	1.00	0.90	-0.25	8:49
60	-0.41	3.45	<MDA	12.71	3.26	3.75	<MDA	14.23	1.00	-0.10	1.75	8:50
61	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	8:51
62	-0.23	3.36	<MDA	10.80	-4.13	1.95	<MDA	14.25	1.00	-0.10	-2.25	8:52
63	2.95	3.42	<AL	12.24	1.13	3.26	<MDA	14.53	1.00	0.90	0.75	8:53
64	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	8:54
65	-0.69	3.62	<MDA	14.64	14.35	5.89	<AL	14.20	1.00	-0.10	7.75	8:56
66	-0.27	3.36	<MDA	11.37	-2.28	1.95	<MDA	14.24	1.00	-0.10	-1.25	8:57

Radiation Protection Sample Diagnostics (7578) BLDG 6921

Smear Analysis IAW Procedure RPSD-09-02

Date: 12/21/99

Counting Unit id: 1 (SNL# S674564)

RPSD Batch ID: **93118301**

Batch Ended: 12/21/99 09:11

Crosstalk Correction: Applied

ANALYZED BY RT PRESTON

REVIEWED BY: RT Preston 12/21/99

Customer ID: **Bldg WHITE ROCK SAMPLES + EQUIP.; KILBANE, JP (7127) 12/20**

Alpha activity action level (DPM): 20.00

Beta activity action level (DPM): 1000.00

Confidence Level: 95.00%

High Voltage Setting: 1390

Application Revision: 3

Application Version: Standard

Alpha efficiency log file: pu238ab
Alpha Efficiency: 34.77%
Alpha to Beta Crosstalk: 13.19%
Alpha Background (CPM): 0.1
Alpha Correction Factor: 1.000

Beta efficiency log file: cl36ab
Beta Efficiency: 54.98%
Beta into Alpha Crosstalk: 1.36%

Beta Background (CPM): 2.25
Beta Correction Factor: 1.000

	Alpha Activity				Beta Activity							
ID	DPM	error	flags	MDA	DPM	error	flags	MDA	count Time	Alpha CPM	Beta CPM	Time Complt
67	-0.32	3.39	<MDA	11.87	-0.43	2.69	<MDA	14.24	1.00	-0.10	-0.25	8:58
68	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	8:59
69	-0.55	3.53	<MDA	13.75	8.80	4.93	<AL	14.22	1.00	-0.10	4.75	9:00
70	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	9:01
71	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	9:03
72	-0.60	3.56	<MDA	14.06	10.65	5.27	<AL	14.21	1.00	-0.10	5.75	9:04
73	3.05	3.36	<AL	11.29	-2.56	1.95	<MDA	14.54	1.00	0.90	-1.25	9:05
74	-0.23	3.36	<MDA	10.80	-4.13	1.95	<MDA	14.25	1.00	-0.10	-2.25	9:06
75	3.09	3.36	<AL	10.71	-4.41	1.95	<MDA	14.54	1.00	0.90	-2.25	9:07
76	6.32	4.75	<AL	11.72	-1.00	2.69	<MDA	14.82	1.00	1.90	-0.25	9:08
77	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	9:10
78	-0.37	3.42	<MDA	12.31	1.41	3.26	<MDA	14.23	1.00	-0.10	0.75	9:11

APPENDIX C
COPIES OF FIELD PHOTOGRAPHS

Photo C1. South side of La Senda residence, 12/8/99

Photo C2. North side of La Senda residence,
view to the east, 12/20/99

Photo C3. West side of La Senda residence, 12/17/99

Photo C4. Radiation screening of the sheds, 12/8/99.
View to the north.

Photo C5. Drain line exposed that was previously connected to the sink in the former laboratory/studio, 12/8/99

Photo C6. Chalk mark in red shows direction of buried drain line, 12/8/99

Photo C7. Johnson Controls Systems performing ground penetrating radar (GPR) to determine location of eastern dry well (DW2), 12/8/99

Photo C8. Surface soil sampling in front of the eastern shed, 12/17/99

Photo C9. Surface soil sampling and radiation screening in front of eastern shed,12/17/99

Photo C10. Surveying with global positioning system of soil sample locations in front of the eastern shed, 12/20/99

Photo C11. Drain line leading to the western dry well (DW1), 12/17/99

Photo C12. Radiation screening of soil from excavation of western dry well, 12/17/99

Photo C13. Location of western dry well indicated by fill material consisting of rounded cobbles, 12/20/99

Photo C14. Borehole at western dry well location (DW1), 12/20/99

Photo C15. Backhoe bucket excavating eastern dry well (DW2) location, 12/17/99

Photo C16. Excavation of eastern dry well, 12/17/99

Photo C17. Excavation of eastern dry well, 12/17/99

Photo C18. Western dry well location just west of small tree, 12/20/99

Photo C19. Sampling soils underlying western dry well (DW2) using hollow-stem auger and split spoon sampling, 12/17/99

Photo C20. Repair by US West of cut telephone cable on west side of house, 12/20/99

Photo C21. Dry Well 1 Drain Repair
12/21/99

Photo C22. Repaired view of drain line leading into western dry well (DW1), 12/21/99

Photo C23. Capped drain line leading into eastern dry well (DW2), 12/21/99

Photo C24. Regrading at completion of sampling activities of area around western dry well, 12/21/99

Photo C25. Regrading at completion of sampling activities of area around eastern dry well, 12/21/99

APPENDIX D
CHAIN-OF-CUSTODY AND ANALYTICAL REPORTS

7 part-1

Internal Lab

ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 2

Batch No. SAR/WR No. SMO Use

AR/COC **603003**

Dept. No./Mail Stop:	6133/1088		Contract No.: AJ-1480A
Project/Task Manager:	P Freshour		Project/Case No. 17304.01
Project Name:	White Rock Investigation	Lab Contact: E Kent 843-556-8171	SMO Authorization:
Record Center Code:	N/A	Lab Destination: GEL	Bill To: Sandia National Laboratories
Logbook Ref. No.:	N/A	SMO Contact/Phone: D Salmi 844-3110	Supplier Services Dept.:
Service Order No.	CF0026	Send Report to SMO: S Jensen 844-3184	P.O. Box 5800 MS 0154
Location	Tech Area		
Building	Room	**Reference LOV(available at SMO)**	

	Sample No.-Fraction	ER Sample ID or Sample Location Detail	Beginning Depth/ft	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserve All@4C	Collection Method	Sample Type	Parameter & Method Requested	Lab Use Lab Sample ID
1	50787-001	WR-DW2-1	5ft	N/A	12/20/99 1115	S	AG	2x4oz	4C	GR	SA+MS/MSD	VOC (8260)	[redacted]28
2	50787-002	WR-DW2-1	5ft	N/A	12/20/00 1117	S	AG	16oz	4C	GR	SA+MS/MSD	TAL metals +U + SVOC(8270)	[redacted]029
3	50787-003	WR-DW2-1	5ft	N/A	12/20/99 1118	S	AG	16oz	4C	GR	SA+MS/MSD	ISO U + Gamma Spec 901.1	[redacted]035
4	50788-001	WR-DW2-2	9ft	N/A	12/20/99 1305	S	~~AG~~ AC	4oz	4C	GR	SA	VOC (8260)	[redacted]024
5	50788-002	WR-DW2-2	13ft	N/A	12/20/99 1306	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	[redacted]030
6	50788-003	WR-DW2-2	13ft	N/A	12/20/99 1315	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	[redacted]036
7	50789-001	WR-DW2-3	9ft	N/A	12/20/99 1342	S	~~AG~~ AC	4oz	4C	GR	SA	VOC (8260)	[redacted]025
8	50789-002	WR-DW2-3	9ft	N/A	12/20/99 1420	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	[redacted]031
9	50789-003	WR-DW2-3	9ft	N/A	12/20/99 1425	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	[redacted]037
10	50790-005	WR-DW2-TB	9ft	N/A	12/20/99 1115	DIW	G	3x40 ml	HCl	GR	TB	VOC (8260) 9901642005	[redacted]047

RMMA ☐ Yes ☒ No Ref. No.

Sample Disposal ☐ Return to Client ☒ Disposal by lab

Turnaround Time 15 day ☐ Normal ☒ Rush

Required Report Date

Special Instructions/QC Requirements

EDD ☒ Yes ☐ No

Raw Data Package ☒ Yes ☐ No

Cleared by 603006

15 DAY TURN

*Send report to Grace Haggerty(505)284-2545.

*Tal metals+U =EPA 6010/7000 Series

*Uranium Isotopes EPA 90.

Please list as separate report.

Sample Team Members	Name	Signature	Init	Company/Organization/Phone
	Margaret Sanchez	M Sanchez	MS	Weston/6118/845-3267
	Grace Haggerty	G Haggerty	GH	Gram/6133/284-2545

1.Relinquished By	M Sanchez	Org. 6118	Date 12/21/99	Time 1045	4.Relinquished by	Org.	Date	Time
1. Received by	[illegible] SMO	Org. 7131	Date 12/21/99	Time 1045	4. Received by	Org.	Date	Time
2.Relinquished by	[illegible] SMO	Org. 7138	Date 12/22/99	Time 1030	5.Relinquished by	Org.	Date	Time
2. Received by	Patricia Jones	Org. GEL	Date 12-23-99	Time 11:00	5. Received by	Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

8 Part-1

Analysis Request And Chain Of Custody (Continuation)

AR/COC- 603003

Project Name: Project/Task Manger: Case No.: 17309.01

Location	Tech Area				Reference LOV (available at SMO)							Lab use
Building	Room					Container			Sample			Lab
Sample No- Fraction	ER Sample ID or Sample Location detail	Depth in Ft	ER Site No.	Date/Time Collected	Sample Matrix	Type	Volume	Preser-vative	Collection Methods	Sample Type	Parameter & Method Requested	Sample ID
50791-006	WR-DW2-R	N/A	N/A	12/20/99 1450	DIW	G	3x40ml	HCL	GR	EB	VOC (8260) 9901642006	260
50791-007	WR-DW2-R	N/A	N/A	12/20/99 1448	DIW	AG	2x1L	4C	GR	EB	SVOC (8270) 9901642008	044
50791-008	WR-DW2-R	N/A	N/A	12/20/99 1447	DIW	P	500ml	HNO3	GR	EB	RCRA Met + U 9901642009	045

9 Part-1

Internal Lab

ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 1

Batch No. | SAR/WR No. | SMO Use

AR/COC 603004

Dept. No./Mail Stop:	6133/1088	Date Samples Shipped:	12-21-99	Contract No.:	AJ-1480A
Project/Task Manage	P Freshour	Carrier/Waybill No:	728088	Project/Case No.	17304.01
Project Name:	White Rock Investigation	Lab Contact:	E Kent 843-556-8171	SMO Authorization:	
Record Center Code:	N/A	Lab Destination:	GEL	Bill To: Sandia National Laboratories	
Logbook Ref. No.:	N/A	SMO Contact/Phone:	D Salmi 844-3110	Supplier Services Dept.:	
Service Order No.	CF0026	Send Report to SMO:	S Jensen 844-3184	P.O. Box 5800 MS 0154	
Location	Tech Area				
Building	Room				

ORIGINAL

9901451

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Beginning Depth/ft.	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserve All@4C	Collection Method	Sample Type	Parameter & Method Requested	Lab Use: Lab Sample ID
50792-001	WR-SS-1	surface	N/A	12-17-99 1250	S	AG	4oz	4C	GR	SA	VOC (8260) 001	551
50792-002	WR-SS-1	surface	N/A	12-17-99 1255	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270) 007	558
50792-003	WR-SS-1	surface	N/A	12-17-99 1253	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1 013	565
50793-001	WR-SS-1-DU	surface	N/A	12-17-99 1259	S	AG	4oz	4C	GR	DU	VOC (8260) 002	552
50793-002	WR-SS-1-DU	surface	N/A	12-17-99 1300	S	AG	16oz	4C	GR	DU	TAL metals +U + SVOC(8270) 008	559
50793-003	WR-SS-1-DU	surface	N/A	12-17-99 1301	S	AG	16oz	4C	GR	DU	ISO U + Gamma Spec 901.1 014	566
50794-001	WR-SS-2	surface	N/A	12-17-99 1309	S	AG	4oz	4C	GR	SA	VOC (8260) 003	553
50794-002	WR-SS-2	surface	N/A	12-17-99 1311	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270) 009	560
50794-003	WR-SS-2	surface	N/A	12-17-99 1310	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1 015	567
50795-001	WR-SS-3	surface	N/A	12-17-99 1320	S	G	4oz	4C	GR	SA	VOC (8260) 004	554

RMMA ☐ Yes ☒ No Ref. No.

Sample Disposal ☒ Return to Client ☐ Disposal by lab

Turnaround Time 15 day | Normal ☒ Rush

Required Report Date

Sample Receipt Date/Time (mm/dd/yy) | SMO Use

Entered by | QA Use

Special Instructions/QC Requirements

EDD ☒ Yes ☐ No

Raw Data Package ☒ Yes ☐ No

Tal metals+U=EPA 6010/7000 series

Uranium Isotopes Epa 90

*Send report to Grace Haggerty(505)284-2545.

15 day turn

coc 603005 releases this coc

Please list as separate report.

Abnormal Condition's on Receipt | Lab Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone
	Margaret Sanchez	Margaret Sanchez	MS	Weston/6118/845-3267
	G Haggerty			Gram/6133/284-2545
	Chris Catechis	Ch. Catechis	CC	MDM/6118/845-3267

1. Relinquished by		Org. 6118	Date 12/20/99	Time 1005	4. Relinquished by	Org.	Date	Time
1. Received by	SMO	Org. 7135	Date 12-20-99	Time 1005	4. Received by	Org.	Date	Time
2. Relinquished by	SMO	Org. 7135	Date 12-21-99	Time 1000	5. Relinquished by	Org.	Date	Time
2. Received by		Org. GEL	Date 12/22/99	Time 1100	5. Received by	Org.	Date	Time
3. Relinquished by		Org.	Date	Time	6. Relinquished by	Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by	Org.	Date	Time

10 part-1

ORIGINAL

Analysis Request And Chain Of Custody (Continuation)

AR/COC- **603004**

Project Name:		Project/Task Manger:		Case No.:								
Location	Tech Area			**Reference LOV (available at SMO)**								Lab use
Building	Room											Lab
Sample No-Fraction	ER Sample ID or Sample Location detail	Depth In Ft	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preser-vative	Sample Collection Methods	Sample Type	Parameter & Method Requested	Sample ID
50795-002	WR-SS-3	surface	N/A	12-17-99 1322	S	AG	16oz	4C	GR	SA	TAL metals+U+SVOC 010	2
50795-003	WR-SS-3	surface	N/A	12-17-99 1325	S	AG	16oz	4C	GR	SA	ISO U+ Gamma Spec 016	3
50796-001	WR-SS-4	surface	N/A	12-17-99 1500	S	AG	4oz	4C	GR	SA	VOC 005	.1
50796-002	WR-SS-4	surface	N/A	12-17-99 1501	S	AG	16oz	4C	GR	SA	TAL metals+U+SVOC 011	.2
50796-003	WR-SS-4	surface	N/A	12-17-99 1505	S	AG	16oz	4C	GR	SA	ISO U+ Gamma Spec 017	.3
50797-001	WR-SS-5	surface	N/A	12-17-99 1440	S	AG	4oz	4C	GR	SA	VOC 006	.1
50797-002	WR-SS-5	surface	N/A	12-17-99 1445	S	AG	16oz	4C	GR	SA	TAL metals+U+SVOC 012	.2
50797-003	WR-SS-5	surface	N/A	12-17-99 1441	S	AG	16oz	4C	GR	SA	ISO U+ Gamma Spec 018	.3
50798-005	WR-SS-TB	surface	N/A	12-17-99 1250	DIW	G	3X40ml	HCl	GR	TB	VOC 9901642001 ~~019~~	4
50799-006	WR-SS-R	surface	N/A	12-17-99 1535	DIW	G	3X40ml	HCl	GR	EB	VOC 9901642002 ~~020~~	4
50799-007	WR-SS-R	surface	N/A	12-17-99 1538	DIW	AG	2x1L	4C	GR	EB	SVOC 9901642003 ~~021~~	.5
50799-008	WR-SS-R	surface	N/A	12-17-99 1539	DIW	P	500ml	H_2NO_3	GR	EB	RCRA met + U 9901642004 ~~022~~	.6

Additional Comments on Receipt: LAB USE

ORIGINAL

RPSD

ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab

Batch No. 402628 SAR/WR No. SMO Use

AR/COC 603005

Dept. No./Mail Stop:	6133/1088	Date Samples Shipped:	12-20-99	Contract No.:	N/A
Project/Task Manager:	P Freshour	Carrier/Waybill No.	Fax	Project/Case No	17304-01
Project Name:	White Rock Investigation	Lab Contact:	F Sominguez 844-7683	SMO Authorization:	Hugo Salas
Record Center Code:	N/A	Lab Destination:	RPSD	Bill To: Sandia National Laboratories	
Logbook Ref. No.:	N/A	SMO Contact/Phone	D Salmi 844-3110	Supplier Services Dept:	
Service Order No.	CF0026	Send Report to SMO	S Jensen 844-3184	P.O. Box 5800 MS 0154	
Location	Tech Area				
Building	Room				

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Beginning Depth/ft.	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserve All@4C	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
50792-004	WR-SS-1	Surface	N/A	121799 1257	S	M	16oz	4C	GR	SA	Gamma Spec 901.1	
50793-004	WR-SS-1-DU	Surface	N/A	121799 1307	S	M	16oz	4C	GR	SA DU	Gamma Spec 901.1	
50794-004	WR-SS-2	Surface	N/A	121799 1312	S	M	16oz	4C	GR	SA	Gamma Spec 901.1	
50795-004	WR-SS-3	Surface	N/A	121799 1321	S	M	16oz	4C	GR	SA	Gamma Spec 901.1	
50796-004	WR-SS-4	Surface	N/A	121799 1507	S	M	16oz	4C	GR	SA	Gamma Spec 901.1	
50797-004	WR-SS-5	Surface	N/A	121799 1447	S	M	16oz	4C	GR	SA	Gamma Spec 901.1	
50799-004	WR-SS-R	Surface	N/A	121799 1545	DIW	M	16oz	4C	GR	SA	Gamma Spec 901.1	

RMMA ☐ Yes ☒ No Ref. No.

Sample Disposal ☒ Return to Client ☐ Disposal by lab

Turnaround Time ☐ Normal ☒ Rush

Required Report Date

Special Instructions/QC Requirements

EDD ☒ Yes ☐ No

Raw Data Package ☒ Yes ☐ No

THIS COC REPLACES 603004

*Send report to Grace Haggerty(505)284-2545.

RUSH

Please list as separate report.

Sample Team Members	Name	Signature	Init	Company/Organization/Phone
	Margaret Sanchez	MSanchez	MS	Weston/6118/845-3267
	~~G Haggerty~~			~~Gram/6133/284-2545~~

1.Relinquished by	Margaret Sanchez	Org. 6118	Date 12/20/99	Time 0800	4.Relinquished by	Org.	Date 12/21/99	Time 0745
1. Received by		Org. 6118	Date 12/20/99	Time 0800	4. Received by	Org.	Date 12/21/99	Time 0745
2.Relinquished by		Org. 6118	Date 12/20/99	Time 1000	5.Relinquished by	Org.	Date	Time
2. Received by		Org. 7131	Date 12/20/99	Time 1000	5. Received by	Org.	Date	Time
3.Relinquished by		Org. 7132	Date 12/20/99	Time 1019	6.Relinquished by	Org.	Date	Time
3. Received by		Org. 7132	Date 12/20/99	Time 1019	6. Received by	Org.	Date	Time

Sandia National Laboratories
Radiation Protection Sample Diagnostics

Sample Analysis Request Form
Page 1 of 1

To be completed by Customer

Shaded ares are for RPSD use only

Customer: Paul Farnam
Organization: 6133
Project Location: White Oak Investigation
Phone:
Date Results Needed: 12-21-99
Suspect Isotopes:
Case number: 17264.01

Hazards/ Special Instructions

COC 603005
Rush

	Customer Sample ID	Sample Type	Date/Time Collection	Sample Quantity	Requested Analysis
1	50792-004	S	121799 1257	16oz	Gamma Spec
2	50793-004	S	121799 1307	16oz	Gamma Spec
3	50794-004	S	121799 1312	16oz	Gamma Spec
4	50795-004	S	121799 1321	16oz	Gamma Spec
5	50796-004	S	121799 1507	16oz	Gamma Spec
6	50797-004	S	121799 1447	16oz	Gamma Spec
7	50799-004	DWI-MW	121799 1545	16oz	Gamma Spec
8	LCS				
9	LCS				
10	LCS				
11					
12					
13					
14					
15					

Relinquished by	Date		Received by	Date	12/20/99
Relinquished by	Date		Received by	Date	12/20/99
Relinquished by	Date	12/21/99	Received by	Date	12/21/99
Relinquished by	Date		Received by	Date	
Relinquished by	Date		Received by	Date	

Sandia National Laboratories
Radiation Protection Sample Diagnostics Program [806 Laboratory]
12/20/99 1:06:24 PM

Analyzed by: 12/20/99 Reviewed by: 12/21/99

Customer : P.FRESHOUR (6133)
Customer Sample ID : 50792-004
Lab Sample ID : 90262801

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 614.000 gram
Sample Date/Time : 12/17/99 12:57:00 AM
Acquire Start Date/Time : 12/20/99 11:22:42 AM
Detector Name : LAB02
Elapsed Live/Real Time : 6000 / 6003 seconds

Comments:

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	Not Detected	---	9.24E-001
RA-226	2.09E+000	8.09E-001	1.16E+000
PB-214	9.52E-001	1.48E-001	9.42E-002
BI-214	8.15E-001	1.34E-001	7.57E-002
PB-210	Not Detected	---	3.74E+001
TH-232	8.55E-001	4.22E-001	2.87E-001
RA-228	9.53E-001	3.73E-001	1.63E-001
AC-228	9.66E-001	1.96E-001	1.63E-001
TH-228	7.48E-001	3.14E-001	4.29E-001
RA-224	1.05E+000	2.30E-001	6.40E-002
PB-212	9.58E-001	3.36E-001	1.44E-001
BI-212	1.03E+000	3.04E-001	3.55E-001
TL-208	9.56E-001	1.60E-001	1.10E-001
U-235	Not Detected	---	2.40E-001
TH-231	Not Detected	---	1.40E+001
PA-231	Not Detected	---	1.40E+000
TH-227	Not Detected	---	4.00E-001
RA-223	Not Detected	---	2.63E-001
RN-219	Not Detected	---	3.82E-001
PB-211	Not Detected	---	8.63E-001
TL-207	Not Detected	---	1.30E+001
AM-241	Not Detected	---	5.54E-001
PU-239	Not Detected	---	4.48E+002
NP-237	Not Detected	---	2.43E+000
PA-233	Not Detected	---	5.60E-002
TH-229	Not Detected	---	2.64E-001

[Summary Report] - Sample ID: : 90262801

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---------	3.75E-002
AG-110m	Not Detected	---------	4.03E-002
BA-133	Not Detected	---------	5.20E-002
BE-7	Not Detected	---------	2.63E-001
CD-115	Not Detected	---------	2.04E-001
CE-139	Not Detected	---------	2.85E-002
CE-141	Not Detected	---------	5.68E-002
CE-144	Not Detected	---------	2.33E-001
CO-56	Not Detected	---------	3.11E-002
CO-57	Not Detected	---------	3.18E-002
CO-58	Not Detected	---------	3.28E-002
CO-60	Not Detected	---------	3.36E-002
CR-51	Not Detected	---------	2.50E-001
CS-134	Not Detected	---------	4.58E-002
CS-137	1.06E-001	2.60E-002	2.82E-002
EU-152	Not Detected	---------	9.53E-002
EU-154	Not Detected	---------	1.80E-001
EU-155	Not Detected	---------	1.45E-001
FE-59	Not Detected	---------	6.87E-002
GD-153	Not Detected	---------	1.12E-001
HG-203	Not Detected	---------	3.16E-002
I-131	Not Detected	---------	3.45E-002
IR-192	Not Detected	---------	2.74E-002
K-40	1.33E+001	1.83E+000	2.82E-001
MN-52	Not Detected	---------	4.86E-002
MN-54	Not Detected	---------	3.39E-002
MO-99	Not Detected	---------	5.26E-001
NA-22	Not Detected	---------	3.68E-002
NA-24	Not Detected	---------	1.37E+000
NB-95	Not Detected	---------	3.40E-001
ND-147	Not Detected	---------	2.43E-001
NI-57	Not Detected	---------	1.43E-001
RU-103	Not Detected	---------	2.86E-002
RU-106	Not Detected	---------	2.58E-001
SB-122	Not Detected	---------	9.31E-002
SB-124	Not Detected	---------	2.80E-002
SB-125	Not Detected	---------	8.00E-002
SN-113	Not Detected	---------	3.70E-002
SR-85	Not Detected	---------	3.96E-002
TA-182	Not Detected	---------	1.55E-001
TA-183	Not Detected	---------	7.57E-001
TL-201	Not Detected	---------	4.26E-001
XE-133	Not Detected	---------	4.63E-001
Y-88	Not Detected	---------	2.57E-002
ZN-65	Not Detected	---------	1.02E-001
ZR-95	Not Detected	---------	5.52E-002

Sandia National Laboratories
Radiation Protection Sample Diagnostics Program [806 Laboratory]
12/20/99 2:44:28 PM

Analyzed by: 12/20/99 Reviewed by: 12/21/99

Customer : P.FRESHOUR (6133)
Customer Sample ID : 50793-004
Lab Sample ID : 90262802

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 652.000 gram
Sample Date/Time : 12/17/99 1:07:00 PM
Acquire Start Date/Time : 12/20/99 1:04:14 PM
Detector Name : LAB02
Elapsed Live/Real Time : 6000 / 6003 seconds

Comments:

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	Not Detected	---------	8.62E-001
RA-226	2.47E+000	9.30E-001	5.56E-001
PB-214	9.19E-001	8.40E-001	5.74E-002
BI-214	8.45E-001	1.63E-001	4.86E-002
PB-210	Not Detected	---------	3.57E+001
TH-232	9.99E-001	5.04E-001	1.44E-001
RA-228	9.52E-001	2.77E-001	1.52E-001
AC-228	9.24E-001	2.10E-001	7.60E-002
TH-228	9.06E-001	6.57E-001	4.05E-001
RA-224	1.01E+000	2.20E-001	6.36E-002
PB-212	9.62E-001	1.85E-001	1.36E-001
BI-212	1.07E+000	5.85E-001	3.33E-001
TL-208	8.47E-001	1.91E-001	7.04E-002
U-235	1.52E-001	1.84E-001	2.35E-001
TH-231	Not Detected	---------	1.30E+001
PA-231	Not Detected	---------	1.32E+000
TH-227	Not Detected	---------	3.90E-001
RA-223	Not Detected	---------	2.42E-001
RN-219	Not Detected	---------	3.68E-001
PB-211	Not Detected	---------	8.40E-001
TL-207	Not Detected	---------	1.25E+001
AM-241	Not Detected	---------	5.39E-001
PU-239	Not Detected	---------	4.23E+002
NP-237	Not Detected	---------	2.31E+000
PA-233	Not Detected	---------	5.49E-002
TH-229	Not Detected	---------	2.56E-001

[Summary Report] - Sample ID: : 90262802

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---------	3.71E-002
AG-110m	Not Detected	---------	3.80E-002
BA-133	Not Detected	---------	5.10E-002
BE-7	Not Detected	---------	2.39E-001
CD-115	Not Detected	---------	1.68E-001
CE-139	Not Detected	---------	2.78E-002
CE-141	Not Detected	---------	5.36E-002
CE-144	Not Detected	---------	2.21E-001
CO-56	Not Detected	---------	3.10E-002
CO-57	Not Detected	---------	3.04E-002
CO-58	Not Detected	---------	2.94E-002
CO-60	Not Detected	---------	3.35E-002
CR-51	Not Detected	---------	2.25E-001
CS-134	Not Detected	---------	4.46E-002
CS-137	1.01E-001	4.10E-002	2.22E-002
EU-152	Not Detected	---------	9.01E-002
EU-154	Not Detected	---------	1.79E-001
EU-155	Not Detected	---------	1.42E-001
FE-59	Not Detected	---------	6.61E-002
GD-153	Not Detected	---------	1.05E-001
HG-203	Not Detected	---------	3.14E-002
I-131	Not Detected	---------	3.17E-002
IR-192	Not Detected	---------	2.55E-002
K-40	1.29E+001	1.77E+000	2.41E-001
MN-52	Not Detected	---------	4.00E-002
MN-54	Not Detected	---------	3.26E-002
MO-99	Not Detected	---------	4.36E-001
NA-22	Not Detected	---------	3.35E-002
NA-24	Not Detected	---------	8.65E-001
NB-95	Not Detected	---------	3.04E-001
ND-147	Not Detected	---------	2.22E-001
NI-57	Not Detected	---------	2.04E-001
RU-103	Not Detected	---------	2.76E-002
RU-106	Not Detected	---------	2.57E-001
SB-122	Not Detected	---------	7.86E-002
SB-124	Not Detected	---------	3.02E-002
SB-125	Not Detected	---------	7.63E-002
SN-113	Not Detected	---------	3.74E-002
SR-85	Not Detected	---------	3.71E-002
TA-182	Not Detected	---------	1.53E-001
TA-183	Not Detected	---------	6.97E-001
TL-201	Not Detected	---------	3.70E-001
XE-133	Not Detected	---------	3.79E-001
Y-88	Not Detected	---------	2.52E-002
ZN-65	Not Detected	---------	9.92E-002
ZR-95	Not Detected	---------	5.28E-002

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Sandia National Laboratories

Radiation Protection Sample Diagnostics Program [806 Laboratory]

12/20/99 2:39:38 PM

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Analyzed by: 12/20/99 Reviewed by: 12/21/99

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Customer : P.FRESHOUR (6133)
Customer Sample ID : 50794-004
Lab Sample ID : 90262803

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 600.000 gram
Sample Date/Time : 12/17/99 1:12:00 PM
Acquire Start Date/Time : 12/20/99 12:59:24 PM
Detector Name : LAB04
Elapsed Live/Real Time : 6000 / 6003 seconds

Comments:

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Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	Not Detected	---------	6.77E-001
RA-226	Not Detected	---------	5.49E-001
PB-214	1.03E+000	9.28E-001	4.25E-002
BI-214	9.13E-001	6.54E-001	1.59E-001
PB-210	Not Detected	---------	9.56E+000
TH-232	8.06E-001	4.31E-001	1.30E-001
RA-228	Not Detected	---------	1.37E-001
AC-228	8.38E-001	2.25E-001	9.19E-002
TH-228	Not Detected	---------	4.58E-001
RA-224	8.75E-001	2.69E-001	6.70E-002
PB-212	8.47E-001	9.95E-001	3.66E-002
BI-212	9.73E-001	8.36E-001	2.64E-001
TL-208	7.15E-001	1.72E-001	6.02E-002
U-235	Not Detected	---------	2.11E-001
TH-231	Not Detected	---------	1.00E+001
PA-231	Not Detected	---------	1.31E+000
TH-227	Not Detected	---------	3.66E-001
RA-223	Not Detected	---------	1.95E-001
RN-219	Not Detected	---------	3.77E-001
PB-211	Not Detected	---------	8.40E-001
TL-207	Not Detected	---------	1.32E+001
AM-241	Not Detected	---------	2.29E-001
PU-239	Not Detected	---------	3.68E+002
NP-237	Not Detected	---------	2.13E+000
PA-233	Not Detected	---------	5.62E-002
TH-229	Not Detected	---------	2.18E-001

[Summary Report] - Sample ID: : 90262803

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---------	3.87E-002
AG-110m	Not Detected	---------	4.17E-002
BA-133	Not Detected	---------	7.21E-002
BE-7	Not Detected	---------	2.42E-001
CD-115	Not Detected	---------	1.68E-001
CE-139	Not Detected	---------	2.78E-002
CE-141	Not Detected	---------	4.82E-002
CE-144	Not Detected	---------	2.08E-001
CO-56	Not Detected	---------	2.94E-002
CO-57	Not Detected	---------	2.64E-002
CO-58	Not Detected	---------	3.08E-002
CO-60	Not Detected	---------	3.46E-002
CR-51	Not Detected	---------	2.51E-001
CS-134	Not Detected	---------	5.61E-002
CS-137	1.16E-001	2.12E-001	2.15E-002
EU-152	Not Detected	---------	7.90E-002
EU-154	Not Detected	---------	1.80E-001
EU-155	Not Detected	---------	1.26E-001
FE-59	Not Detected	---------	6.72E-002
GD-153	Not Detected	---------	9.13E-002
HG-203	Not Detected	---------	3.08E-002
I-131	Not Detected	---------	3.44E-002
IR-192	Not Detected	---------	2.72E-002
K-40	1.14E+001	1.69E+000	2.44E-001
MN-52	Not Detected	---------	4.28E-002
MN-54	Not Detected	---------	1.62E-002
MO-99	Not Detected	---------	4.91E-001
NA-22	Not Detected	---------	3.62E-002
NA-24	Not Detected	---------	8.18E-001
NB-95	Not Detected	---------	2.99E-001
ND-147	Not Detected	---------	2.41E-001
NI-57	Not Detected	---------	2.03E-001
RU-103	Not Detected	---------	2.88E-002
RU-106	Not Detected	---------	2.71E-001
SB-122	Not Detected	---------	8.34E-002
SB-124	Not Detected	---------	2.87E-002
SB-125	Not Detected	---------	8.07E-002
SN-113	Not Detected	---------	3.72E-002
SR-85	Not Detected	---------	3.80E-002
TA-182	Not Detected	---------	1.52E-001
TA-183	Not Detected	---------	2.91E-001
TL-201	Not Detected	---------	2.38E-001
XE-133	Not Detected	---------	3.21E-001
Y-88	Not Detected	---------	2.27E-002
ZN-65	Not Detected	---------	1.03E-001
ZR-95	Not Detected	---------	5.51E-002

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Sandia National Laboratories

Radiation Protection Sample Diagnostics Program [806 Laboratory]

12/20/99 4:47:15 PM

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Analyzed by: 12/20/99 Reviewed by: 12/21/99

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Customer : P.FRESHOUR (6133)
Customer Sample ID : 50795-004
Lab Sample ID : 90262804

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 786.000 gram
Sample Date/Time : 12/17/99 1:21:00 PM
Acquire Start Date/Time : 12/20/99 2:56:10 PM
Detector Name : LAB02
Elapsed Live/Real Time : 6000 / 6003 seconds

Comments:

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Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	Not Detected	---------	6.77E-001
RA-226	1.99E+000	5.98E-001	7.99E-001
PB-214	8.35E-001	1.30E-001	8.46E-002
BI-214	7.70E-001	1.22E-001	5.81E-002
PB-210	Not Detected	---------	3.07E+001
TH-232	7.16E-001	3.41E-001	1.86E-001
RA-228	6.00E-001	2.22E-001	1.22E-001
AC-228	5.89E-001	1.22E-001	9.98E-002
TH-228	5.26E-001	3.67E-001	5.66E-001
RA-224	6.40E-001	1.47E-001	5.18E-002
PB-212	6.06E-001	2.45E-001	1.12E-001
BI-212	8.24E-001	2.73E-001	3.48E-001
TL-208	5.68E-001	9.71E-002	6.24E-002
U-235	Not Detected	---------	1.90E-001
TH-231	Not Detected	---------	1.05E+001
PA-231	Not Detected	---------	1.15E+000
TH-227	Not Detected	---------	2.95E-001
RA-223	Not Detected	---------	1.94E-001
RN-219	Not Detected	---------	3.07E-001
PB-211	Not Detected	---------	6.83E-001
TL-207	Not Detected	---------	9.88E+000
AM-241	Not Detected	---------	4.25E-001
PU-239	Not Detected	---------	3.50E+002
NP-237	Not Detected	---------	1.91E+000
PA-233	Not Detected	---------	4.52E-002
TH-229	Not Detected	---------	2.06E-001

[Summary Report] - Sample ID: : 90262804

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---------	2.92E-002
AG-110m	Not Detected	---------	2.72E-002
BA-133	Not Detected	---------	4.30E-002
BE-7	Not Detected	---------	2.00E-001
CD-115	Not Detected	---------	1.34E-001
CE-139	Not Detected	---------	2.29E-002
CE-141	Not Detected	---------	4.37E-002
CE-144	Not Detected	---------	1.85E-001
CO-56	Not Detected	---------	2.34E-002
CO-57	Not Detected	---------	2.50E-002
CO-58	Not Detected	---------	2.40E-002
CO-60	Not Detected	---------	2.58E-002
CR-51	Not Detected	---------	1.83E-001
CS-134	Not Detected	---------	3.66E-002
CS-137	3.86E-002	1.46E-002	1.93E-002
EU-152	Not Detected	---------	7.46E-002
EU-154	Not Detected	---------	1.41E-001
EU-155	Not Detected	---------	1.17E-001
FE-59	Not Detected	---------	5.14E-002
GD-153	Not Detected	---------	8.70E-002
HG-203	Not Detected	---------	2.55E-002
I-131	Not Detected	---------	2.70E-002
IR-192	Not Detected	---------	2.13E-002
K-40	9.53E+000	1.32E+000	2.73E-001
MN-52	Not Detected	---------	3.56E-002
MN-54	Not Detected	---------	1.22E-002
MO-99	Not Detected	---------	3.66E-001
NA-22	Not Detected	---------	2.90E-002
NA-24	Not Detected	---------	7.77E-001
NB-95	Not Detected	---------	2.34E-001
ND-147	Not Detected	---------	1.88E-001
NI-57	Not Detected	---------	9.46E-002
RU-103	Not Detected	---------	2.25E-002
RU-106	Not Detected	---------	2.22E-001
SB-122	Not Detected	---------	6.24E-002
SB-124	Not Detected	---------	2.28E-002
SB-125	Not Detected	---------	6.34E-002
SN-113	Not Detected	---------	2.83E-002
SR-85	Not Detected	---------	2.94E-002
TA-182	Not Detected	---------	1.28E-001
TA-183	Not Detected	---------	5.53E-001
TL-201	Not Detected	---------	3.01E-001
XE-133	Not Detected	---------	3.15E-001
Y-88	Not Detected	---------	2.20E-002
ZN-65	Not Detected	---------	8.33E-002
ZR-95	Not Detected	---------	4.19E-002

Sandia National Laboratories

Radiation Protection Sample Diagnostics Program [806 Laboratory]

12/20/99 4:27:09 PM

Analyzed by: 12/20/99 Reviewed by: 12/21/99

Customer : P.FRESHOUR (6133)
Customer Sample ID : 50796-004
Lab Sample ID : 90262805

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 531.000 gram
Sample Date/Time : 12/17/99 3:07:00 PM
Acquire Start Date/Time : 12/20/99 2:46:56 PM
Detector Name : LAB05
Elapsed Live/Real Time : 6000 / 6003 seconds

Comments:

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	Not Detected	---	5.26E-001
RA-226	1.78E+000	6.13E-001	8.46E-001
PB-214	9.48E-001	1.46E-001	8.13E-002
BI-214	8.47E-001	1.45E-001	9.20E-002
PB-210	2.56E+000	1.54E+000	2.34E-000
TH-232	1.11E+000	5.15E-001	2.34E-001
RA-228	1.20E+000	1.94E-001	1.98E-001
AC-228	1.23E+000	2.29E-001	1.36E-001
TH-228	9.56E-001	3.50E-001	5.57E-001
RA-224	1.09E+000	2.54E-001	8.84E-002
PB-212	Not Detected	---	4.98E-002
BI-212	1.10E+000	4.08E-001	5.40E-001
TL-208	1.07E+000	1.77E-001	1.06E-001
U-235	Not Detected	---	2.48E-001
TH-231	Not Detected	---	8.71E+000
PA-231	Not Detected	---	1.66E+000
TH-227	Not Detected	---	4.56E-001
RA-223	Not Detected	---	1.65E-001
RN-219	Not Detected	---	4.77E-001
PB-211	Not Detected	---	1.07E+000
TL-207	Not Detected	---	1.64E+001
AM-241	Not Detected	---	1.37E-001
PU-239	Not Detected	---	4.39E+002
NP-237	Not Detected	---	2.19E+000
PA-233	Not Detected	---	7.19E-002
TH-229	Not Detected	---	2.21E-001

[Summary Report] - Sample ID: : 90262805

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---------	5.30E-002
AG-110m	Not Detected	---------	5.22E-002
BA-133	Not Detected	---------	8.10E-002
BE-7	Not Detected	---------	3.16E-001
CD-115	Not Detected	---------	2.18E-001
CE-139	Not Detected	---------	3.22E-002
CE-141	Not Detected	---------	5.71E-002
CE-144	Not Detected	---------	2.41E-001
CO-56	Not Detected	---------	3.86E-002
CO-57	Not Detected	---------	2.81E-002
CO-58	Not Detected	---------	4.00E-002
CO-60	Not Detected	---------	4.10E-002
CR-51	Not Detected	---------	3.22E-001
CS-134	Not Detected	---------	6.76E-002
CS-137	1.10E-001	3.23E-002	3.96E-002
EU-152	Not Detected	---------	8.41E-002
EU-154	Not Detected	---------	2.50E-001
EU-155	Not Detected	---------	1.25E-001
FE-59	Not Detected	---------	8.71E-002
GD-153	Not Detected	---------	8.73E-002
HG-203	Not Detected	---------	3.83E-002
I-131	Not Detected	---------	4.54E-002
IR-192	Not Detected	---------	3.55E-002
K-40	1.55E+001	2.17E+000	3.94E-001
MN-52	Not Detected	---------	5.40E-002
MN-54	Not Detected	---------	4.27E-002
MO-99	Not Detected	---------	6.32E-001
NA-22	Not Detected	---------	4.97E-002
NA-24	Not Detected	---------	1.10E+000
NB-95	Not Detected	---------	3.34E-001
ND-147	Not Detected	---------	2.77E-001
NI-57	Not Detected	---------	2.63E-001
RU-103	Not Detected	---------	3.66E-002
RU-106	Not Detected	---------	3.54E-001
SB-122	Not Detected	---------	9.87E-002
SB-124	Not Detected	---------	3.97E-002
SB-125	Not Detected	---------	1.07E-001
SN-113	Not Detected	---------	4.76E-002
SR-85	Not Detected	---------	4.61E-002
TA-182	Not Detected	---------	1.94E-001
TA-183	Not Detected	---------	1.73E-001
TL-201	Not Detected	---------	1.78E-001
TL-204	Not Detected	---------	5.13E+000
XE-133	Not Detected	---------	2.42E-001
Y-88	Not Detected	---------	3.33E-002
ZN-65	Not Detected	---------	1.36E-001
ZR-95	Not Detected	---------	7.56E-002

Sandia National Laboratories

Radiation Protection Sample Diagnostics Program [806 Laboratory]

12/20/99 2:43:17 PM

Analyzed by: 12/20/99 Reviewed by: 12/21/99

Customer : P.FRESHOUR (6133)
Customer Sample ID : 050797-004
Lab Sample ID : 90262806

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 508.000 gram
Sample Date/Time : 12/17/99 2:47:00 PM
Acquire Start Date/Time : 12/20/99 1:03:04 PM
Detector Name : LAB05
Elapsed Live/Real Time : 6000 / 6003 seconds

Comments:

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	Not Detected	---	6.80E-001
RA-226	2.21E+000	6.45E-001	8.35E-001
PB-214	9.06E-001	1.42E-001	8.44E-002
BI-214	7.90E-001	1.39E-001	9.67E-002
PB-210	3.80E+000	1.76E+000	2.59E+000
TH-232	1.13E+000	5.31E-001	2.71E-001
RA-228	9.34E-001	6.40E-001	1.87E-001
AC-228	1.22E+000	2.23E-001	1.12E-001
TH-228	1.24E+000	4.39E-001	5.87E-001
RA-224	1.06E+000	2.58E-001	1.37E-001
PB-212	1.08E+000	1.85E-001	4.87E-002
BI-212	1.28E+000	3.92E-001	4.63E-001
TL-208	9.38E-001	1.65E-001	1.19E-001
U-235	1.17E-001	2.19E-001	2.56E-001
TH-231	Not Detected	---	8.73E+000
PA-231	Not Detected	---	1.64E+000
TH-227	Not Detected	---	4.50E-001
RA-223	Not Detected	---	1.64E-001
RN-219	2.77E-001	4.11E-001	4.98E-001
PB-211	Not Detected	---	1.12E+000
TL-207	Not Detected	---	1.65E+001
AM-241	Not Detected	---	1.45E-001
PU-239	Not Detected	---	4.48E+002
NP-237	Not Detected	---	2.17E+000
PA-233	Not Detected	---	7.22E-002
TH-229	Not Detected	---	2.16E-001

[Summary Report] - Sample ID: : 90262806

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---	5.17E-002
AG-110m	Not Detected	---	8.34E-002
BA-133	Not Detected	---	8.03E-002
BE-7	Not Detected	---	3.36E-001
CD-115	Not Detected	---	2.17E-001
CE-139	Not Detected	---	3.23E-002
CE-141	Not Detected	---	5.88E-002
CE-144	Not Detected	---	2.43E-001
CO-56	Not Detected	---	3.95E-002
CO-57	Not Detected	---	2.91E-002
CO-58	Not Detected	---	3.96E-002
CO-60	Not Detected	---	4.31E-002
CR-51	Not Detected	---	3.16E-001
CS-134	Not Detected	---	6.72E-002
CS-137	5.21E-001	8.02E-002	4.20E-002
EU-152	Not Detected	---	8.63E-002
EU-154	Not Detected	---	2.39E-001
EU-155	Not Detected	---	1.28E-001
FE-59	Not Detected	---	9.01E-002
GD-153	Not Detected	---	8.37E-002
HG-203	Not Detected	---	3.78E-002
I-131	Not Detected	---	4.53E-002
IR-192	Not Detected	---	3.45E-002
K-40	1.44E+001	2.03E+000	3.81E-001
MN-52	Not Detected	---	4.81E-002
MN-54	Not Detected	---	4.28E-002
MO-99	Not Detected	---	5.57E-001
NA-22	Not Detected	---	5.00E-002
NA-24	Not Detected	---	1.07E+000
NB-95	Not Detected	---	3.28E-001
ND-147	Not Detected	---	2.97E-001
NI-57	Not Detected	---	2.33E-001
RU-103	Not Detected	---	3.80E-002
RU-106	Not Detected	---	3.43E-001
SB-122	Not Detected	---	1.02E-001
SB-124	Not Detected	---	3.85E-002
SB-125	Not Detected	---	1.16E-001
SN-113	Not Detected	---	4.88E-002
SR-85	Not Detected	---	4.88E-002
TA-182	Not Detected	---	1.99E-001
TA-183	Not Detected	---	1.83E-001
TL-201	Not Detected	---	1.74E-001
TL-204	Not Detected	---	5.09E+000
XE-133	Not Detected	---	2.37E-001
Y-88	Not Detected	---	4.07E-002
ZN-65	Not Detected	---	1.35E-001
ZR-95	Not Detected	---	7.13E-002

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Sandia National Laboratories

Radiation Protection Sample Diagnostics Program [806 Laboratory]

12/20/99 1:04:55 PM

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Analyzed by: 12/20/99 Reviewed by: 12/21/99

****

Customer : P.FRESHOUR (6133)
Customer Sample ID : 050799-004
Lab Sample ID : 90262807

Sample Description : WATER IN MARINELLI BEAKER
Sample Quantity : 509.000 mL
Sample Date/Time : 12/17/99 3:45:00 PM
Acquire Start Date/Time : 12/20/99 11:13:28 AM
Detector Name : LAB05
Elapsed Live/Real Time : 6000 / 6002 seconds

Comments:

****

Nuclide Name	Activity (pCi/mL)	2-sigma Error	MDA (pCi/mL)
U-238	Not Detected	---------	2.39E-001
RA-226	Not Detected	---------	4.20E-001
PB-214	Not Detected	---------	3.91E-002
BI-214	Not Detected	---------	4.44E-002
PB-210	Not Detected	---------	5.17E-001
TH-232	Not Detected	---------	1.27E-001
RA-228	Not Detected	---------	1.18E-001
AC-228	Not Detected	---------	7.31E-002
TH-228	Not Detected	---------	4.09E-001
RA-224	Not Detected	---------	1.20E-001
PB-212	Not Detected	---------	3.23E-002
BI-212	Not Detected	---------	2.66E-001
TL-208	Not Detected	---------	6.29E-002
U-235	Not Detected	---------	1.25E-001
TH-231	Not Detected	---------	2.93E+000
PA-231	Not Detected	---------	8.06E-001
TH-227	Not Detected	---------	1.23E-001
RA-223	Not Detected	---------	5.75E-002
RN-219	Not Detected	---------	2.43E-001
PB-211	Not Detected	---------	5.55E-001
TL-207	Not Detected	---------	7.82E+000
AM-241	Not Detected	---------	4.08E-002
PU-239	Not Detected	---------	1.93E+002
NP-237	Not Detected	---------	9.22E-001
PA-233	Not Detected	---------	3.35E-002
TH-229	Not Detected	---------	9.69E-002

[Summary Report] - Sample ID: : 90262807

Nuclide Name	Activity (pCi/mL)	2-sigma Error	MDA (pCi/mL)
AG-108m	Not Detected	---	1.92E-002
AG-110m	Not Detected	---	1.78E-002
BA-133	Not Detected	---	2.50E-002
BE-7	Not Detected	---	1.65E-001
CD-115	Not Detected	---	7.52E-002
CE-139	Not Detected	---	1.57E-002
CE-141	Not Detected	---	2.78E-002
CE-144	Not Detected	---	1.11E-001
CO-56	Not Detected	---	2.11E-002
CO-57	Not Detected	---	1.40E-002
CO-58	Not Detected	---	1.83E-002
CO-60	Not Detected	---	2.13E-002
CR-51	Not Detected	---	1.59E-001
CS-134	Not Detected	---	1.98E-002
CS-137	Not Detected	---	1.82E-002
EU-152	Not Detected	---	4.22E-002
EU-154	Not Detected	---	8.93E-002
EU-155	Not Detected	---	5.63E-002
FE-59	Not Detected	---	3.50E-002
GD-153	Not Detected	---	3.62E-002
HG-203	Not Detected	---	1.80E-002
I-131	Not Detected	---	2.09E-002
IR-192	Not Detected	---	1.73E-002
K-40	Not Detected	---	2.49E-001
MN-52	Not Detected	---	3.40E-002
MN-54	Not Detected	---	1.84E-002
MO-99	Not Detected	---	2.32E-001
NA-22	Not Detected	---	2.22E-002
NA-24	Not Detected	---	4.18E-001
NB-95	Not Detected	---	9.54E-002
ND-147	Not Detected	---	1.52E-001
NI-57	Not Detected	---	9.81E-002
RU-103	Not Detected	---	2.06E-002
RU-106	Not Detected	---	1.82E-001
SB-122	Not Detected	---	4.40E-002
SB-124	Not Detected	---	1.78E-002
SB-125	Not Detected	---	5.58E-002
SN-113	Not Detected	---	2.23E-002
SR-85	Not Detected	---	2.64E-002
TA-182	Not Detected	---	6.18E-002
TA-183	Not Detected	---	5.05E-002
TL-201	Not Detected	---	5.46E-002
TL-204	Not Detected	---	1.64E+000
XE-133	Not Detected	---	7.88E-002
Y-88	Not Detected	---	2.22E-002
ZN-65	Not Detected	---	4.52E-002
ZR-95	Not Detected	---	3.40E-002

Internal Lab

ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 1

Batch No. 902648 SAR/WR No. SMO Use 12-21-99

AR/COC 603006

Dept. No./Mail Stop:	6133/1088	[redacted]		Contract No.:	N/A
Project/Task Manager:	P Freshour			Project/Case No.	17304.01
Project Name:	White Rock Investigation	Lab Contact:	F Sominguez 844-7683	SMO Authorization:	
Record Center Code:	N/A	Lab Destination:	RPSD	Bill To: Sandia National Laboratories	
Logbook Ref. No.:	N/A	SMO Contact/Phone:	D Salmi 844-3110	Supplier Services Dept.:	
Service Order No.	CF0026	Send Report to SMO:	S Jensen 844-3184	P.O. Box 5800 MS 0154	
Location	Tech Area				
Building	Room	Reference LOV(available at SMO)			

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Beginning Depth/ft.	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserve	Collection Method	Sample Type	Parameter & Method Requested	Lab Use Lab Sample ID
50783-004 ✓	WR-DW1-1	Surface	N/A	12/20/99 1524	S	M	16oz	4C	GR	SA	Gamma Spec 901.1	[redacted]
50787-004 ✓	WR-DW2-1	Surface	N/A	12/20/99 1120	S	M	16oz	4C	GR	SA	Gamma Spec 901.1	
50788-004 ✓	WR-DW2-2	Surface	N/A	12/20/99 1306	S	M	16oz	4C	GR	SA	Gamma Spec 901.1	
50791-004 ✓	WR-DW-R	Surface	N/A	12/20/99 1445	DIW	M	16oz	4C	GR	SA	Gamma Spec 901.1	

RMMA ☐ Yes ☒ No Ref. No. [redacted]

Sample Disposal ☐ Return to Client ☒ Disposal by lab

Turnaround Time ☐ Normal ☒ Rush

Required Report Date

Special Instructions/QC Requirements

EDD ☒ Yes ☐ No

Raw Data Package ☒ Yes ☐ No

clears 603003 & 603002

*Send report to Grace Haggerty(505)284-2545.

RUSH

Please list as separate report.

	Name	Signature	Init	Company/Organization/Phone
Sample Team Members	Margaret Sanchez	M Sanchez	MS	Weston/6118/845-3267
	G Haggerty	G Haggerty	GH	Gram/6133/284-2545

1.Relinquished by	Margaret Sanchez	Org. 6133	Date 12/21/99	Time 1030	4.Relinquished by		Org.	Date	Time
1. Received by	[signature]	Org. 7135	Date 12/21/99	Time 1030	4. Received by		Org.	Date	Time
2.Relinquished by	[signature]	Org. 7135	Date 12/21/99	Time 1100	5.Relinquished by		Org.	Date	Time
2. Received by	[signature]	Org. 7132	Date 12/21/99	Time 1100	5. Received by		Org.	Date	Time
3.Relinquished by	[signature]	Org. 7132	Date 12/21/99	Time 1600	6 Relinquished by		Org.	Date	Time
3. Received by	[signature]	Org. 7135	Date 12/21/99	Time 1600	6 Received by		Org.	Date	Time

Sandia National Laboratories
Radiation Protection Sample Diagnostics

Sample Analysis Request Form
Page of

To be completed by Customer

Shaded ares are for RPSD use only

Customer: P. Freshour
Organization: 6132
Project Location: White Rock
Phone: 284-2545
Date Results Needed: 12/22/99
Suspect Isotopes: Gamma
Case number: 17304.01

Hazards/ Special Instructions

COC 603006
Rush

Batch Log Number: 90264
Logged By:
Analysis Type:
- [X] LC Gamma Spec
- [ ] LC H-3
- [ ] LC Alpha/ Beta
- [ ] LC Alpha Spec
- [ ] LC Total U
- [ ] LC Other

Customer Sample ID	Sample Type	Date/Time Collection	Sample Quantity	Requested Analysis	RPSD Sample ID	Screen cpm	Sample Mass	Remarks / Aliquot Amount			
50783-004	S	12/20/99 1524	16oz	Gamma Spec	01	<300	560g	LAB05			
50787-004	S	12/20/99 1120	16oz	Gamma Spec	02		750g	LAB01			
50788-004	S	12/20/99 1306	16oz	Gamma Spec	03		714g	LAB04			
50791-004	DWI	12/20/99 1445	16oz	Gamma Spec	04		420g	LAB04			
LCS LAB5					05						
LCS LAB4					06						

Relinquished by [signature] Date 12/20/99 Received by [signature] Date 12/21/99
Relinquished by [signature] Date 12/21/99 Received by [signature] Date 12/21/99
Relinquished by _____ Date _____ Received by _____ Date _____
Relinquished by _____ Date _____ Received by _____ Date _____
Relinquished by _____ Date _____ Received by _____ Date _____

Internal Lab

ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 1

AR/COC 603002

Batch No. SAR/WR No. SMO Use

Dept. No./Mail Stop:	6133/1088			Contract No.:	AJ-1480A
Project/Task Manager:	P Freshour .			Project/Case No.	17304.01
Project Name:	White Rock Investigation	Lab Contact:	E Kent 843-556-8171	SMO Authorization:	
Record Center Code:	N/A	Lab Destination:	GEL	Bill To: Sandia National Laboratories	
Logbook Ref. No.:	N/A	SMO Contact/Phone:	D Salmi 844-3110	Supplier Services Dept.:	
Service Order No.	CF0026 057	Send Report to SMO:	S Jensen 844-3184	P.O. Box 5800 MS 0154	
Location	Tech Area				
Building	Room	Reference LOV(available at SMO)			

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Beginning Depth/ft.	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserve All@4C	Collection Method	Sample Type	Parameter & Method Requested	Lab Use Lab Sample ID
50783-001	WR-DW1-1	9ft	N/A	12/20/99 1526	S	AG	4oz	4C	GR	SA	VOC (8260)	
50783-002	WR-DW1-1	9ft	N/A	12/20/99 1525	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(827	
50783-003	WR-DW1-1	9ft	N/A	12/20/99 1527	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	
50784-001	WR-DW1-2	9ft	N/A	12/20/99 1600	S	AG	4oz	4C	GR	SA	VOC (8260)	
50784-002	WR-DW1-2	9ft	N/A	12/20/99 1601	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(827	
50784-003	WR-DW1-2	9ft	N/A	12/20/99 1602	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	
50785-001	WR-DW1-3	9ft	N/A	12/20/99 1620	S	AG	4oz	4C	GR	SA	VOC (8260)	
50785-002	WR-DW1-3	4ft	N/A	12/20/99 1620	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	
50785-003	WR-DW1-3	4ft	N/A	12/20/99 1621	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	
50786-005	WR-DW1-TB	4ft	N/A	12/20/99 1526	DIW	G	3x40 ml	HCl	GR	TB	VOC (8260)	

RMMA ☐ Yes ☒ No Ref. No.

Sample Disposal ☐ Return to Client ☒ Disposal by lab

Turnaround Time 15 day ☐ Normal ☒ Rush

Required Report Date VG 1/3/00

Special Instructions/QC Requirements

EDD ☒ Yes ☐ No

Raw Data Package ☒ Yes ☐ No

cleared by 603006

	Name	Signature	Init	Company/Organization/Phone
Sample Team Members	Margaret Sanchez			Weston/6118/845-3267
	G Haggerty			Gram/6133/284-2545

*Send report to Grace Haggerty(505)284-2545.

*Tal metals+U =EPA 6010/7000 Series

*Uranium isotopes EPA 90. 15 day turn

Please list as separate report.

1.Relinquished by	Margaret Sanchez	Org. 6118	Date 12-21-99	Time 1035	4.Relinquished by		Org.	Date	Time
1. Received by		Org. 7135	Date 12/21/99	Time 1035	4. Received by		Org.	Date	Time
2.Relinquished by		Org. 7135	Date 12/22/99	Time 1030	5.Relinquished by		Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

****

Sandia National Laboratories

Radiation Protection Sample Diagnostics Program [806 Laboratory]

12/21/99 12:49:12 PM

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Analyzed by: 12/21/99 Reviewed by: 12/21/99

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Customer : P.FRESHOUR (6133)
Customer Sample ID : 50783-004
Lab Sample ID : 90264801

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 560.000 gram
Sample Date/Time : 12/20/99 3:24:00 PM
Acquire Start Date/Time : 12/21/99 11:09:00 AM
Detector Name : LAB05
Elapsed Live/Real Time : 6000 / 6003 seconds

Note: Ra-226 and U-235 gamma interfere. Either Solace may be over-estimated

Comments:

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Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	7.60E-001	4.87E-001	4.75E-001
RA-226	1.93E+000	5.55E-001	7.11E-001
PB-214	7.89E-001	1.24E-001	7.17E-002
BI-214	7.27E-001	1.26E-001	8.05E-002
PB-210	8.37E-001	9.47E-001	1.52E+000
TH-232	7.33E-001	3.49E-001	1.81E-001
RA-228	7.30E-001	2.86E-001	1.45E-001
AC-228	8.15E-001	1.62E-001	1.02E-001
TH-228	4.65E-001	2.28E-001	5.29E-001
RA-224	6.71E-001	1.81E-001	1.21E-001
PB-212	8.10E-001	3.09E-001	4.49E-002
BI-212	7.54E-001	2.95E-001	3.85E-001
TL-208	7.67E-001	1.35E-001	9.24E-002
U-235	Not Detected	---------	2.19E-001
TH-231	Not Detected	---------	7.15E+000
PA-231	Not Detected	---------	1.43E+000
TH-227	Not Detected	---------	3.83E-001
RA-223	Not Detected	---------	1.20E-001
RN-219	Not Detected	---------	4.04E-001
PB-211	Not Detected	---------	9.27E-001
TL-207	Not Detected	---------	1.38E+001
AM-241	Not Detected	---------	1.16E-001
PU-239	Not Detected	---------	3.79E+002
NP-237	Not Detected	---------	1.87E+000
PA-233	Not Detected	---------	6.12E-002
TH-229	Not Detected	---------	1.86E-001

[Summary Report] - Sample ID: : 90264801

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---	4.19E-002
AG-110m	Not Detected	---	3.50E-002
BA-133	Not Detected	---	7.12E-002
BE-7	Not Detected	---	2.66E-001
CD-115	Not Detected	---	8.92E-002
CE-139	Not Detected	---	2.78E-002
CE-141	Not Detected	---	4.84E-002
CE-144	Not Detected	---	2.05E-001
CO-56	Not Detected	---	3.14E-002
CO-57	Not Detected	---	2.45E-002
CO-58	Not Detected	---	3.06E-002
CO-60	Not Detected	---	3.50E-002
CR-51	Not Detected	---	2.41E-001
CS-134	Not Detected	---	5.95E-002
CS-137	Not Detected	---	3.74E-002
EU-152	Not Detected	---	7.34E-002
EU-154	Not Detected	---	1.96E-001
EU-155	Not Detected	---	1.05E-001
FE-59	Not Detected	---	6.06E-002
GD-153	Not Detected	---	7.18E-002
HG-203	Not Detected	---	3.15E-002
I-131	Not Detected	---	2.92E-002
IR-192	Not Detected	---	2.84E-002
K-40	6.72E+000	1.03E+000	3.91E-001
MN-52	Not Detected	---	3.09E-002
MN-54	Not Detected	---	3.66E-002
MO-99	Not Detected	---	2.96E-001
NA-22	Not Detected	---	3.66E-002
NA-24	Not Detected	---	7.43E-002
NB-95	Not Detected	---	1.88E-001
ND-147	Not Detected	---	2.05E-001
NI-57	Not Detected	---	8.03E-002
RU-103	Not Detected	---	2.97E-002
RU-106	Not Detected	---	2.96E-001
SB-122	Not Detected	---	4.87E-002
SB-124	Not Detected	---	3.17E-002
SB-125	Not Detected	---	8.93E-002
SN-113	Not Detected	---	3.93E-002
SR-85	Not Detected	---	3.97E-002
TA-182	Not Detected	---	1.62E-001
TA-183	Not Detected	---	1.10E-001
TL-201	Not Detected	---	9.46E-002
TL-204	Not Detected	---	4.47E+000
XE-133	Not Detected	---	1.01E-001
Y-88	Not Detected	---	3.03E-002
ZN-65	Not Detected	---	1.09E-001
ZR-95	Not Detected	---	5.68E-002

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Sandia National Laboratories

Radiation Protection Sample Diagnostics Program [806 Laboratory]

12/21/99 2:33:12 PM

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Analyzed by: 12/21/99 Reviewed by: 12/21/99

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Customer : P.FRESHOUR (6133)
Customer Sample ID : 50787-004
Lab Sample ID : 90264802

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 750.000 gram
Sample Date/Time : 12/20/99 11:20:00 AM
Acquire Start Date/Time : 12/21/99 12:52:58 PM
Detector Name : LAB05
Elapsed Live/Real Time : 6000 / 6003 seconds

Note: Ra-226 and U-238 gamma rea- interfere. Either/both may be over-estimated.

Comments:

****

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	8.90E-001	4.08E-001	3.87E-001
RA-226	1.95E+000	4.85E-001	5.81E-001
PB-214	8.29E-001	1.23E-001	5.98E-002
BI-214	7.57E-001	1.22E-001	6.14E-002
PB-210	Not Detected	---	1.38E+000
TH-232	4.05E-001	2.07E-001	1.54E-001
RA-228	4.97E-001	2.33E-001	1.16E-001
AC-228	5.20E-001	1.18E-001	1.06E-001
TH-228	5.11E-001	1.72E-001	4.16E-001
RA-224	5.79E-001	1.47E-001	8.14E-002
PB-212	4.87E-001	9.66E-002	3.52E-002
BI-212	6.93E-001	2.81E-001	3.82E-001
TL-208	4.94E-001	9.65E-002	8.44E-002
U-235	Not Detected	---	1.76E-001
TH-231	Not Detected	---	6.03E+000
PA-231	Not Detected	---	1.17E+000
TH-227	Not Detected	---	2.71E-001
RA-223	Not Detected	---	1.02E-001
RN-219	Not Detected	---	3.30E-001
PB-211	Not Detected	---	7.69E-001
TL-207	Not Detected	---	1.16E+001
AM-241	Not Detected	---	9.70E-002
PU-239	Not Detected	---	3.13E+002
NP-237	Not Detected	---	1.55E+000
PA-233	Not Detected	---	5.02E-002
TH-229	Not Detected	---	1.56E-001

[Summary Report] - Sample ID: : 90264802

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---	3.42E-002
AG-110m	Not Detected	---	3.00E-002
BA-133	Not Detected	---	6.14E-002
BE-7	Not Detected	---	2.07E-001
CD-115	Not Detected	---	7.70E-002
CE-139	Not Detected	---	2.37E-002
CE-141	Not Detected	---	3.94E-002
CE-144	Not Detected	---	1.69E-001
CO-56	Not Detected	---	2.78E-002
CO-57	Not Detected	---	2.02E-002
CO-58	Not Detected	---	2.72E-002
CO-60	Not Detected	---	2.64E-002
CR-51	Not Detected	---	1.98E-001
CS-134	Not Detected	---	5.18E-002
CS-137	2.07E-002	1.79E-002	2.80E-002
EU-152	Not Detected	---	6.01E-002
EU-154	Not Detected	---	1.58E-001
EU-155	Not Detected	---	8.87E-002
FE-59	Not Detected	---	6.06E-002
GD-153	Not Detected	---	6.12E-002
HG-203	Not Detected	---	2.61E-002
I-131	Not Detected	---	2.64E-002
IR-192	Not Detected	---	2.34E-002
K-40	9.55E+000	1.34E+000	2.43E-001
MN-52	Not Detected	---	2.80E-002
MN-54	Not Detected	---	2.85E-002
MO-99	Not Detected	---	2.65E-001
NA-22	Not Detected	---	3.40E-002
NA-24	Not Detected	---	9.57E-002
NB-95	Not Detected	---	1.40E-001
ND-147	Not Detected	---	1.73E-001
NI-57	Not Detected	---	5.18E-002
RU-103	Not Detected	---	2.34E-002
RU-106	Not Detected	---	2.34E-001
SB-122	Not Detected	---	4.13E-002
SB-124	Not Detected	---	2.73E-002
SB-125	Not Detected	---	7.16E-002
SN-113	Not Detected	---	3.21E-002
SR-85	Not Detected	---	2.94E-002
TA-182	Not Detected	---	1.44E-001
TA-183	Not Detected	---	9.49E-002
TL-201	Not Detected	---	8.16E-002
TL-204	Not Detected	---	3.65E+000
XE-133	Not Detected	---	9.21E-002
Y-88	Not Detected	---	2.48E-002
ZN-65	Not Detected	---	9.84E-002
ZR-95	Not Detected	---	4.84E-002

****
* Sandia National Laboratories *
* Radiation Protection Sample Diagnostics Program [806 Laboratory] *
* 12/21/99 12:43:06 PM *
****
*
* Analyzed by: 12/21/99 Reviewed by: 12/21/99 *
****

Customer : P.FRESHOUR (6133)
Customer Sample ID : 50788-004
Lab Sample ID : 90264803

Sample Description : SOIL IN MARINELLI BEAKER
Sample Quantity : 714.000 gram
Sample Date/Time : 12/20/99 1:06:00 PM
Acquire Start Date/Time : 12/21/99 11:02:52 AM
Detector Name : LAB04
Elapsed Live/Real Time : 6000 / 6003 seconds

Comments:
****

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
U-238	1.01E+000	5.30E-001	3.72E-001
RA-226	Not Detected	---	4.10E-001
PB-214	8.15E-001	9.95E-001	3.61E-002
BI-214	7.40E-001	3.30E-001	1.33E-001
PB-210	Not Detected	---	7.68E+000
TH-232	4.73E-001	2.83E-001	1.24E-001
RA-228	4.56E-001	2.20E-001	1.19E-001
AC-228	5.16E-001	1.63E-001	6.63E-002
TH-228	4.45E-001	1.74E-001	3.85E-001
RA-224	4.57E-001	1.67E-001	5.44E-002
PB-212	5.24E-001	3.15E-001	3.17E-002
BI-212	7.78E-001	3.79E-001	2.47E-001
TL-208	4.33E-001	3.75E-001	5.13E-002
U-235	Not Detected	---	1.73E-001
TH-231	Not Detected	---	8.21E+000
PA-231	Not Detected	---	1.11E+000
TH-227	Not Detected	---	2.72E-001
RA-223	Not Detected	---	1.41E-001
RN-219	Not Detected	---	3.04E-001
PB-211	Not Detected	---	7.05E-001
TL-207	Not Detected	---	1.07E+001
AM-241	Not Detected	---	1.85E-001
PU-239	Not Detected	---	3.02E+002
NP-237	Not Detected	---	1.73E+000
PA-233	Not Detected	---	4.80E-002
TH-229	Not Detected	---	1.76E-001

[Summary Report] - Sample ID: : 90264803

Nuclide Name	Activity (pCi/gram)	2-sigma Error	MDA (pCi/gram)
AG-108m	Not Detected	---------	3.16E-002
AG-110m	Not Detected	---------	2.58E-002
BA-133	Not Detected	---------	5.81E-002
BE-7	Not Detected	---------	1.89E-001
CD-115	Not Detected	---------	6.89E-002
CE-139	Not Detected	---------	2.27E-002
CE-141	Not Detected	---------	3.82E-002
CE-144	Not Detected	---------	1.66E-001
CO-56	Not Detected	---------	2.34E-002
CO-57	Not Detected	---------	2.13E-002
CO-58	Not Detected	---------	2.51E-002
CO-60	Not Detected	---------	2.68E-002
CR-51	Not Detected	---------	1.86E-001
CS-134	Not Detected	---------	4.69E-002
CS-137	2.87E-002	1.20E-002	1.53E-002
EU-152	Not Detected	---------	6.41E-002
EU-154	Not Detected	---------	1.45E-001
EU-155	Not Detected	---------	1.03E-001
FE-59	Not Detected	---------	5.04E-002
GD-153	Not Detected	---------	7.30E-002
HG-203	Not Detected	---------	2.41E-002
I-131	Not Detected	---------	2.36E-002
IR-192	Not Detected	---------	2.23E-002
K-40	9.33E+000	1.48E+000	1.99E-001
MN-52	Not Detected	---------	2.78E-002
MN-54	Not Detected	---------	2.74E-002
MO-99	Not Detected	---------	2.24E-001
NA-22	Not Detected	---------	3.13E-002
NA-24	Not Detected	---------	7.15E-002
NB-95	Not Detected	---------	1.49E-001
ND-147	Not Detected	---------	1.67E-001
NI-57	Not Detected	---------	6.44E-002
RU-103	Not Detected	---------	2.27E-002
RU-106	Not Detected	---------	2.14E-001
SB-122	Not Detected	---------	3.85E-002
SB-124	Not Detected	---------	2.37E-002
SB-125	Not Detected	---------	6.58E-002
SN-113	Not Detected	---------	3.02E-002
SR-85	Not Detected	---------	2.81E-002
TA-182	Not Detected	---------	1.28E-001
TA-183	Not Detected	---------	1.79E-001
TL-201	Not Detected	---------	1.19E-001
XE-133	Not Detected	---------	1.34E-001
Y-88	Not Detected	---------	2.10E-002
ZN-65	Not Detected	---------	8.92E-002
ZR-95	Not Detected	---------	4.33E-002

Sandia National Laboratories

Radiation Protection Sample Diagnostics Program [806 Laboratory]

12/21/99 2:26:59 PM

Analyzed by: 12/21/99 Reviewed by: 12/21/99

Customer : P.FRESHOUR (6133)
Customer Sample ID : 50791-004
Lab Sample ID : 90264804

Sample Description : WATER IN MARINELLI BEAKER
Sample Quantity : 429.000 mL
Sample Date/Time : 12/20/99 2:45:00 PM
Acquire Start Date/Time : 12/21/99 12:46:50 PM
Detector Name : LAB04
Elapsed Live/Real Time : 6000 / 6001 seconds

Comments:

Nuclide Name	Activity (pCi/mL)	2-sigma Error	MDA (pCi/mL)
U-238	Not Detected	---------	3.46E-001
RA-226	Not Detected	---------	4.19E-001
PB-214	Not Detected	---------	5.33E-002
BI-214	Not Detected	---------	5.30E-002
PB-210	Not Detected	---------	4.47E+000
TH-232	Not Detected	---------	1.41E-001
RA-228	Not Detected	---------	1.43E-001
AC-228	Not Detected	---------	7.67E-002
TH-228	Not Detected	---------	4.27E-001
RA-224	Not Detected	---------	1.03E-001
PB-212	Not Detected	---------	3.55E-002
BI-212	Not Detected	---------	2.70E-001
TL-208	Not Detected	---------	6.47E-002
U-235	Not Detected	---------	1.35E-001
TH-231	Not Detected	---------	4.95E+000
PA-231	Not Detected	---------	9.35E-001
TH-227	Not Detected	---------	1.34E-001
RA-223	Not Detected	---------	8.56E-002
RN-219	Not Detected	---------	2.43E-001
PB-211	Not Detected	---------	5.41E-001
TL-207	Not Detected	---------	8.30E+000
AM-241	Not Detected	---------	1.08E-001
PU-239	Not Detected	---------	2.29E+002
NP-237	Not Detected	---------	1.29E+000
PA-233	Not Detected	---------	4.11E-002
TH-229	Not Detected	---------	1.30E-001

[Summary Report] - Sample ID: : 90264804

Nuclide Name	Activity (pCi/mL)	2-sigma Error	MDA (pCi/mL)
AG-108m	Not Detected	---	2.01E-002
AG-110m	Not Detected	---	1.90E-002
BA-133	Not Detected	---	3.25E-002
BE-7	Not Detected	---	1.52E-001
CD-115	Not Detected	---	4.72E-002
CE-139	Not Detected	---	1.70E-002
CE-141	Not Detected	---	2.97E-002
CE-144	Not Detected	---	1.30E-001
CO-56	Not Detected	---	2.02E-002
CO-57	Not Detected	---	1.71E-002
CO-58	Not Detected	---	2.09E-002
CO-60	Not Detected	---	2.25E-002
CR-51	Not Detected	---	1.64E-001
CS-134	Not Detected	---	2.45E-002
CS-137	Not Detected	---	1.91E-002
EU-152	Not Detected	---	5.14E-002
EU-154	Not Detected	---	9.30E-002
EU-155	Not Detected	---	7.55E-002
FE-59	Not Detected	---	3.54E-002
GD-153	Not Detected	---	5.43E-002
HG-203	Not Detected	---	1.96E-002
I-131	Not Detected	---	2.10E-002
IR-192	Not Detected	---	1.96E-002
K-40	Not Detected	---	2.75E-001
MN-52	Not Detected	---	2.77E-002
MN-54	Not Detected	---	1.90E-002
MO-99	Not Detected	---	1.94E-001
NA-22	Not Detected	---	2.32E-002
NA-24	Not Detected	---	5.11E-002
NB-95	Not Detected	---	7.44E-002
ND-147	Not Detected	---	1.55E-001
NI-57	Not Detected	---	4.57E-002
RU-103	Not Detected	---	2.09E-002
RU-106	Not Detected	---	1.83E-001
SB-122	Not Detected	---	3.04E-002
SB-124	Not Detected	---	2.01E-002
SB-125	Not Detected	---	5.96E-002
SN-113	Not Detected	---	2.56E-002
SR-85	Not Detected	---	2.84E-002
TA-182	Not Detected	---	7.05E-002
TA-183	Not Detected	---	1.05E-001
TL-201	Not Detected	---	7.47E-002
XE-133	Not Detected	---	7.52E-002
Y-88	Not Detected	---	2.46E-002
ZN-65	Not Detected	---	4.48E-002
ZR-95	Not Detected	---	3.22E-002

~~WA~~ WR-55

Internal Lab

ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of

Batch No. | SAR/WR No. | SMO Use

AR/COC **603004**

Dept. No./Mail Stop:	6133/1088	Date Samples Shipped:	12-21-99	Contract No.:	AJ-1480A
Project/Task Manage	P Freshour	Carrier/Waybill No.	728088	Project/Case No.	17304.01
Project Name:	White Rock Investigation	Lab Contact:	E Kent 843-556-8171	SMO Authorization:	
Record Center Code:	N/A	Lab Destination:	GEL	Bill To: Sandia National Laboratories	
Logbook Ref. No.:	N/A	SMO Contact/Phone:	D Salmi 844-3110	Supplier Services Dept.:	
Service Order No.	CF0028'57	Send Report to SMO:	S Jensen 844-3184	P.O. Box 5800 MS 0154	
Location	Tech Area				
Building	Room	**Reference LOV(available at SMO)**			

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Beginning Depth/ft.	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserve All@4C	Collection Method	Sample Type	Parameter & Method Requested	Lab Use Lab Sample ID
50792-001	WR-SS-1	surface	N/A	12-17-99 1250	S	AG	4oz	4C	GR	SA	VOC (8260)	
50792-002	WR-SS-1	surface	N/A	12-17-99 1255	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	
50792-003	WR-SS-1	surface	N/A	12-17-99 1253	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	
50793-001	WR-SS-1-DU	surface	N/A	12-17-99 1259	S	AG	4oz	4C	GR	DU	VOC (8260)	
50793-002	WR-SS-1-DU	surface	N/A	12-17-99 1300	S	AG	16oz	4C	GR	DU	TAL metals +U + SVOC(8270)	
50793-003	WR-SS-1-DU	surface	N/A	12-17-99 1301	S	AG	16oz	4C	GR	DU	ISO U + Gamma Spec 901.1	
50794-001	WR-SS-2	surface	N/A	12-17-99 1309	S	AG	4oz	4C	GR	SA	VOC (8260)	
50794-002	WR-SS-2	surface	N/A	12-17-99 1311	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	
50794-003	WR-SS-2	surface	N/A	12-17-99 1310	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	
50795-001	WR-SS-3	surface	N/A	12-17-99 1320	S	G	4oz	4C	GR	SA	VOC (8260)	

RMMA ☐ Yes ☒ No Ref. No.

Sample Disposal ☒ Return to Client ☐ Disposal by lab

Turnaround Time 15 days Normal ☒ Rush

Required Report Date

Sample Tracking | SMO Use

Date Entered(mm/dd/yy)

Entered by:

QC Info

Special Instructions/QC Requirements

EDD ☒ Yes ☐ No

Raw Data Package ☒ Yes ☐ No

Tal metals+U=EPA 6010/7000 series

Uranium isotopes Epa 90

*Send report to Grace Haggerty(505)284-2545

15 day turn

cc 603005 releases this COC

Please list as separate report.

Abnormal Conditions of Receipt | Use

Sample Team Members	Name	Signature	Init	Company/Organization/Phone
	Margaret Sanchez	Margaret Sanchez	MS	Weston/6118/845-3267
	G Haggerty			Gram/6133/284-2545
	Chris Catechis	Ch. Catechis	CC	MDM/6118/845-3267

1.Relinquished by	Ch. Catechis	Org.	6118	Date	12/20/99	Time	1005	4.Relinquished by	Org.	Date	Time
1. Received by	SMO	Org.	7135	Date	12-20-99	Time	1005	4. Received by	Org.	Date	Time
2.Relinquished by	SMO	Org.	7138	Date	12-21-99	Time	1000	5.Relinquished by	Org.	Date	Time
2. Received by		Org.		Date		Time		5. Received by	Org.	Date	Time
3.Relinquished by		Org.		Date		Time		6.Relinquished by	Org.	Date	Time
3. Received by		Org.		Date		Time		6. Received by	Org.	Date	Time

Analysis Request And Chain Of Custody (Continuation)

AR/COC- 603004

Project Name:		Project/Task Manger:		Case No.:								
Location	Tech Area			Reference LOV (available at SMO)								Lab use
Building	Room								Sample			Lab
Sample No-Fraction	ER Sample ID or Sample Location detail	Depth in Ft	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preser-vative	Collection Methods	Sample Type	Parameter & Method Requested	Sample ID
50795-002	WR-SS-3	surface	N/A	12-17-99 1322	S	AG	16oz	4C	GR	SA	TAL metals+U+SVOC	
50795-003	WR-SS-3	surface	N/A	12-17-99 1325	S	AG	16oz	4C	GR	SA	ISO U+ Gamma Spec	
50796-001	WR-SS-4	surface	N/A	12-17-99 1500	S	AG	4oz	4C	GR	SA	VOC	
50796-002	WR-SS-4	surface	N/A	12-17-99 1501	S	AG	16oz	4C	GR	SA	TAL metals+U+SVOC	
50796-003	WR-SS-4	surface	N/A	12-17-99 1505	S	AG	16oz	4C	GR	SA	ISO U+ Gamma Spec	
50797-001	WR-SS-5	surface	N/A	12-17-99 1440	S	AG	4oz	4C	GR	SA	VOC	
50797-002	WR-SS-5	surface	N/A	12-17-99 1445	S	AG	16oz	4C	GR	SA	TAL metals+U+SVOC	
50797-003	WR-SS-5	surface	N/A	12-17-99 1441	S	AG	16oz	4C	GR	SA	ISO U+ Gamma Spec	
50798-005	WR-SS-TB	surface	N/A	12-17-99 1250	DIW	G	3X40ml	HCl	GR	TB	VOC	
50799-006	WR-SS-R	surface	N/A	12-17-99 1535	DIW	G	3X40ml	HCl	GR	EB	VOC	
50799-007	WR-SS-R	surface	N/A	12-17-99 1538	DIW	AG	2x1L	4C	GR	EB	SVOC	
50799-008	WR-SS-R	surface	N/A	12-17-99 1539	DIW	P	500ml	HNO_3	GR	EB	RCRA met + U	

Shipping Code: G | Control No.: [redacted]

SHIPPER

SF 6961-AE# (8-98)
Supersedes (1-98) issue

Sandia National Laboratories
1515 Eubank SE
Albuquerque, NM 87123

Blocks with RED letters are required.
Press F1 for instructions for each field.
NOTE: If text entered wraps, the form could print on second page.

(1) FROM:
☒ New Mexico
☐ California
☐ Other

Before Filling Out Form Call 845-0068 for Document Number | (2) Document No. 728088

(3) SHIP TO:

General Engineering Laboratories
Attn: Edie Kent Tel: 843-556-8171
2040 Savage Rd.
Charleston, SC 29414

Contract#: AJ-2480A

COC #: 603004

(10) RMA # (if applicable) N/A

(4) Date Prepared:	(5) Highest Material Security Classification:	(6) Page 1 of 1
12-21-99	UNC	

(7) Nuclear Explosive-Like Assembly (NELA)?	(8) Date to be returned:
☐ Yes ☒ No	☒ No Return

(9) Date Due at Destination	☒ Firm: (CA only-see instructions or press F1 for PTA justification)
12-22-99	☐ Flex: (Most economical transportation)

(11a) Form Filled Out By (Name)	(11b) Phone:	(12) Case No:	(13) Freight Billing: Sandia Pays ☒ Consignee Pays ☐ If Consignee Pays, Carrier & acct. no.
Robert P. Rivera, 7578	505-284-6982	10204 1.2	

(14a) Requester Name:	(14b) Org:	(14c) MS:	(14d) Phone:	(14e) SSN:
Same	7135	1042	505-845-0868	375-84-5982

Pickup Location: (15a) Bldg:	(15b) Room:	New Sandia Location (if applicable) (16a) Site Code:	(16b) Bldg:	(16c) Room:	(16d) Org:
N/A	N/A	N/A	N/A	N/A	N/A

(17) Reason for Shipment: (must select one):	(18) Authority Number:	(19) DOE Transportation Safeguards Dept. Courier Required?
Analysis/Testing	N/A	☐ Yes ☒ No

(20) Item No.	(21) Sec. Class.	(22) Qty	(23) Unit	(24) Haz. Mat'l	(25) Property Tag No. and/or MID No.	(26) Description	(27) Unit Value	Total $
1	UNC	2	EA	N	N/A	Environmental Solid/Liquid	$0.00	$0.00
						Samples		$0.00
						Last Item		$0.00
container #1: 4.0 ft³ @ 34 lbs COC 603004								$0.00
								$0.00
container #2: 3.0 ft³ @ 40 lbs								$0.00
								$0.00
								$0.00
								$0.00
						SANDIA SHIPPING ONLY: Please		$0.00
						FAX a copy of this Shipper to SMO		$0.00
						at 844-4976. Thanks!		$0.00
						Grand Total		$0.00

(28) Type or print approval name: R. P. Rivera, 7135

Authorizing Signature: [signature]
Manager or delegated authority

I certify that the material being offered for shipment is non hazardous unless noted as hazardous in block 24 and required information is being provided.

(29) Special Approval (International):
Signature Org.

(30) Special Approval (Service Clerk, DOE):
Signature Org.

(31) Recipients's Signature/Co.
Signature/Co. Date

(32) Contracting or GFP Rep.
Signature Date

Received in Shipping: [redacted] Date: 12/21 Time: 1055

Shipping & Service Clerk: [redacted]

Property Management Rep: [redacted]

The listed material and accompanying information have been examined and the hazardous material, destination, and all preparations for shipment are certified correct.
Hazardous Material Consultant: [redacted]

Date Shipped 6/8 Handcarried: [redacted]

Routing: FEDERAL EXPRESS CORP

B/B: 4615 8065 4562
4615 6055 4673

No. of Pkgs: 2

Weight: [redacted]

Dimensions: 10 x 10 x 10 / 9 x 5 x 3

Packed by: [redacted]

Internal Lab

ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 2

Batch No. | SAR/WR No. | SMO Use

AR/COC **603003**

Dept. No./Mail Stop:	6133/1088	[redacted]		Contract No.:	AJ-1480A
Project/Task Manager:	P Freshour	[redacted]		Project/Case No.	17304.01
Project Name:	White Rock Investigation	Lab Contact:	E Kent 843-556-8171	SMO Authorization:	
Record Center Code:	N/A	Lab Destination:	GEL	Bill To: Sandia National Laboratories	
Logbook Ref. No.:	N/A	SMO Contact/Phone:	D Salmi 844-3110	Supplier Services Dept.:	
Service Order No.	CF0028 57	Send Report to SMO:	S Jensen 844-3184	P.O. Box 5800 MS 0154	
Location	Tech Area				
Building	Room	**Reference LOV(available at SMO)**			

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Beginning Depth/ft	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserve All@4C	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID
50787-001	WR-DW2-1	5ft	N/A	12/20/99 1115	S	AG	2x4oz	4C	GR	SA+MS/MSD	VOC (8260)	
50787-002	WR-DW2-1	5ft	N/A	12/20/00 1117	S	AG	16oz	4C	GR	SA+MS/MSD	TAL metals +U + SVOC(8270)	
50787-003	WR-DW2-1	5ft	N/A	12/20/99 1118	S	AG	16oz	4C	GR	SA+MS/MSD	ISO U + Gamma Spec 901.1	
50788-001	WR-DW2-2	9ft	N/A	12/20/99 1305	S	~~AG~~	4oz	4C	GR	SA	VOC (8260)	
50788-002	WR-DW2-2	13ft	N/A	12/20/99 1306	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	
50788-003	WR-DW2-2	13ft	N/A	12/20/99 1315	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	
50789-001	WR-DW2-3	9ft	N/A	12/20/99 1342	S	~~AG~~	4oz	4C	GR	SA	VOC (8260)	
50789-002	WR-DW2-3	9ft	N/A	12/20/99 1420	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	
50789-003	WR-DW2-3	9ft	N/A	12/20/99 1425	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	
50790-005	WR-DW2-TB	9ft	N/A	12/20/99 1115	DIW	G	3x40 ml	HCl	GR	TB	VOC (8260)	

Lab Use

RMMA ☐ Yes ☒ No Ref. No.

Sample Disposal ☐ Return to Client ☒ Disposal by lab

Turnaround Time 15 day ☐ Normal ☒ Rush

Required Report Date [redacted]

Special Instructions/QC Requirements

EDD ☒ Yes ☐ No

Raw Data Package ☒ Yes ☐ No

Cleared by 603006

15 DAY TURN

*Send report to Grace Haggerty(505)284-2545.

*Tal metals+U =EPA 6010/7000 Series

*Uranium Isotopes EPA 90.

Please list as separate report.

Sample Team Members	Name	Signature	Init	Company/Organization/Phone
	Margaret Sanchez	M Sanchez	MLS	Weston/6118/845-3267
	Grace Haggerty	G Haggerty	GHO	Gram/6133/284-2545

1.Relinquished by	M Sanchez	Org. 6118	Date 12/21/99	Time 1645	4.Relinquished by		Org.	Date	Time
1. Received by	[illegible]	Org. 7135	Date 12/21/99	Time 1645	4. Received by		Org.	Date	Time
2.Relinquished by	[illegible]	Org. 7135	Date 12/22/99	Time 1030	5.Relinquished by		Org.	Date	Time
2. Received by		Org.	Date	Time	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

Analysis Request And Chain Of Custody (Continuation)

AR/COC- 603003

Project Name:		Project/Task Manger:		Case No.: 17324. 01								
Location	Tech Area			Reference LOV (available at SMO)								Lab use
Building	Room											
Sample No- Fraction	ER Sample ID or Sample Location detail	Depth in Ft	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preser-vative	Sample Collection Methods	Sample Type	Parameter & Method Requested	Lab Sample ID
50791-006	WR-DW2-R	N/A	N/A	12/20/99 1450	DIW	G	3x40ml	HCL	GR	EB	VOC (8260)	
50791-007	WR-DW2-R	N/A	N/A	12/20/99 1448	DIW	AG	2x1L	4C	GR	EB	SVOC (8270)	
50791-008	WR-DW2-R	N/A	N/A	12/20/99 1447	DIW	P	500ml	HNO3	GR	EB	RCRA Met + U	

Sandia National Laboratories
Radiation Protection Sample Diagnostics

Sample Analysis Request Form
Page of

To be completed by Customer

Shaded area are for RPSD use only

Customer: P. Freshour
Organization: 6133
Project Location: White Rock
Phone: 284-2545
Date Results Needed: 12/22/99
Suspect Isotopes: Gamma
Case number: 17304.01

Hazards/ Special Instructions:

COC 603006
Rush

Batch Log Number: 90264
Logged By:
Analysis Type:
- [X] Gamma Spec
- [ ] H-3
- [ ] Alpha/ Beta
- [ ] Alpha Spec
- [ ] Total U
- [ ] Other

Customer Sample ID	Sample Type	Date/Time Collection	Sample Quantity	Requested Analysis	RPSD Sample ID	Screen cpm	Sample Mass	Remarks / Aliquot Amount			
0783-004	S	12/20/99 1524	16oz	Gamma Spec	01	<300	560g	LAB05			
0787-004	S	12/20/99 1120	16oz	Gamma Spec	02		750g	LAB05			
0788-004	S	12/20/99 1306	16oz	Gamma Spec	03		714g	LAB04			
0791-004	DWI	12/20/99 1445	16oz	Gamma Spec	04		420ml	LAB04			
LCS LAB5					05						
LCS LAB4					06						

Relinquished by	Date		Received by	Date	12/20/99
Relinquished by	Date	12/21/99	Received by	Date	12/21/99
Relinquished by	Date		Received by	Date	
Relinquished by	Date		Received by	Date	
Relinquished by	Date		Received by	Date	

CASE NARRATIVE
For
Sandia National Laboratories
ARCOC-603002
9901451A
ARCOC-603003
9901451B
ARCOC-603004
9901451C
Case No. 17304.01

January 28, 1999

Laboratory Identification:

General Engineering Laboratories, Inc.

Mailing Address:

P.O. Box 30712
Charleston, South Carolina 29417

Express Mail Delivery and Shipping Address:

2040 Savage Road
Charleston, South Carolina 29407

Telephone Number:

(843) 556-8171

Summary:

Sample receipt

Thirty-six soil and nine aqueous samples were collected by Sandia on December 17 and 20, 1999. The samples arrived at General Engineering Laboratories, Inc., (GEL) Charleston, South Carolina on December 22 and 23, 1999 for Environmental Analysis. Cooler clearance (screening, temperature check, etc.) was done upon login. The cooler arrived without any visible signs of tampering or breakage and with custody seals intact. The samples were delivered with chain of custody documentation and signatures.

The samples were received and collected as listed in the table below:

ARCOC	SDG#	#of samples	Collection Date	Date Rec'd by Lab
603002	9901451A	10	12/20/99	12/23/99
603003	9901451B	13	12/20/99	12/23/99
603004	9901451C	22	12/17/99	12/22/99

The temperature of all samples from ARCOC-603002, ARCOC-603003 and ARCOC-603004 was 4°C. The samples were screened according to GEL Standard Operating Procedures (SOP) EPI SOP S-007 rev. 2 "The Receiving of Radioactive Samples." The samples were stored properly according to SW-846 procedures and GEL SOP.

The following samples were received by the laboratory:

Laboratory ID	Description
603002:	
9901451-026	50783-001 WR-DW1-1
9901451-032	50783-002 WR-DW1-1
9901451-038	50783-003 WR-DW1-1
9901451-027	50784-001 WR-DW1-2
9901451-033	50784-002 WR-DW1-2
9901451-039	50784-003 WR-DW1-2
9901451-028	50785-001 WR-DW1-3
9901451-034	50785-002 WR-DW1-3
9901451-040	50785-003 WR-DW1-3
9901642-007	50786-005 WR-DW1-TB
603003:	
9901451-023	50787-001 WR-DW2-1
9901451-029	50787-002 WR-DW2-1
9901451-035	50787-003 WR-DW2-1
9901451-024	50788-001 WR-DW2-2
9901451-030	50788-002 WR-DW2-2
9901451-036	50788-003 WR-DW2-2
9901451-025	50789-001 WR-DW2-3
9901451-031	50789-002 WR-DW2-3
9901451-037	50789-003 WR-DW2-3
9901642-005	50790-005 WR-DW2-TB
9901642-006	50791-006 WR-DW2-R
9901642-008	50791-007 WR-DW2-R
9901642-009	50791-008 WR-DW2-R
603004:	
9901451-001	50792-001 WR-SS-1
9901451-007	50792-002 WR-SS-1
9901451-013	50792-003 WR-SS-1
9901451-002	50793-001 WR-SS-1-DU
9901451-008	50793-002 WR-SS-1-DU
9901451-014	50793-003 WR-SS-1-DU
9901451-003	50794-001 WR-SS-2
9901451-009	50794-002 WR-SS-2
9901451-015	50794-003 WR-SS-2
9901451-004	50795-001 WR-SS-3
9901451-010	50795-002 WR-SS-3
9901451-016	50795-003 WR-SS-3
9901451-005	50796-001 WR-SS-4
9901451-011	50796-002 WR-SS-4

Laboratory ID	Description
9901451-017	50796-003 WR-SS-4
9901451-006	50797-001 WR-SS-5
9901451-012	50797-002 WR-SS-5
9901451-018	50797-003 WR-SS-5
9901642-001	50798-005 WR-SS-TB
9901642-002	50799-006 WR-SS-R
9901642-003	50799-007 WR-SS-R
9901642-004	50799-008 WR-SS-R

Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Internal Chain of Custody:

Custody was maintained for all samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Qualifier Flag and Data Package Definitions, Sample Data, QC Summary and Raw Data.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Edith M. Kent

Edith M. Kent

Project Manager

fc:snls9901451

GENERAL ENGINEERING LABORATORIES
PO Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(803) 556-8171 • Fax (803) 766-1178

Table Of Contents Part 1

GENERAL NARRATIVE

AR/COC

6 Part-1

Internal Lab

ANALYSIS REQUEST AND CHAIN OF CUSTODY

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AR/COC 603002

Batch No. SAR/WR No. SMO Use

Dept. No./Mail Stop:	6133/1088			Contract No.:	AJ-1480A
Project/Task Manager:	P Freshour			Project/Case No.	17304.01
Project Name:	White Rock Investigation	Lab Contact:	E Kent 843-556-8171	SMO Authorization:	
Record Center Code:	N/A	Lab Destination:	GEL	Bill To: Sandia National Laboratories	
Logbook Ref. No.:	N/A	SMO Contact/Phone:	D Salmi 844-3110	Supplier Services Dept.:	
Service Order No.	CF0026	Send Report to SMO:	S Jensen 844-3184	P.O. Box 5800 MS 0154	
Location	Tech Area				
Building	Room				

9901451

Reference LOV(available at SMO)

Sample No.-Fraction	ER Sample ID or Sample Location Detail	Beginning Depth/ft.	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserve All@4C	Collection Method	Sample Type	Parameter & Method Requested	Lab Use Lab Sample ID
50783-001	WR-DW1-1	9ft	N/A	12/20/99 1526	S	AG	4oz	4C	GR	SA	VOC (8260)	026
50783-002	WR-DW1-1	9ft	N/A	12/20/99 1525	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	032
50783-003	WR-DW1-1	9ft	N/A	12/20/99 1527	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	038
50784-001	WR-DW1-2	9ft	N/A	12/20/99 1600	S	AG	4oz	4C	GR	SA	VOC (8260)	027
50784-002	WR-DW1-2	9ft	N/A	12/20/99 1601	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	033
50784-003	WR-DW1-2	9ft	N/A	12/20/99 1602	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	039
50785-001	WR-DW1-3	9ft	N/A	12/20/99 1620	S	AG	4oz	4C	GR	SA	VOC (8260)	028
50785-002	WR-DW1-3	4ft	N/A	12/20/99 1620	S	AG	16oz	4C	GR	SA	TAL metals +U + SVOC(8270)	034
50785-003	WR-DW1-3	4ft	N/A	12/20/99 1621	S	AG	16oz	4C	GR	SA	ISO U + Gamma Spec 901.1	040
50786-005	WR-DW1-TB	4ft	N/A	12/20/99 1526	DIW	G	3x40 ml	HCl	GR	TB	VOC (8260)	9901642 005 043

RMMA ☐ Yes ☒ No Ref. No.

Sample Disposal ☐ Return to Client ☒ Disposal by lab

Turnaround Time 15 day ☐ Normal ☒ Rush

Required Report Date

Special Instructions/QC Requirements

EDD ☒ Yes ☐ No

Raw Data Package ☒ Yes ☐ No

cleared by 603006

*Send report to Grace Haggerty(505)284-2545.

*Tal metals+U =EPA 6010/7000 Series

*Uranium Isotopes EPA 90. 15 day turn

Please list as separate report.

	Name	Signature	Init	Company/Organization/Phone
Sample Team Members	Margaret Sanchez			Weston/6118/845-3267
	G Haggerty			Gram/6133/284-2545

1.Relinquished by	Margaret Sanchez	Org. 6118	Date 12-21-99	Time 1035	4.Relinquished by		Org.	Date	Time
1. Received by		Org. 7135	Date 12/21/99	Time 1035	4. Received by		Org.	Date	Time
2.Relinquished by		Org. 7135	Date 12/22/99	Time 1030	5.Relinquished by		Org.	Date	Time
2. Received by	Patricia Houser	Org. GEL	Date 12-23-99	Time 11:00	5. Received by		Org.	Date	Time
3.Relinquished by		Org.	Date	Time	6.Relinquished by		Org.	Date	Time
3. Received by		Org.	Date	Time	6. Received by		Org.	Date	Time

INORGANICS SAMPLE DATA

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-002
Sample ID: 9901451007
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7471 Cold Vapor Hg in Solid										
Mercury		0.0386	0.0152	0.0333	mg/kg	1	RMJ	01/04/00	1139	5343
Metals Analysis-ICP Federal										
6010 TAL Metals Soil Federal										
Aluminum		12600	0.615	4.85	mg/kg	2	KAR	12/30/99	2359	4552
Antimony	U	ND	0.0815	0.971	mg/kg	2				
Arsenic		3.87	0.131	0.485	mg/kg	2				
Barium		219	0.0465	0.485	mg/kg	2				
Beryllium		0.849	0.0311	0.485	mg/kg	2				
Cadmium		0.627	0.0382	0.485	mg/kg	2				
Chromium		9.68	0.0645	0.485	mg/kg	2				
Cobalt		5.34	0.0555	0.485	mg/kg	2				
Iron		11300	1.14	4.85	mg/kg	2				
Lead		10.6	0.099	0.485	mg/kg	2				
Magnesium		4020	0.184	1.94	mg/kg	2				
Manganese		259	0.0885	0.971	mg/kg	2				
Nickel		9.97	0.072	0.485	mg/kg	2				
Potassium		2240	2.3	9.71	mg/kg	2				
Selenium	U	ND	0.146	0.485	mg/kg	2				
Silver	U	ND	0.101	0.485	mg/kg	2				
Sodium		128	0.306	9.71	mg/kg	2				
Thallium	U	ND	0.205	0.971	mg/kg	2				
Vanadium		20.7	0.074	0.485	mg/kg	2				
Zinc		35.2	0.138	0.485	mg/kg	2				
Calcium		64200	1.73	0.1	mg/kg	5	KAR	12/31/99	1818	4552
Copper		10.9	0.1	0.005	mg/kg	5				
Metals Analysis-ICPMS Federal										
3050S/6020 Uranium Federal										
Uranium		5.21	0.0009	0.0414	mg/kg	2	JSS	12/30/99	0540	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-002
Sample ID: 9901451007

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-002
Sample ID: 9901451007

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edith Kent
Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50793-002
Sample ID: 9901451008
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Mercury Analysis Federal									
7471 Cold Vapor Hg in Solid									
Mercury	J	0.018	0.0152	0.033	mg/kg	1	RMJ 01/04/00	1140	5343
Metals Analysis-ICP Federal									
6010 TAL Metals Soil Federal									
Aluminum		12000	0.615	4.63	mg/kg	2	KAR 12/31/99	0023	4552
Antimony	U	ND	0.0815	0.926	mg/kg	2			
Arsenic		3.48	0.131	0.463	mg/kg	2			
Barium		280	0.0465	0.463	mg/kg	2			
Beryllium		0.781	0.0311	0.463	mg/kg	2			
Cadmium		0.563	0.0382	0.463	mg/kg	2			
Chromium		9.15	0.0645	0.463	mg/kg	2			
Cobalt		5.07	0.0555	0.463	mg/kg	2			
Iron		10700	1.14	4.63	mg/kg	2			
Lead		9.29	0.099	0.463	mg/kg	2			
Magnesium		3780	0.184	1.85	mg/kg	2			
Manganese		255	0.0885	0.926	mg/kg	2			
Nickel		9.23	0.072	0.463	mg/kg	2			
Potassium		2120	2.3	9.26	mg/kg	2			
Selenium	U	ND	0.146	0.463	mg/kg	2			
Silver	U	ND	0.101	0.463	mg/kg	2			
Sodium		151	0.306	9.26	mg/kg	2			
Thallium	U	ND	0.205	0.926	mg/kg	2			
Vanadium		19.8	0.074	0.463	mg/kg	2			
Zinc		31	0.138	0.463	mg/kg	2			
Calcium		83900	1.73	0.1	mg/kg	5	KAR 12/31/99	1848	4552
Copper		12.4	0.1	0.005	mg/kg	5			
Metals Analysis-ICPMS Federal									
3050S/6020 Uranium Federal									
Uranium		4.55	0.0009	0.0417	mg/kg	2	ISS 12/30/99	0547	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 2, 2000

Client Sample ID: 50793-002 Project: SNLS00396
Sample ID: 9901451008 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50793-002
Sample ID: 9901451008

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-002
Sample ID: 9901451009
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Mercury Analysis Federal									
7471 Cold Vapor Hg in Solid									
Mercury		0.0334	0.0152	0.0319	mg/kg	1	RMJ 01/04/00	1142	5343
Metals Analysis-ICP Federal									
6010 TAL Metals Soil Federal									
Aluminum		12400	0.615	4.95	mg/kg	2	KAR 12/31/99	0029	4552
Antimony	U	ND	0.0815	0.99	mg/kg	2			
Arsenic		3.82	0.131	0.495	mg/kg	2			
Barium		209	0.0465	0.495	mg/kg	2			
Beryllium		0.779	0.0311	0.495	mg/kg	2			
Cadmium		0.574	0.0382	0.495	mg/kg	2			
Chromium		9.63	0.0645	0.495	mg/kg	2			
Cobalt		5.23	0.0555	0.495	mg/kg	2			
Iron		11400	1.14	4.95	mg/kg	2			
Lead		9.85	0.099	0.495	mg/kg	2			
Magnesium		4180	0.184	1.98	mg/kg	2			
Manganese		259	0.0885	0.99	mg/kg	2			
Nickel		9.73	0.072	0.495	mg/kg	2			
Potassium		2130	2.3	9.9	mg/kg	2			
Selenium	U	ND	0.146	0.495	mg/kg	2			
Silver	U	ND	0.101	0.495	mg/kg	2			
Sodium		111	0.306	9.9	mg/kg	2			
Thallium	U	ND	0.205	0.99	mg/kg	2			
Vanadium		20.8	0.074	0.495	mg/kg	2			
Zinc		31.6	0.138	0.495	mg/kg	2			
Calcium		63200	1.73	0.1	mg/kg	5	KAR 12/31/99	1854	4552
Copper		10.2	0.1	0.005	mg/kg	5			
Metals Analysis-ICPMS Federal									
3050S/6020 Uranium Federal									
Uranium		0.834	0.0009	0.0002	mg/kg	2	JSS 12/30/99	0609	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 2, 2000

Client Sample ID: 50794-002
Sample ID: 9901451009

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-002
Sample ID: 9901451009

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-002
Sample ID: 9901451010
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7471 Cold Vapor Hg in Solid										
Mercury	J	0.0198	0.0152	0.0331	mg/kg	1	RMJ	01/04/00	1147	5343
Metals Analysis-ICP Federal										
6010 TAL Metals Soil Federal										
Aluminum		10900	0.615	4.72	mg/kg	2	KAR	12/31/99	0035	4552
Antimony	U	ND	0.0815	0.943	mg/kg	2				
Arsenic		3.78	0.131	0.472	mg/kg	2				
Barium		224	0.0465	0.472	mg/kg	2				
Beryllium		0.66	0.0311	0.472	mg/kg	2				
Cadmium		0.512	0.0382	0.472	mg/kg	2				
Chromium		8	0.0645	0.472	mg/kg	2				
Cobalt		4.4	0.0555	0.472	mg/kg	2				
Iron		9100	1.14	4.72	mg/kg	2				
Lead		8.37	0.099	0.472	mg/kg	2				
Magnesium		4200	0.184	1.89	mg/kg	2				
Manganese		189	0.0885	0.943	mg/kg	2				
Nickel		8.71	0.072	0.472	mg/kg	2				
Potassium		1790	2.3	9.43	mg/kg	2				
Selenium	U	ND	0.146	0.472	mg/kg	2				
Silver	U	ND	0.101	0.472	mg/kg	2				
Sodium		111	0.306	9.43	mg/kg	2				
Thallium	U	ND	0.205	0.943	mg/kg	2				
Vanadium		17.5	0.074	0.472	mg/kg	2				
Zinc		26.9	0.138	0.472	mg/kg	2				
Calcium		93400	1.73	47.2	mg/kg	10	JLS	01/18/00	1815	4552
Copper		10.6	0.1	2.36	mg/kg	10				
Metals Analysis-ICPMS Federal										
3050S/6020 Uranium Federal										
Uranium		3.25	0.0009	0.0415	mg/kg	2	JSS	12/30/99	0616	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-002
Sample ID: 9901451010

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-002
Sample ID: 9901451010

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-002
Sample ID: 9901451011
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Mercury Analysis Federal									
7471 Cold Vapor Hg in Solid									
Mercury	U	ND	0.0152	0.0343	mg/kg	1	RMJ 01/04/00	1149	5343
Metals Analysis-ICP Federal									
6010 TAL Metals Soil Federal									
Aluminum		10800	0.615	4.95	mg/kg	2	KAR 12/31/99	0053	4552
Antimony	U	ND	0.0815	0.99	mg/kg	2			
Arsenic		3.28	0.131	0.495	mg/kg	2			
Barium		140	0.0465	0.495	mg/kg	2			
Beryllium		0.785	0.0311	0.495	mg/kg	2			
Cadmium		0.507	0.0382	0.495	mg/kg	2			
Calcium		12700	1.73	9.9	mg/kg	2			
Chromium		9.75	0.0645	0.495	mg/kg	2			
Cobalt		5.77	0.0555	0.495	mg/kg	2			
Iron		12600	1.14	4.95	mg/kg	2			
Lead		10.5	0.099	0.495	mg/kg	2			
Magnesium		3250	0.184	1.98	mg/kg	2			
Manganese		302	0.0885	0.99	mg/kg	2			
Nickel		10.4	0.072	0.495	mg/kg	2			
Potassium		1860	2.3	9.9	mg/kg	2			
Selenium	U	ND	0.146	0.495	mg/kg	2			
Silver	U	ND	0.101	0.495	mg/kg	2			
Sodium		89.7	0.306	9.9	mg/kg	2			
Thallium	U	ND	0.205	0.99	mg/kg	2			
Vanadium		19.9	0.074	0.495	mg/kg	2			
Zinc		31.6	0.138	0.495	mg/kg	2			
Copper		10.6	0.1	0.495	mg/kg	2	KAR 12/31/99	1738	4552
Metals Analysis-ICPMS Federal									
3050S/6020 Uranium Federal									
Uranium		0.448	0.0009	0.0424	mg/kg	2	JSS 12/30/99	0624	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-002
Sample ID: 9901451011

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-002
Sample ID: 9901451011

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent
Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-002
Sample ID: 9901451012
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7471 Cold Vapor Hg in Solid										
Mercury		0.0321	0.0152	0.0277	mg/kg	1	RMJ	01/04/00	1151	5343
Metals Analysis-ICP Federal										
6010 TAL Metals Soil Federal										
Aluminum		9440	0.615	4.85	mg/kg	2	KAR	12/31/99	0059	4552
Antimony	U	ND	0.0815	0.971	mg/kg	2				
Arsenic		2.5	0.131	0.485	mg/kg	2				
Barium		138	0.0465	0.485	mg/kg	2				
Beryllium		0.66	0.0311	0.485	mg/kg	2				
Cadmium		0.521	0.0382	0.485	mg/kg	2				
Calcium		18800	1.73	9.71	mg/kg	2				
Chromium		8.59	0.0645	0.485	mg/kg	2				
Cobalt		4.18	0.0555	0.485	mg/kg	2				
Iron		10300	1.14	4.85	mg/kg	2				
Lead		11.3	0.099	0.485	mg/kg	2				
Magnesium		2900	0.184	1.94	mg/kg	2				
Manganese		251	0.0885	0.971	mg/kg	2				
Nickel		8.03	0.072	0.485	mg/kg	2				
Potassium		1830	2.3	9.71	mg/kg	2				
Selenium	U	ND	0.146	0.485	mg/kg	2				
Silver	U	ND	0.101	0.485	mg/kg	2				
Sodium		73	0.306	9.71	mg/kg	2				
Thallium	U	ND	0.205	0.971	mg/kg	2				
Vanadium		17	0.074	0.485	mg/kg	2				
Zinc		30.3	0.138	0.485	mg/kg	2				
Copper		21.6	0.1	1.21	mg/kg	5	KAR	12/31/99	1901	4552
Metals Analysis-ICPMS Federal										
3050S/6020 Uranium Federal										
Uranium		0.482	0.0009	0.0413	mg/kg	2	JSS	12/30/99	0631	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-002
Sample ID: 9901451012

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-002
Sample ID: 9901451012

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-002
Sample ID: 9901451029
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7471 Cold Vapor Hg in Solid										
Mercury		0.0451	0.0152	0.0341	mg/kg	1	RMJ	01/04/00	1153	5343
Metals Analysis-ICP Federal										
6010 TAL Metals Soil Federal										
Aluminum		10000	0.615	5.56	mg/kg	2	KAR	01/09/00	1450	4976
Antimony	U	ND	0.0815	1.11	mg/kg	2				
Arsenic		4.58	0.131	0.556	mg/kg	2				
Barium		175	0.0465	0.556	mg/kg	2				
Beryllium	J	0.474	0.0311	0.556	mg/kg	2				
Cadmium	J	0.22	0.0382	0.556	mg/kg	2				
Chromium		7.01	0.0645	0.556	mg/kg	2				
Cobalt		4.35	0.0555	0.556	mg/kg	2				
Iron		8890	1.14	5.56	mg/kg	2				
Lead		5.15	0.099	0.556	mg/kg	2				
Magnesium		15800	0.184	2.23	mg/kg	2				
Manganese		160	0.0885	1.11	mg/kg	2				
Nickel		11	0.072	0.556	mg/kg	2				
Potassium		1600	2.3	11.1	mg/kg	2				
Selenium	J	0.446	0.146	0.556	mg/kg	2				
Silver	U	ND	0.101	0.556	mg/kg	2				
Sodium		704	0.306	11.1	mg/kg	2				
Thallium		1.49	0.205	1.11	mg/kg	2				
Vanadium		19.6	0.074	0.556	mg/kg	2				
Calcium		99500	1.73	0.1	mg/kg	100	KAR	01/10/00	2011	4976
Copper	U	ND	0.1	25	mg/kg	100				
Zinc		35.9	0.138	25	mg/kg	100				
Metals Analysis-ICPMS Federal										
3050S/6020 Uranium Federal										
Uranium		0.648	0.0009	0.0438	mg/kg	2	JSS	12/30/99	0510	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 2, 2000

Client Sample ID: 50787-002 Project: SNLS00396
Sample ID: 9901451029 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-002
Sample ID: 9901451029

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-002
Sample ID: 9901451030
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Mercury Analysis Federal									
7471 Cold Vapor Hg in Solid									
Mercury		0.206	0.0152	0.0336	mg/kg	1	RMJ 01/04/00	1158	5343
Metals Analysis-ICP Federal									
6010 TAL Metals Soil Federal									
Aluminum		10200	0.615	4.99	mg/kg	2	KAR 01/09/00	1514	4976
Antimony	U	ND	0.0815	0.999	mg/kg	2			
Arsenic		2.04	0.131	0.499	mg/kg	2			
Barium		88.8	0.0465	0.499	mg/kg	2			
Beryllium	J	0.154	0.0311	0.499	mg/kg	2			
Cadmium	J	0.34	0.0382	0.499	mg/kg	2			
Calcium		28300	1.73	9.99	mg/kg	2			
Chromium		8.05	0.0645	0.499	mg/kg	2			
Cobalt		18.3	0.0555	0.499	mg/kg	2			
Iron		29900	1.14	4.99	mg/kg	2			
Lead		6.44	0.099	0.499	mg/kg	2			
Magnesium		17100	0.184	2	mg/kg	2			
Manganese		392	0.0885	0.999	mg/kg	2			
Nickel		46.1	0.072	0.499	mg/kg	2			
Potassium		565	2.3	9.99	mg/kg	2			
Selenium		1.39	0.146	0.499	mg/kg	2			
Silver	U	ND	0.101	0.499	mg/kg	2			
Sodium		2080	0.306	9.99	mg/kg	2			
Thallium		2.92	0.205	0.999	mg/kg	2			
Vanadium		45	0.074	0.499	mg/kg	2			
Copper		41.6	0.1	24	mg/kg	100	KAR 01/10/00	2033	4976
Zinc		63.7	0.138	24	mg/kg	100			
Metals Analysis-ICPMS Federal									
3050S/6020 Uranium Federal									
Uranium		0.39	0.0009	0.0411	mg/kg	2	JSS 12/30/99	0639	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 2, 2000

Client Sample ID: 50788-002
Sample ID: 9901451030

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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H Holding time was exceeded

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The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-002
Sample ID: 9901451030

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-002
Sample ID: 9901451031
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7471 Cold Vapor Hg in Solid										
Mercury		0.167	0.0152	0.0336	mg/kg	1	RMJ	01/04/00	1200	5343
Metals Analysis-ICP Federal										
6010 TAL Metals Soil Federal										
Aluminum		11000	0.615	5.41	mg/kg	2	KAR	01/09/00	1520	4976
Antimony	U	ND	0.0815	1.08	mg/kg	2				
Arsenic		3.93	0.131	0.541	mg/kg	2				
Barium		184	0.0465	0.541	mg/kg	2				
Beryllium	J	0.463	0.0311	0.541	mg/kg	2				
Cadmium		9.34	0.0382	0.541	mg/kg	2				
Chromium		17.6	0.0645	0.541	mg/kg	2				
Cobalt		5.2	0.0555	0.541	mg/kg	2				
Iron		10500	1.14	5.41	mg/kg	2				
Lead		6.7	0.099	0.541	mg/kg	2				
Magnesium		13600	0.184	2.16	mg/kg	2				
Manganese		176	0.0885	1.08	mg/kg	2				
Nickel		14.6	0.072	0.541	mg/kg	2				
Potassium		1400	2.3	10.8	mg/kg	2				
Selenium		0.895	0.146	0.541	mg/kg	2				
Silver	U	ND	0.101	0.541	mg/kg	2				
Sodium		585	0.306	10.8	mg/kg	2				
Thallium	J	0.915	0.205	1.08	mg/kg	2				
Vanadium		21.5	0.074	0.541	mg/kg	2				
Calcium		74100	1.73	500	mg/kg	100	KAR	01/10/00	2038	4976
Copper	J	11.2	0.1	25	mg/kg	100				
Zinc		41.9	0.138	25	mg/kg	100				
Metals Analysis-ICPMS Federal										
3050S/6020 Uranium Federal										
Uranium		1.9	0.0009	0.0428	mg/kg	2	JSS	12/30/99	0646	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-002
Sample ID: 9901451031

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
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P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-002
Sample ID: 9901451031

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50783-002
Sample ID: 9901451032
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7471 Cold Vapor Hg in Solid										
Mercury	U	ND	0.0152	0.032	mg/kg	1	RMJ	01/04/00	1201	5343
Metals Analysis-ICP Federal										
6010 TAL Metals Soil Federal										
Aluminum		9290	0.615	5.39	mg/kg	2	KAR	01/09/00	1526	4976
Antimony	U	ND	0.0815	1.08	mg/kg	2				
Arsenic		2.75	0.131	0.539	mg/kg	2				
Barium		229	0.0465	0.539	mg/kg	2				
Beryllium	J	0.349	0.0311	0.539	mg/kg	2				
Cadmium	J	0.24	0.0382	0.539	mg/kg	2				
Chromium		8.58	0.0645	0.539	mg/kg	2				
Cobalt		9.8	0.0555	0.539	mg/kg	2				
Iron		16100	1.14	5.39	mg/kg	2				
Lead		4.71	0.099	0.539	mg/kg	2				
Magnesium		9790	0.184	2.16	mg/kg	2				
Manganese		259	0.0885	1.08	mg/kg	2				
Nickel		24.5	0.072	0.539	mg/kg	2				
Potassium		1310	2.3	10.8	mg/kg	2				
Selenium		0.684	0.146	0.539	mg/kg	2				
Silver	U	ND	0.101	0.539	mg/kg	2				
Sodium		722	0.306	10.8	mg/kg	2				
Thallium		2.04	0.205	1.08	mg/kg	2				
Vanadium		25.6	0.074	0.539	mg/kg	2				
Calcium		59300	1.73	500	mg/kg	100	KAR	01/10/00	2044	4976
Copper	J	19.2	0.1	25	mg/kg	100				
Zinc		46.6	0.138	25	mg/kg	100				
Metals Analysis-ICPMS Federal										
3050S/6020 Uranium Federal										
Uranium		0.835	0.0009	0.0432	mg/kg	2	JSS	12/30/99	0654	4978

Certificate of Analysis

Company : Sandia National Laboratories
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P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50783-002
Sample ID: 9901451032

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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H Holding time was exceeded

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Certificate of Analysis

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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50783-002
Sample ID: 9901451032

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch

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Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-002
Sample ID: 9901451033
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7471 Cold Vapor Hg in Solid										
Mercury	J	0.0199	0.0152	0.0318	mg/kg	1	RMJ	01/04/00	1203	5343
Metals Analysis-ICP Federal										
6010 TAL Metals Soil Federal										
Aluminum		10300	0.615	5.62	mg/kg	2	KAR	01/09/00	1545	4976
Antimony	U	ND	0.0815	1.12	mg/kg	2				
Arsenic		3.97	0.131	0.562	mg/kg	2				
Barium		359	0.0465	0.562	mg/kg	2				
Beryllium	J	0.458	0.0311	0.562	mg/kg	2				
Cadmium	J	0.298	0.0382	0.562	mg/kg	2				
Chromium		8.13	0.0645	0.562	mg/kg	2				
Cobalt		7.29	0.0555	0.562	mg/kg	2				
Iron		10400	1.14	5.62	mg/kg	2				
Lead		5.22	0.099	0.562	mg/kg	2				
Magnesium		9380	0.184	2.25	mg/kg	2				
Manganese		227	0.0885	1.12	mg/kg	2				
Nickel		17.9	0.072	0.562	mg/kg	2				
Potassium		1640	2.3	11.2	mg/kg	2				
Selenium	J	0.363	0.146	0.562	mg/kg	2				
Silver	U	ND	0.101	0.562	mg/kg	2				
Sodium		751	0.306	11.2	mg/kg	2				
Thallium		1.46	0.205	1.12	mg/kg	2				
Vanadium		18.2	0.074	0.562	mg/kg	2				
Calcium		104000	1.73	500	mg/kg	100	KAR	01/10/00	2100	4976
Copper	J	11.3	0.1	25	mg/kg	100				
Zinc		44.8	0.138	25	mg/kg	100				
Metals Analysis-ICPMS Federal										
3050S/6020 Uranium Federal										
Uranium		1.22	0.0009	0.0444	mg/kg	2	JSS	12/30/99	0701	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-002
Sample ID: 9901451033

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

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Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-002
Sample ID: 9901451033

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent
Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-002
Sample ID: 9901451034
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7471 Cold Vapor Hg in Solid										
Mercury		0.0475	0.0152	0.0324	mg/kg	1	RMJ	01/04/00	1208	5343
Metals Analysis-ICP Federal										
6010 TAL Metals Soil Federal										
Aluminum		3960	0.615	5.19	mg/kg	2	KAR	01/09/00	1551	4976
Antimony	U	ND	0.0815	1.04	mg/kg	2				
Arsenic		5.85	0.131	0.519	mg/kg	2				
Barium		736	0.0465	0.519	mg/kg	2				
Beryllium	J	0.187	0.0311	0.519	mg/kg	2				
Cadmium	J	0.151	0.0382	0.519	mg/kg	2				
Chromium		2.61	0.0645	0.519	mg/kg	2				
Cobalt		3.57	0.0555	0.519	mg/kg	2				
Iron		3350	1.14	5.19	mg/kg	2				
Lead		1.64	0.099	0.519	mg/kg	2				
Magnesium		10100	0.184	2.08	mg/kg	2				
Manganese		55.1	0.0885	1.04	mg/kg	2				
Nickel		10.5	0.072	0.519	mg/kg	2				
Potassium		590	2.3	10.4	mg/kg	2				
Selenium	U	ND	0.146	0.519	mg/kg	2				
Silver	U	ND	0.101	0.519	mg/kg	2				
Sodium		760	0.306	10.4	mg/kg	2				
Thallium		1.46	0.205	1.04	mg/kg	2				
Vanadium		11.7	0.074	0.519	mg/kg	2				
Calcium		233000	1.73	472	mg/kg	100	KAR	01/10/00	2106	4976
Copper	U	ND	0.1	23.6	mg/kg	100				
Zinc		24.2	0.138	23.6	mg/kg	100				
Metals Analysis-ICPMS Federal										
3050S/6020 Uranium Federal										
Uranium		1.35	0.0009	0.044	mg/kg	2	JSS	12/30/99	0708	4978

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-002
Sample ID: 9901451034

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Certificate of Analysis

Company : Sandia National Laboratories
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P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-002
Sample ID: 9901451034

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

Reviewed by

RADIOCHEMISTRY SAMPLE DATA

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-003
Sample ID: 9901451013
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch
Rad Alpha Spec										
Alphaspec U, solid										
Uranium-233/234		0.984	+/-0.165	0.0223	0.0272	pCi/g	1	NVN 01/10/00	2008	5436
Uranium-235/236		0.0844	+/-0.0422	0.0103	0.0218	pCi/g	1			
Uranium-238		2.77	+/-0.353	0.0132	0.0247	pCi/g	1			
Rad Gamma Spec										
Gammaspec, Gamma, solid										
Actinium-228		1.1	+/-0.255	0.0496	0.128	pCi/g	1	EJB 01/06/00	0954	5459
Americium-241	U	-0.0276	+/-0.163	0.0564	0.251	pCi/g	1			
Cerium-144	U	-0.0386	+/-0.115	0.0538	0.205	pCi/g	1			
Cesium-134	U	-0.0151	+/-0.0185	0.00964	0.0314	pCi/g	1			
Cesium-137		0.115	+/-0.0482	0.00997	0.0458	pCi/g	1			
Chromium-51	U	-0.0156	+/-0.25	0.116	0.431	pCi/g	1			
Cobalt-60	U	0.00286	+/-0.0203	0.0112	0.0384	pCi/g	1			
Iron-59	U	0.0112	+/-0.057	0.0218	0.101	pCi/g	1			
Lead-212		1.08	+/-0.144	0.0206	0.0682	pCi/g	1			
Lead-214		1.08	+/-0.169	0.0262	0.0681	pCi/g	1			
Potassium-40		16	+/-2.09	0.195	0.366	pCi/g	1			
Radium-226	EAP Y	0.933	+/-0.147	0.027	0.0674	pCi/g	1			
Radium-228		1.1	+/-0.255	0.0496	0.128	pCi/g	1			
Ruthenium-103	U	0.00552	+/-0.0233	0.0124	0.0431	pCi/g	1			
Ruthenium-106	U	0.0702	+/-0.186	0.105	0.341	pCi/g	1			
Thorium-231	U	0	+/-0.159	0.0517	0.221	pCi/g	1			
Thorium-232	Y	1.06	+/-0.141	0.0202	0.0669	pCi/g	1			
Thorium-234	Y	2.56	+/-1.97	0.557	1.89	pCi/g	1			
Uranium-235	U	0.164	+/-0.177	0.055	0.215	pCi/g	1			
Uranium-238	Y	2.56	+/-1.97	0.557	1.89	pCi/g	1			
Yttrium-88	U	-0.000302	+/-0.0207	0.0101	0.0389	pCi/g	1			
Zirconium-95	U	0.0219	+/-0.0441	0.018	0.0811	pCi/g	1			

Certificate of Analysis

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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-003
Sample ID: 9901451013

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Certificate of Analysis

Company : Sandia National Laboratories
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-003
Sample ID: 9901451013

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50793-003
Sample ID: 9901451014
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch
Rad Alpha Spec										
Alphaspec U, solid										
Uranium-233/234		0.874	+/-0.144	0.018	0.0204	pCi/g	1	NVN 01/10/00	2008	5436
Uranium-235/236		0.0458	+/-0.0278	0.0052	0.0153	pCi/g	1			
Uranium-238		1.9	+/-0.251	0.00733	0.0174	pCi/g	1			
Rad Gamma Spec										
Gammaspec, Gamma, solid										
Actinium-228	J	0.993	+/-0.238	0.0545	0.188	pCi/g	1	EJB 01/06/00	0955	5459
Americium-241	U	0	+/-0.0364	0.0245	0.0568	pCi/g	1			
Cerium-144	U	-0.0633	+/-0.113	0.0517	0.186	pCi/g	1			
Cesium-134	U	0.00386	+/-0.0247	0.0104	0.0379	pCi/g	1			
Cesium-137	J	0.0855	+/-0.053	0.0109	0.0476	pCi/g	1			
Chromium-51	J	0.462	+/-0.362	0.117	0.459	pCi/g	1			
Cobalt-60	U	-0.0358	+/-0.0274	0.0122	0.0431	pCi/g	1			
Iron-59	U	0.0595	+/-0.0737	0.0239	0.117	pCi/g	1			
Lead-212	J	0.947	+/-0.14	0.0204	0.0564	pCi/g	1			
Lead-214		1.17	+/-0.181	0.0267	0.0731	pCi/g	1			
Potassium-40		13	+/-1.65	0.213	0.401	pCi/g	1			
Radium-226		1.09	+/-0.194	0.0293	0.0737	pCi/g	1			
Radium-228	J	0.993	+/-0.238	0.0545	0.188	pCi/g	1			
Ruthenium-103	U	0.000963	+/-0.0287	0.0132	0.0497	pCi/g	1			
Ruthenium-106	U	-0.00561	+/-0.202	0.114	0.37	pCi/g	1			
Thorium-231	U	0	+/-0.207	0.0515	0.221	pCi/g	1			
Thorium-232	J	0.928	+/-0.138	0.02	0.0552	pCi/g	1			
Thorium-234	J	2.91	+/-0.76	0.281	0.536	pCi/g	1			
Uranium-235	U	0.148	+/-0.212	0.0532	0.217	pCi/g	1			
Uranium-238	J	2.91	+/-0.76	0.281	0.536	pCi/g	1			
Yttrium-88	U	-0.0033	+/-0.0313	0.0113	0.0497	pCi/g	1			
Zirconium-95	U	0.0317	+/-0.0499	0.0197	0.0942	pCi/g	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50793-003
Sample ID: 9901451014

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Certificate of Analysis

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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50793-003
Sample ID: 9901451014

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-003
Sample ID: 9901451015
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch
Rad Alpha Spec										
Alphaspec U, solid										
Uranium-233/234		0.751	+/-0.134	0.0175	0.0192	pCi/g	1	NVN 01/10/00	2008	5436
Uranium-235/236		0.031	+/-0.0262	0.0081	0.0192	pCi/g	1			
Uranium-238		0.837	+/-0.144	0.00808	0.0192	pCi/g	1			
Rad Gamma Spec										
Gammaspec, Gamma, solid										
Actinium-228	J	0.994	+/-0.237	0.0501	0.132	pCi/g	1	EJB 01/06/00	0955	5459
Americium-241	U	-0.0996	+/-0.135	0.0479	0.198	pCi/g	1			
Cerium-144	U	-0.0355	+/-0.108	0.052	0.191	pCi/g	1			
Cesium-134	U	-0.103	+/-0.0262	0.00966	0.0319	pCi/g	1			
Cesium-137		0.117	+/-0.033	0.01	0.0354	pCi/g	1			
Chromium-51	U	-0.0532	+/-0.229	0.113	0.389	pCi/g	1			
Cobalt-60	U	-0.0179	+/-0.0212	0.0113	0.0353	pCi/g	1			
Iron-59	U	0.00183	+/-0.055	0.0221	0.0962	pCi/g	1			
Lead-212		1.01	+/-0.13	0.02	0.0539	pCi/g	1			
Lead-214		1.11	+/-0.173	0.0257	0.0663	pCi/g	1			
Potassium-40		14.8	+/-1.86	0.197	0.303	pCi/g	1			
Radium-226	J	0.944	+/-0.147	0.0271	0.0672	pCi/g	1			
Radium-228	J	0.994	+/-0.237	0.0501	0.132	pCi/g	1			
Ruthenium-103	U	0.0146	+/-0.0246	0.0123	0.0459	pCi/g	1			
Ruthenium-106	U	0.0186	+/-0.167	0.105	0.303	pCi/g	1			
Thorium-231	U	0	+/-0.174	0.0502	0.204	pCi/g	1			
Thorium-232	J	0.988	+/-0.127	0.0195	0.0528	pCi/g	1			
Thorium-234	J	1.61	+/-1.72	0.49	1.56	pCi/g	1			
Uranium-235	U	0.13	+/-0.177	0.0532	0.206	pCi/g	1			
Uranium-238	J	1.61	+/-1.72	0.49	1.56	pCi/g	1			
Yttrium-88	U	-0.00269	+/-0.0228	0.0102	0.0415	pCi/g	1			
Zirconium-95	U	0.00562	+/-0.0422	0.0181	0.0756	pCi/g	1			

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Company : Sandia National Laboratories
Address : MS-1042
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-003
Sample ID: 9901451015

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-003
Sample ID: 9901451015

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-003
Sample ID: 9901451016
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec											
Alphaspec U, solid											
Uranium-233/234		0.974	+/-0.16	0.0176	0.0194	pCi/g	1	NVN	01/10/00	2008	5436
Uranium-235/236		0.0468	+/-0.0297	0.00579	0.017	pCi/g	1				
Uranium-238		1.49	+/-0.216	0.00577	0.017	pCi/g	1				
Rad Gamma Spec											
Gammaspec, Gamma, solid											
Actinium-228		0.845	+/-0.225	0.0529	0.131	pCi/g	1	EJB	01/06/00	0956	5459
Americium-241	U	0.0304	+/-0.157	0.0521	0.212	pCi/g	1				
Cerium-144	U	-0.104	+/-0.114	0.0543	0.192	pCi/g	1				
Cesium-134	U	0.00553	+/-0.0221	0.0102	0.0358	pCi/g	1				
Cesium-137	U	0.0359	+/-0.0493	0.0106	0.042	pCi/g	1				
Chromium-51	U	-0.0506	+/-0.247	0.118	0.418	pCi/g	1				
Cobalt-60	U	-0.00754	+/-0.0214	0.012	0.0383	pCi/g	1				
Iron-59	U	0.00884	+/-0.059	0.0232	0.105	pCi/g	1				
Lead-212		0.846	+/-0.121	0.0209	0.0581	pCi/g	1				
Lead-214		1.12	+/-0.177	0.027	0.0714	pCi/g	1				
Potassium-40		11.9	+/-1.7	0.208	0.392	pCi/g	1				
Radium-226		0.962	+/-0.156	0.0286	0.0757	pCi/g	1				
Radium-228		0.845	+/-0.225	0.0529	0.131	pCi/g	1				
Ruthenium-103	U	-0.00552	+/-0.0249	0.013	0.0445	pCi/g	1				
Ruthenium-106	U	-0.078	+/-0.19	0.111	0.331	pCi/g	1				
Thorium-231	U	0	+/-0.181	0.0526	0.21	pCi/g	1				
Thorium-232		0.829	+/-0.119	0.0204	0.057	pCi/g	1				
Thorium-234		3.25	+/-1.99	0.54	1.62	pCi/g	1				
Uranium-235	U	0.0421	+/-0.119	0.0555	0.213	pCi/g	1				
Uranium-238		3.25	+/-1.99	0.54	1.62	pCi/g	1				
Yttrium-88	U	0.00106	+/-0.0223	0.0109	0.0429	pCi/g	1				
Zirconium-95	U	-0.00189	+/-0.0421	0.0191	0.0751	pCi/g	1				

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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-003
Sample ID: 9901451016

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:

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H Holding time was exceeded

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Certificate of Analysis

Company : Sandia National Laboratories
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-003
Sample ID: 9901451016

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-003
Sample ID: 9901451017
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch
Rad Alpha Spec										
Alphaspec U, solid										
Uranium-233/234		0.725	+/-0.128	0.0176	0.0197	pCi/g	1	NVN 01/10/00	2008	5436
Uranium-235/236		0.0203	+/-0.0198	0.00537	0.0158	pCi/g	1			
Uranium-238		0.705	+/-0.126	0.00758	0.018	pCi/g	1			
Rad Gamma Spec										
Gammaspec, Gamma, solid										
Actinium-228		1.25	+/-0.306	0.0491	0.126	pCi/g	1	EJB 01/06/00	0957	5459
Americium-241	U	-0.0734	+/-0.127	0.0475	0.204	pCi/g	1			
Cerium-144	U	-0.103	+/-0.115	0.0514	0.195	pCi/g	1			
Cesium-134	U	0.00318	+/-0.0208	0.00941	0.0329	pCi/g	1			
Cesium-137		0.15	+/-0.0516	0.00977	0.0365	pCi/g	1			
Chromium-51	U	-0.00565	+/-0.246	0.11	0.418	pCi/g	1			
Cobalt-60	U	-0.0075	+/-0.0225	0.0112	0.0399	pCi/g	1			
Iron-59	U	0.0136	+/-0.0568	0.0217	0.1	pCi/g	1			
Lead-212		1.37	+/-0.163	0.0196	0.0582	pCi/g	1			
Lead-214		1.17	+/-0.173	0.0251	0.0695	pCi/g	1			
Potassium-40		19.9	+/-2.47	0.194	0.372	pCi/g	1			
Radium-226		1.05	+/-0.168	0.0264	0.0651	pCi/g	1			
Radium-228		1.25	+/-0.306	0.0491	0.126	pCi/g	1			
Ruthenium-103	U	0.0115	+/-0.0262	0.012	0.045	pCi/g	1			
Ruthenium-106	U	-0.127	+/-0.182	0.103	0.308	pCi/g	1			
Thorium-231	U	0	+/-0.212	0.0493	0.226	pCi/g	1			
Thorium-232	U	1.34	+/-0.16	0.0192	0.057	pCi/g	1			
Thorium-234	U	0.869	+/-1.53	0.48	1.58	pCi/g	1			
Uranium-235	U	0.0845	+/-0.153	0.0525	0.218	pCi/g	1			
Uranium-238	U	0.869	+/-1.53	0.48	1.58	pCi/g	1			
Yttrium-88	U	-0.00117	+/-0.021	0.01	0.0388	pCi/g	1			
Zirconium-95	U	-0.0138	+/-0.044	0.0177	0.0757	pCi/g	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi

Project: Doug Salmi Raw Data Package

Report Date: February 2, 2000

Client Sample ID: 50796-003 Project: SNLS00396
Sample ID: 9901451017 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:

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J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-003
Sample ID: 9901451017

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-003
Sample ID: 9901451018
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch
Rad Alpha Spec										
Alphaspec U, solid										
Uranium-233/234		0.689	+/-0.127	0.0183	0.0209	pCi/g	1	NVN 01/10/00	2008	5436
Uranium-235/236		0.0626	+/-0.0339	0.00572	0.0168	pCi/g	1			
Uranium-238		0.725	+/-0.131	0.00806	0.0191	pCi/g	1			
Rad Gamma Spec										
Gammaspec, Gamma, solid										
Actinium-228	J	0.939	+/-0.196	0.0425	0.107	pCi/g	1	EJB 01/06/00	0958	5459
Americium-241	U	0.0213	+/-0.0249	0.0189	0.044	pCi/g	1			
Cerium-144	U	-0.0108	+/-0.0776	0.0409	0.142	pCi/g	1			
Cesium-134	U	0.00713	+/-0.0167	0.00819	0.0279	pCi/g	1			
Cesium-137		0.457	+/-0.0741	0.00851	0.031	pCi/g	1			
Chromium-51	U	-0.0413	+/-0.179	0.0923	0.311	pCi/g	1			
Cobalt-60	U	-0.00579	+/-0.0183	0.00952	0.0329	pCi/g	1			
Iron-59	U	-0.046	+/-0.0454	0.0186	0.0708	pCi/g	1			
Lead-212	J	0.913	+/-0.138	0.0162	0.043	pCi/g	1			
Lead-214	J	0.841	+/-0.137	0.0211	0.0508	pCi/g	1			
Potassium-40		12.6	+/-1.42	0.166	0.272	pCi/g	1			
Radium-226	J	0.745	+/-0.126	0.023	0.0562	pCi/g	1			
Radium-228	J	0.939	+/-0.196	0.0425	0.107	pCi/g	1			
Ruthenium-103	U	-0.000575	+/-0.0192	0.0104	0.0354	pCi/g	1			
Ruthenium-106	U	-0.0167	+/-0.148	0.0894	0.267	pCi/g	1			
Thorium-231	U	0	+/-0.126	0.0409	0.166	pCi/g	1			
Thorium-232	J	0.896	+/-0.135	0.0159	0.0421	pCi/g	1			
Thorium-234	J	0.924	+/-0.512	0.217	0.411	pCi/g	1			
Uranium-235	U	0.064	+/-0.0847	0.0423	0.157	pCi/g	1			
Uranium-238	J	0.924	+/-0.512	0.217	0.411	pCi/g	1			
Yttrium-88	U	0.0083	+/-0.0133	0.00881	0.0296	pCi/g	1			
Zirconium-95	U	-0.0136	+/-0.0364	0.0154	0.0635	pCi/g	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 2, 2000

Client Sample ID: 50797-003
Sample ID: 9901451018

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch

Notes:

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H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-003
Sample ID: 9901451018

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-003
Sample ID: 9901451035
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec											
Alphaspec U, solid											
Uranium-233/234		1.11	+/-0.177	0.0158	0.0115	pCi/g	1	NVN	01/10/00	2016	5436
Uranium-235/236		0.0407	+/-0.0298	0.0084	0.0199	pCi/g	1				
Uranium-238		1.13	+/-0.179	0	0.0115	pCi/g	1				
Rad Gamma Spec											
Gammaspec, Gamma, solid											
Actinium-228		0.448	+/-0.186	0.0474	0.133	pCi/g	1	EJB	01/06/00	0959	5459
Americium-241	U	-0.0439	+/-0.0783	0.0383	0.128	pCi/g	1				
Cerium-144	U	0.0186	+/-0.0986	0.0485	0.178	pCi/g	1				
Cesium-134	U	-0.0781	+/-0.0234	0.00915	0.0301	pCi/g	1				
Cesium-137	U	0.0117	+/-0.0275	0.00951	0.038	pCi/g	1				
Chromium-51	U	-0.0512	+/-0.204	0.0994	0.343	pCi/g	1				
Cobalt-60	U	-0.00502	+/-0.0217	0.0107	0.0382	pCi/g	1				
Iron-59	U	-0.0618	+/-0.0537	0.0199	0.0863	pCi/g	1				
Lead-212		0.548	+/-0.0805	0.0189	0.0496	pCi/g	1				
Lead-214		1.08	+/-0.165	0.0243	0.0569	pCi/g	1				
Potassium-40		11.2	+/-1.41	0.186	0.293	pCi/g	1				
Radium-226		0.825	+/-0.133	0.0257	0.0647	pCi/g	1				
Radium-228		0.448	+/-0.186	0.0474	0.133	pCi/g	1				
Ruthenium-103	U	-0.00585	+/-0.0213	0.0111	0.0376	pCi/g	1				
Ruthenium-106	U	0.0112	+/-0.155	0.0995	0.277	pCi/g	1				
Thorium-231	U	0	+/-0.148	0.0476	0.182	pCi/g	1				
Thorium-232		0.539	+/-0.0791	0.0185	0.0488	pCi/g	1				
Thorium-234	U	0.491	+/-0.957	0.403	1.05	pCi/g	1				
Uranium-235	U	0.0642	+/-0.166	0.05	0.195	pCi/g	1				
Uranium-238	U	0.491	+/-0.957	0.403	1.05	pCi/g	1				
Yttrium-88	U	-0.0105	+/-0.0176	0.00953	0.0307	pCi/g	1				
Zirconium-95	U	-0.0108	+/-0.0354	0.0166	0.0606	pCi/g	1				

Certificate of Analysis

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Address : MS-1042
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-003
Sample ID: 9901451035

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
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H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
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Company : Sandia National Laboratories
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-003
Sample ID: 9901451035

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-003
Sample ID: 9901451036
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch
Rad Alpha Spec										
Alphaspec U, solid										
Uranium-233/234		0.395	+/-0.0887	0.0172	0.0184	pCi/g	1	NVN 01/10/00	2016	5436
Uranium-235/236		0.0258	+/-0.0238	0.00777	0.0184	pCi/g	1			
Uranium-238		0.467	+/-0.0972	0	0.0106	pCi/g	1			
Rad Gamma Spec										
Gammaspec, Gamma, solid										
Actinium-228	J	0.388	+/-0.124	0.0417	0.0833	pCi/g	1	EJB 01/06/00	1305	5459
Americium-241	U	-0.00213	+/-0.0588	0.0338	0.112	pCi/g	1			
Cerium-144	U	-0.0118	+/-0.0764	0.0421	0.139	pCi/g	1			
Cesium-134	U	-0.00247	+/-0.0145	0.00804	0.0228	pCi/g	1			
Cesium-137	U	0.0213	+/-0.0265	0.00836	0.027	pCi/g	1			
Chromium-51	U	-0.0555	+/-0.155	0.087	0.266	pCi/g	1			
Cobalt-60	U	0.0236	+/-0.0172	0.00941	0.0268	pCi/g	1			
Iron-59	U	-0.000667	+/-0.0357	0.0176	0.0671	pCi/g	1			
Lead-212	J	0.278	+/-0.0684	0.0164	0.0502	pCi/g	1			
Lead-214	J	0.32	+/-0.0687	0.0213	0.0498	pCi/g	1			
Potassium-40		7.04	+/-0.979	0.164	0.25	pCi/g	1			
Radium-226	J	0.295	+/-0.073	0.0226	0.0487	pCi/g	1			
Radium-228	J	0.388	+/-0.124	0.0417	0.0833	pCi/g	1			
Ruthenium-103	U	-0.000862	+/-0.0162	0.00978	0.03	pCi/g	1			
Ruthenium-106	U	0.0253	+/-0.12	0.0875	0.225	pCi/g	1			
Thorium-231	U	0.0518	+/-0.0748	0.0415	0.137	pCi/g	1			
Thorium-232	J	0.274	+/-0.0673	0.0161	0.0452	pCi/g	1			
Thorium-234	U	0.681	+/-0.899	0.353	0.88	pCi/g	1			
Uranium-235	U	0.085	+/-0.113	0.0435	0.138	pCi/g	1			
Uranium-238	U	0.681	+/-0.899	0.353	0.88	pCi/g	1			
Yttrium-88	U	0.00507	+/-0.0154	0.00835	0.0285	pCi/g	1			
Zirconium-95	U	-0.0263	+/-0.0282	0.0147	0.0459	pCi/g	1			

Certificate of Analysis

Company : Sandia National Laboratories
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Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 2, 2000

Client Sample ID: 50788-003 Project: SNLS00396
Sample ID: 9901451036 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
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* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-003
Sample ID: 9901451036

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-003
Sample ID: 9901451037
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch
Rad Alpha Spec										
Alphaspec U, solid										
Uranium-233/234		0.92	+/-0.162	0.02	0.0238	pCi/g	1	NVN 01/10/00	2016	5436
Uranium-235/236		0.0531	+/-0.0395	0.0146	0.0272	pCi/g	1			
Uranium-238		1.3	+/-0.205	0.00649	0.0191	pCi/g	1			
Rad Gamma Spec										
Gammaspec, Gamma, solid										
Actinium-228		0.734	+/-0.168	0.0441	0.125	pCi/g	1	EJB 01/06/00	1306	5459
Americium-241	U	0.0456	+/-0.0984	0.0394	0.14	pCi/g	1			
Cerium-144	U	-0.0374	+/-0.0912	0.0451	0.163	pCi/g	1			
Cesium-134	U	-0.00865	+/-0.0162	0.0085	0.0281	pCi/g	1			
Cesium-137		0.0656	+/-0.0279	0.00884	0.0348	pCi/g	1			
Chromium-51	U	0.00284	+/-0.187	0.0922	0.327	pCi/g	1			
Cobalt-60	U	-0.00929	+/-0.0201	0.00995	0.0352	pCi/g	1			
Iron-59	U	-0.0325	+/-0.048	0.0185	0.083	pCi/g	1			
Lead-212		0.593	+/-0.0838	0.0175	0.0456	pCi/g	1			
Lead-214		0.83	+/-0.131	0.0226	0.0527	pCi/g	1			
Potassium-40		12.5	+/-1.51	0.173	0.323	pCi/g	1			
Radium-226		0.662	+/-0.115	0.0239	0.0586	pCi/g	1			
Radium-228		0.734	+/-0.168	0.0441	0.125	pCi/g	1			
Ruthenium-103	U	-0.0176	+/-0.0194	0.0103	0.033	pCi/g	1			
Ruthenium-106	U	0.061	+/-0.152	0.0925	0.284	pCi/g	1			
Thorium-231	U	0	+/-0.18	0.0441	0.182	pCi/g	1			
Thorium-232		0.583	+/-0.0824	0.0172	0.0448	pCi/g	1			
Thorium-234		2.38	+/-1.33	0.41	1.09	pCi/g	1			
Uranium-235	U	0.0754	+/-0.155	0.0465	0.182	pCi/g	1			
Uranium-238		2.38	+/-1.33	0.41	1.09	pCi/g	1			
Yttrium-88	U	-0.00827	+/-0.0171	0.00884	0.0294	pCi/g	1			
Zirconium-95	U	0.0126	+/-0.0347	0.0155	0.0641	pCi/g	1			

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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-003
Sample ID: 9901451037

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:
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Certificate of Analysis

Company : Sandia National Laboratories
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-003
Sample ID: 9901451037

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50783-003	Project:	SNLS00396
Sample ID:	9901451038	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	20-DEC-99		
Receive Date:	23-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec											
Alphaspec U, solid											
Uranium-233/234		0.942	+/-0.162	0.0195	0.0228	pCi/g	1	NVN	01/10/00	2016	5436
Uranium-235/236		0.0637	+/-0.0357	0.00622	0.0183	pCi/g	1				
Uranium-238		1.02	+/-0.17	0.0062	0.0182	pCi/g	1				
Rad Gamma Spec											
Gammaspec, Gamma, solid											
Actinium-228		0.439	+/-0.177	0.0414	0.118	pCi/g	1	EJB	01/06/00	1319	5459
Americium-241	U	-0.0483	+/-0.0748	0.0318	0.0981	pCi/g	1				
Cerium-144	U	-0.0343	+/-0.0855	0.0413	0.153	pCi/g	1				
Cesium-134	U	0.0012	+/-0.0173	0.00795	0.0272	pCi/g	1				
Cesium-137	U	-0.00596	+/-0.0171	0.00828	0.0295	pCi/g	1				
Chromium-51	U	0.109	+/-0.171	0.0857	0.326	pCi/g	1				
Cobalt-60	U	0.00127	+/-0.0197	0.00935	0.0355	pCi/g	1				
Iron-59	U	0.0116	+/-0.0432	0.0174	0.08	pCi/g	1				
Lead-212		0.574	+/-0.0825	0.0162	0.0429	pCi/g	1				
Lead-214		0.734	+/-0.118	0.021	0.0557	pCi/g	1				
Potassium-40		9.7	+/-1.23	0.163	0.211	pCi/g	1				
Radium-226		0.575	+/-0.104	0.0223	0.0562	pCi/g	1				
Radium-228		0.439	+/-0.177	0.0414	0.118	pCi/g	1				
Ruthenium-103	U	-0.0119	+/-0.018	0.00965	0.0309	pCi/g	1				
Ruthenium-106	U	-0.0147	+/-0.148	0.0865	0.261	pCi/g	1				
Thorium-231	U	0	+/-0.125	0.041	0.16	pCi/g	1				
Thorium-232		0.565	+/-0.0811	0.0159	0.0422	pCi/g	1				
Thorium-234		1.38	+/-1.05	0.336	0.865	pCi/g	1				
Uranium-235	U	0.0196	+/-0.0909	0.0427	0.166	pCi/g	1				
Uranium-238		1.38	+/-1.05	0.336	0.865	pCi/g	1				
Yttrium-88	U	0.0014	+/-0.0165	0.00831	0.032	pCi/g	1				
Zirconium-95	U	0	+/-0.0474	0.0145	0.0666	pCi/g	1				

Certificate of Analysis

Company : Sandia National Laboratories
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P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50783-003
Sample ID: 9901451038

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50783-003
Sample ID: 9901451038

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-003
Sample ID: 9901451039
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch
Rad Alpha Spec										
Alphaspec U, solid										
Uranium-233/234		0.979	+/-0.184	0.0323	0.0418	pCi/g	1	NVN 01/11/00	1018	5436
Uranium-235/236		0.0584	+/-0.0402	0.0113	0.0264	pCi/g	1			
Uranium-238		1.03	+/-0.186	0.00917	0.0242	pCi/g	1			
Rad Gamma Spec										
Gammaspec, Gamma, solid										
Actinium-228	J	0.711	+/-0.193	0.0464	0.122	pCi/g	1	EJB 01/06/00	1321	5459
Americium-241	U	-0.0091	+/-0.112	0.0365	0.137	pCi/g	1			
Cerium-144	U	-0.102	+/-0.125	0.0477	0.204	pCi/g	1			
Cesium-134	U	0.027	+/-0.0252	0.00896	0.036	pCi/g	1			
Cesium-137	U	0.0296	+/-0.0214	0.00931	0.0337	pCi/g	1			
Chromium-51	U	-0.0345	+/-0.212	0.0981	0.37	pCi/g	1			
Cobalt-60	U	0.0199	+/-0.0165	0.0105	0.0402	pCi/g	1			
Iron-59	U	0.00884	+/-0.0547	0.0195	0.0969	pCi/g	1			
Lead-212	J	0.769	+/-0.105	0.0187	0.0535	pCi/g	1			
Lead-214	J	0.95	+/-0.148	0.024	0.0669	pCi/g	1			
Potassium-40		11	+/-1.38	0.183	0.319	pCi/g	1			
Radium-226	J	0.961	+/-0.138	0.0252	0.0608	pCi/g	1			
Radium-228	J	0.711	+/-0.193	0.0464	0.122	pCi/g	1			
Ruthenium-103	U	-0.00795	+/-0.0221	0.0109	0.0372	pCi/g	1			
Ruthenium-106	U	-0.0424	+/-0.166	0.0975	0.295	pCi/g	1			
Thorium-231	U	0	+/-0.18	0.0471	0.18	pCi/g	1			
Thorium-232	J	0.756	+/-0.104	0.0183	0.0526	pCi/g	1			
Thorium-234	J	1.6	+/-1.19	0.389	1.15	pCi/g	1			
Uranium-235	U	0.178	+/-0.21	0.0493	0.21	pCi/g	1			
Uranium-238	J	1.6	+/-1.19	0.389	1.15	pCi/g	1			
Yttrium-88	U	-0.00311	+/-0.0185	0.00933	0.034	pCi/g	1			
Zirconium-95	U	0.0176	+/-0.0444	0.0163	0.0718	pCi/g	1			

Certificate of Analysis

Company : Sandia National Laboratories
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-003
Sample ID: 9901451039

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

Notes:

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U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-003
Sample ID: 9901451039

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50785-003	Project:	SNLS00396
Sample ID:	9901451040	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	20-DEC-99		
Receive Date:	23-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec											
Alphaspec U, solid											
Uranium-233/234		1.84	+/-0.276	0.0223	0.028	pCi/g	1	NVN	01/11/00	1018	5436
Uranium-235/236		0.0633	+/-0.0394	0.00873	0.023	pCi/g	1				
Uranium-238		1.54	+/-0.241	0.0087	0.023	pCi/g	1				
Rad Gamma Spec											
Gammaspec, Gamma, solid											
Actinium-228		0.267	+/-0.178	0.0587	0.159	pCi/g	1	EJB	01/06/00	1418	5459
Americium-241	U	0.0284	+/-0.0313	0.0264	0.0565	pCi/g	1				
Cerium-144	U	-0.000549	+/-0.108	0.0553	0.181	pCi/g	1				
Cesium-134	U	-0.01	+/-0.0272	0.0112	0.0392	pCi/g	1				
Cesium-137	U	0.0225	+/-0.0218	0.0117	0.04	pCi/g	1				
Chromium-51	U	0.0184	+/-0.227	0.117	0.404	pCi/g	1				
Cobalt-60	U	-0.0172	+/-0.0252	0.0132	0.0433	pCi/g	1				
Iron-59		0.13	+/-0.0752	0.0246	0.128	pCi/g	1				
Lead-212		0.271	+/-0.0615	0.0219	0.0536	pCi/g	1				
Lead-214		1.53	+/-0.228	0.0288	0.0707	pCi/g	1				
Potassium-40		3.98	+/-0.866	0.23	0.55	pCi/g	1				
Radium-226		1.57	+/-0.245	0.0315	0.0794	pCi/g	1				
Radium-228		0.267	+/-0.178	0.0587	0.159	pCi/g	1				
Ruthenium-103	U	0.00162	+/-0.0274	0.0135	0.0475	pCi/g	1				
Ruthenium-106	U	-0.125	+/-0.207	0.122	0.36	pCi/g	1				
Thorium-231	U	0.119	+/-0.152	0.0554	0.194	pCi/g	1				
Thorium-232		0.266	+/-0.0604	0.0215	0.0526	pCi/g	1				
Thorium-234		2.02	+/-0.69	0.303	0.511	pCi/g	1				
Uranium-235	U	0.0642	+/-0.186	0.0573	0.189	pCi/g	1				
Uranium-238		2.02	+/-0.69	0.303	0.511	pCi/g	1				
Yttrium-88	U	0.00842	+/-0.0256	0.012	0.0515	pCi/g	1				
Zirconium-95	U	0.0219	+/-0.0468	0.0206	0.0879	pCi/g	1				

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
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Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-003
Sample ID: 9901451040

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Company : Sandia National Laboratories
Address : MS-1042
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-003
Sample ID: 9901451040

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

GC/MS VOLATILES SAMPLE DATA

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-001
Sample ID: 9901451001
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/28/99	0949	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloroethylene (total)	U	ND	.37	2	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	U	ND	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	J	0.596	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene	U	ND	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	U	ND	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50792-001
Sample ID: 9901451001

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery %	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	111.57%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	114.1%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	103.7%	(73%-122%)

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-001
Sample ID: 9901451001

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50793-001
Sample ID: 9901451002
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Volatile Organics Federal										
5030/8260A TCL in Solid Fed										
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP	12/23/99	1709	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1				
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1				
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1				
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1				
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1				
1,2-Dichloroethylene (total)	U	ND	.37	2	ug/kg	1				
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1				
2-Butanone	U	ND	1.76	5	ug/kg	1				
2-Hexanone	U	ND	1.33	5	ug/kg	1				
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1				
Acetone	U	ND	2.42	5	ug/kg	1				
Benzene	U	ND	.276	1	ug/kg	1				
Bromodichloromethane	U	ND	.194	1	ug/kg	1				
Bromoform	U	ND	.145	1	ug/kg	1				
Bromomethane	U	ND	.478	1	ug/kg	1				
Carbon disulfide	U	ND	.988	5	ug/kg	1				
Carbon tetrachloride	U	ND	.144	1	ug/kg	1				
Chlorobenzene	U	ND	.206	1	ug/kg	1				
Chloroethane	U	ND	.286	1	ug/kg	1				
Chloroform	U	ND	.204	1	ug/kg	1				
Chloromethane	U	ND	.192	1	ug/kg	1				
Dibromochloromethane	U	ND	.111	1	ug/kg	1				
Ethylbenzene	J	0.953	.212	1	ug/kg	1				
Methylene chloride	U	ND	.971	5	ug/kg	1				
Styrene	U	ND	.198	1	ug/kg	1				
Tetrachloroethylene	U	ND	.582	1	ug/kg	1				
Toluene	J	0.855	.259	1	ug/kg	1				
Trichloroethylene	U	ND	.998	1	ug/kg	1				
Vinyl acetate	U	ND	3.2	5	ug/kg	1				
Vinyl chloride	U	ND	.255	1	ug/kg	1				
Xylenes (total)	J	0.776	.68	3	ug/kg	1				
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1				
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1				

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50793-001
Sample ID: 9901451002

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery %	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	117.24%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	113.03%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	100.66%	(73%-122%)

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50793-001
Sample ID: 9901451002

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent
Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-001
Sample ID: 9901451003
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/23/99	1739	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloroethylene (total)	U	ND	.37	2	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	U	ND	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	J	0.813	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene	J	0.815	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	J	0.834	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-001
Sample ID: 9901451003

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery %	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	104.7%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	105.77%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	86.92%	(73%-122%)

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-001
Sample ID: 9901451003

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-001
Sample ID: 9901451004
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/23/99	1808	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloroethylene (total)	U	ND	.37	2	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	U	ND	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	J	0.643	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene	J	0.864	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	U	ND	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50795-001
Sample ID: 9901451004

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	108.33%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	107.78%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	93.95%	(73%-122%)

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-001
Sample ID: 9901451004

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-001
Sample ID: 9901451005
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/23/99	1837	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloroethylene (total)	U	ND	.37	2	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	U	ND	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	J	0.947	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene	J	0.691	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	J	0.828	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-001
Sample ID: 9901451005

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	99.86%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	107.39%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	82.1%	(73%-122%)

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-001
Sample ID: 9901451005

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-001
Sample ID: 9901451006
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/23/99	1906	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloroethylene (total)	U	ND	.37	2	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	U	ND	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene		1.58	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene		1.29	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	J	1.1	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-001
Sample ID: 9901451006

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	109.13%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	111.68%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	97.27%	(73%-122%)

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-001
Sample ID: 9901451006

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50787-001	Project:	SNLS00396
Sample ID:	9901451023	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	20-DEC-99		
Receive Date:	23-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/28/99	1048	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	U	ND	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	U	ND	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene	U	ND	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	U	ND	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50787-001
Sample ID: 9901451023

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	105.28%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	105.18%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	95.49%	(73%-122%)

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-001
Sample ID: 9901451023

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-001
Sample ID: 9901451024
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/28/99	1118	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone		39.2	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	U	ND	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	U	ND	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene		26.8	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	J	0.992	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-001
Sample ID: 9901451024

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery %	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	88.84%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	100.41%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	87.71%	(73%-122%)

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-001
Sample ID: 9901451024

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-001
Sample ID: 9901451025
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/28/99	1147	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone		36.3	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	J	3.96	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	U	ND	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene		37.6	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	J	1.3	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-001
Sample ID: 9901451025

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery %	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	97.47%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	107.61%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	93.64%	(73%-122%)

Notes:

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H Holding time was exceeded

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-001
Sample ID: 9901451025

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50783-001	Project:	SNLS00396
Sample ID:	9901451026	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	20-DEC-99		
Receive Date:	23-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/28/99	1216	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone		36	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	U	ND	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene	U	ND	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	U	ND	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50783-001
Sample ID: 9901451026

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery %	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	88.21%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	101.72%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	90.78%	(73%-122%)

Notes:

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* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
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P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50783-001
Sample ID: 9901451026

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-001
Sample ID: 9901451027
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	.157	1	ug/kg	1	MAP 12/28/99	1246	4429
1,1,2,2-Tetrachloroethane	U	ND	.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	.17	1	ug/kg	1			
1,2-Dichloropropane	U	ND	.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone		12.1	2.42	5	ug/kg	1			
Benzene	U	ND	.276	1	ug/kg	1			
Bromodichloromethane	U	ND	.194	1	ug/kg	1			
Bromoform	U	ND	.145	1	ug/kg	1			
Bromomethane	U	ND	.478	1	ug/kg	1			
Carbon disulfide	U	ND	.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	.144	1	ug/kg	1			
Chlorobenzene	U	ND	.206	1	ug/kg	1			
Chloroethane	U	ND	.286	1	ug/kg	1			
Chloroform	U	ND	.204	1	ug/kg	1			
Chloromethane	U	ND	.192	1	ug/kg	1			
Dibromochloromethane	U	ND	.111	1	ug/kg	1			
Ethylbenzene	U	ND	.212	1	ug/kg	1			
Methylene chloride	U	ND	.971	5	ug/kg	1			
Styrene	U	ND	.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	.582	1	ug/kg	1			
Toluene	U	ND	.259	1	ug/kg	1			
Trichloroethylene	U	ND	.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	.255	1	ug/kg	1			
Xylenes (total)	U	ND	.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	.216	1	ug/kg	1			
trans-1,2-Dichloroethylene	U	ND	.232	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
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P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-001
Sample ID: 9901451027

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,3-Dichloropropylene	U	ND	.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	96.24%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	104.54%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	93.45%	(73%-122%)

Notes:
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H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

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Certificate of Analysis

Company : Sandia National Laboratories
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Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-001
Sample ID: 9901451027

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-001
Sample ID: 9901451028
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
1,1,1-Trichloroethane	U	ND	0.157	1	ug/kg	1	MAP 12/28/99	1315	4429
1,1,2,2-Tetrachloroethane	U	ND	0.195	1	ug/kg	1			
1,1,2-Trichloroethane	U	ND	0.177	1	ug/kg	1			
1,1-Dichloroethane	U	ND	0.231	1	ug/kg	1			
1,1-Dichloroethylene	U	ND	0.262	1	ug/kg	1			
1,2-Dichloroethane	U	ND	0.17	1	ug/kg	1			
1,2-Dichloropropane	U	ND	0.19	1	ug/kg	1			
2-Butanone	U	ND	1.76	5	ug/kg	1			
2-Hexanone	U	ND	1.33	5	ug/kg	1			
4-Methyl-2-pentanone	U	ND	1.17	5	ug/kg	1			
Acetone	U	ND	2.42	5	ug/kg	1			
Benzene	U	ND	0.276	1	ug/kg	1			
Bromodichloromethane	U	ND	0.194	1	ug/kg	1			
Bromoform	U	ND	0.145	1	ug/kg	1			
Bromomethane	U	ND	0.478	1	ug/kg	1			
Carbon disulfide	U	ND	0.988	5	ug/kg	1			
Carbon tetrachloride	U	ND	0.144	1	ug/kg	1			
Chlorobenzene	U	ND	0.206	1	ug/kg	1			
Chloroethane	U	ND	0.286	1	ug/kg	1			
Chloroform	U	ND	0.204	1	ug/kg	1			
Chloromethane	U	ND	0.192	1	ug/kg	1			
Dibromochloromethane	U	ND	0.111	1	ug/kg	1			
Ethylbenzene	U	ND	0.212	1	ug/kg	1			
Methylene chloride	U	ND	0.971	5	ug/kg	1			
Styrene	U	ND	0.198	1	ug/kg	1			
Tetrachloroethylene	U	ND	0.582	1	ug/kg	1			
Toluene	U	ND	0.259	1	ug/kg	1			
Trichloroethylene	U	ND	0.998	1	ug/kg	1			
Vinyl acetate	U	ND	3.2	5	ug/kg	1			
Vinyl chloride	U	ND	0.255	1	ug/kg	1			
Xylenes (total)	U	ND	0.68	3	ug/kg	1			
cis-1,2-Dichloroethylene	U	ND	0.327	1	ug/kg	1			
cis-1,3-Dichloropropylene	U	ND	0.216	1	ug/kg	1			
trans-1,2-Dichloroethylene	U	ND	0.232	1	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
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Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-001
Sample ID: 9901451028

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
5030/8260A TCL in Solid Fed									
trans-1,3-Dichloropropylene	U	ND	0.163	1	ug/kg	1			

Surrogate recovery	Test	Recovery %	Acceptable Limits
Bromofluorobenzene	5030/8260A TCL in Solid Fed	84.97%	(73%-129%)
Dibromofluoromethane	5030/8260A TCL in Solid Fed	97.56%	(66%-117%)
Toluene-d8	5030/8260A TCL in Solid Fed	84.57%	(73%-122%)

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H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-001
Sample ID: 9901451028

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

Reviewed by

GC/MS SEMIVOLATILES SAMPLE DATA

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50792-002
Sample ID: 9901451007
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	TSD 01/07/00	2223	4434
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1			
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1			
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1			
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1			
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1			
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1			
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1			
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1			
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1			
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1			
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1			
2-Chlorophenol	U	ND	5	333	ug/kg	1			
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1			
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1			
2-Nitrophenol	U	ND	3.66	333	ug/kg	1			
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1			
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1			
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1			
4-Chloroaniline	U	ND	58.9	333	ug/kg	1			
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1			
4-Nitrophenol	U	ND	156	333	ug/kg	1			
Acenaphthene	U	ND	4	33.3	ug/kg	1			
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1			
Anthracene	U	ND	4.66	33.3	ug/kg	1			
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1			
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1			
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1			
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1			
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1			
Butylbenzylphthalate	U	ND	12	333	ug/kg	1			
Carbazole	U	ND	5	333	ug/kg	1			
Chrysene	U	ND	6.33	33.3	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
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Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-002
Sample ID: 9901451007

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
Di-n-butylphthalate	U	ND	14	333	ug/kg	1			
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	74.46%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	77.6%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	77.76%	(37%-102%)

Certificate of Analysis

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Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-002
Sample ID: 9901451007

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		72.65%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		76.09%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		91.65%		(46%-104%)			

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
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Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50792-002
Sample ID: 9901451007

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50793-002	Project:	SNLS00396
Sample ID:	9901451008	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	17-DEC-99		
Receive Date:	22-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	TSD 01/07/00	2254	4434
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1			
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1			
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1			
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1			
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1			
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1			
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1			
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1			
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1			
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1			
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1			
2-Chlorophenol	U	ND	5	333	ug/kg	1			
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1			
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1			
2-Nitrophenol	U	ND	3.66	333	ug/kg	1			
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1			
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1			
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1			
4-Chloroaniline	U	ND	58.9	333	ug/kg	1			
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1			
4-Nitrophenol	U	ND	156	333	ug/kg	1			
Acenaphthene	U	ND	4	33.3	ug/kg	1			
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1			
Anthracene	U	ND	4.66	33.3	ug/kg	1			
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1			
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1			
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1			
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1			
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1			
Butylbenzylphthalate	U	ND	12	333	ug/kg	1			
Carbazole	U	ND	5	333	ug/kg	1			
Chrysene	U	ND	6.33	33.3	ug/kg	1			
Di-n-butylphthalate	U	ND		333	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50793-002 Project: SNLS00396
Sample ID: 9901451008 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	71.81%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	64.7%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	60.84%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50793-002 Project: SNLS00396
Sample ID: 9901451008 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		55.86%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		60.44%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		84.98%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50793-002
Sample ID: 9901451008

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50794-002	Project:	SNLS00396
Sample ID:	9901451009	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	17-DEC-99		
Receive Date:	22-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	TSD 01/07/00	2325	4434
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1			
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1			
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1			
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1			
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1			
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1			
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1			
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1			
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1			
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1			
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1			
2-Chlorophenol	U	ND	5	333	ug/kg	1			
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1			
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1			
2-Nitrophenol	U	ND	3.66	333	ug/kg	1			
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1			
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1			
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1			
4-Chloroaniline	U	ND	58.9	333	ug/kg	1			
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1			
4-Nitrophenol	U	ND	156	333	ug/kg	1			
Acenaphthene	U	ND	4	33.3	ug/kg	1			
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1			
Anthracene	U	ND	4.66	33.3	ug/kg	1			
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1			
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1			
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1			
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1			
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1			
Butylbenzylphthalate	U	ND	12	333	ug/kg	1			
Carbazole	U	ND	5	333	ug/kg	1			
Chrysene	U	ND	6.33	33.3	ug/kg	1			
Di-n-butylphthalate	U	ND		333	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-002
Sample ID: 9901451009

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	67.87%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	54.72%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	54.2%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-002
Sample ID: 9901451009

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		49.86%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		52.3%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		86.1%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50794-002
Sample ID: 9901451009

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50795-002	Project:	SNLS00396
Sample ID:	9901451010	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	17-DEC-99		
Receive Date:	22-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	TSD 01/07/00	2356	4434
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1			
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1			
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1			
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1			
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1			
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1			
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1			
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1			
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1			
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1			
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1			
2-Chlorophenol	U	ND	5	333	ug/kg	1			
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1			
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1			
2-Nitrophenol	U	ND	3.66	333	ug/kg	1			
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1			
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1			
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1			
4-Chloroaniline	U	ND	58.9	333	ug/kg	1			
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1			
4-Nitrophenol	U	ND	156	333	ug/kg	1			
Acenaphthene	U	ND	4	33.3	ug/kg	1			
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1			
Anthracene	U	ND	4.66	33.3	ug/kg	1			
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1			
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1			
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1			
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1			
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1			
Butylbenzylphthalate	U	ND	12	333	ug/kg	1			
Carbazole	U	ND	5	333	ug/kg	1			
Chrysene	U	ND	6.33	33.3	ug/kg	1			
Di-n-butylphthalate	U	ND		333	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-002
Sample ID: 9901451010

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	83.23%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	63.41%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	64.37%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-002
Sample ID: 9901451010

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		59.09%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		60.78%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		94.52%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50795-002
Sample ID: 9901451010

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-002
Sample ID: 9901451011
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	TSD 01/08/00	0027	4434
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1			
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1			
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1			
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1			
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1			
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1			
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1			
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1			
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1			
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1			
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1			
2-Chlorophenol	U	ND	5	333	ug/kg	1			
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1			
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1			
2-Nitrophenol	U	ND	3.66	333	ug/kg	1			
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1			
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1			
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1			
4-Chloroaniline	U	ND	58.9	333	ug/kg	1			
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1			
4-Nitrophenol	U	ND	156	333	ug/kg	1			
Acenaphthene	U	ND	4	33.3	ug/kg	1			
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1			
Anthracene	U	ND	4.66	33.3	ug/kg	1			
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1			
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1			
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1			
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1			
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1			
Butylbenzylphthalate	U	ND	12	333	ug/kg	1			
Carbazole	U	ND	5	333	ug/kg	1			
Chrysene	U	ND	6.33	33.3	ug/kg	1			
Di-n-butylphthalate	U	ND		333	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50796-002
Sample ID: 9901451011

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	68.51%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	71.8%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	74.37%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-002
Sample ID: 9901451011

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		67.55%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		71.84%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		79.47%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50796-002
Sample ID: 9901451011

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-002
Sample ID: 9901451012
Matrix: Soil
Collect Date: 17-DEC-99
Receive Date: 22-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	TSD 01/08/00	0057	4434
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1			
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1			
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1			
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1			
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1			
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1			
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1			
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1			
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1			
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1			
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1			
2-Chlorophenol	U	ND	5	333	ug/kg	1			
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1			
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1			
2-Nitrophenol	U	ND	3.66	333	ug/kg	1			
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1			
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1			
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1			
4-Chloroaniline	U	ND	58.9	333	ug/kg	1			
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1			
4-Nitrophenol	U	ND	156	333	ug/kg	1			
Acenaphthene	U	ND	4	33.3	ug/kg	1			
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1			
Anthracene	U	ND	4.66	33.3	ug/kg	1			
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1			
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1			
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1			
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1			
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1			
Butylbenzylphthalate	U	ND	12	333	ug/kg	1			
Carbazole	U	ND	5	333	ug/kg	1			
Chrysene	U	ND	6.33	33.3	ug/kg	1			
Di-n-butylphthalate	U	ND		333	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-002
Sample ID: 9901451012

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	92.31%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	81.99%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	76.72%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-002
Sample ID: 9901451012

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		68.58%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		77.33%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		103.51%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50797-002
Sample ID: 9901451012

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-002
Sample ID: 9901451029
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Semi-Volatiles-GC/MS Federal										
3550/8270C TCL BNA Soil										
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	EH1	01/06/00	2238	4780
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1				
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1				
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1				
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1				
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1				
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1				
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1				
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1				
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1				
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1				
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1				
2-Chlorophenol	U	ND	5	333	ug/kg	1				
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1				
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1				
2-Nitrophenol	U	ND	3.66	333	ug/kg	1				
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1				
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1				
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1				
4-Chloroaniline	U	ND	58.9	333	ug/kg	1				
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1				
4-Nitrophenol	U	ND	156	333	ug/kg	1				
Acenaphthene	U	ND	4	33.3	ug/kg	1				
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1				
Anthracene	U	ND	4.66	33.3	ug/kg	1				
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1				
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1				
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1				
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1				
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1				
Butylbenzylphthalate	U	ND	12	333	ug/kg	1				
Carbazole	U	ND	5	333	ug/kg	1				
Chrysene	U	ND	6.33	33.3	ug/kg	1				
Di-n-butylphthalate	U	ND		333	ug/kg	1				

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-002
Sample ID: 9901451029

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	84.57%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	65.3%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	70.17%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-002
Sample ID: 9901451029

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		67.37%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		71.17%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		77.9%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50787-002
Sample ID: 9901451029

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50788-002	Project:	SNLS00396
Sample ID:	9901451030	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	20-DEC-99		
Receive Date:	23-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Semi-Volatiles-GC/MS Federal										
3550/8270C TCL BNA Soil										
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	EH1	01/06/00	2308	4780
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1				
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1				
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1				
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1				
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1				
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1				
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1				
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1				
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1				
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1				
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1				
2-Chlorophenol	U	ND	5	333	ug/kg	1				
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1				
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1				
2-Nitrophenol	U	ND	3.66	333	ug/kg	1				
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1				
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1				
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1				
4-Chloroaniline	U	ND	58.9	333	ug/kg	1				
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1				
4-Nitrophenol	U	ND	156	333	ug/kg	1				
Acenaphthene	U	ND	4	33.3	ug/kg	1				
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1				
Anthracene	U	ND	4.66	33.3	ug/kg	1				
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1				
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1				
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1				
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1				
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1				
Butylbenzylphthalate	U	ND	12	333	ug/kg	1				
Carbazole	U	ND	5	333	ug/kg	1				
Chrysene	U	ND	6.33	33.3	ug/kg	1				
Di-n-butylphthalate	U	ND		333	ug/kg	1				

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50788-002
Sample ID: 9901451030

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	82.99%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	63.02%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	67.93%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-002
Sample ID: 9901451030

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		62.01%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		67.32%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		78.65%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50788-002
Sample ID: 9901451030

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50789-002	Project:	SNLS00396
Sample ID:	9901451031	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	20-DEC-99		
Receive Date:	23-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Semi-Volatiles-GC/MS Federal										
3550/8270C TCL BNA Soil										
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	EH1	01/06/00	2337	4780
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1				
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1				
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1				
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1				
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1				
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1				
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1				
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1				
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1				
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1				
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1				
2-Chlorophenol	U	ND	5	333	ug/kg	1				
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1				
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1				
2-Nitrophenol	U	ND	3.66	333	ug/kg	1				
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1				
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1				
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1				
4-Chloroaniline	U	ND	58.9	333	ug/kg	1				
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1				
4-Nitrophenol	U	ND	156	333	ug/kg	1				
Acenaphthene	U	ND	4	33.3	ug/kg	1				
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1				
Anthracene	U	ND	4.66	33.3	ug/kg	1				
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1				
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1				
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1				
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1				
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1				
Butylbenzylphthalate	U	ND	12	333	ug/kg	1				
Carbazole	U	ND	5	333	ug/kg	1				
Chrysene	U	ND	6.33	33.3	ug/kg	1				
Di-n-butylphthalate	U	ND		333	ug/kg	1				

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50789-002 Project: SNLS00396
Sample ID: 9901451031 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	90.35%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	69.3%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	69.11%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-002
Sample ID: 9901451031

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		66.03%		(42%-107%)				
Phenol-d5		3550/8270C TCL BNA Soil		72.05%		(42%-102%)				
p-Terphenyl-d14		3550/8270C TCL BNA Soil		89.54%		(46%-104%)				

Notes:
The Qualifiers in this report are defined as follows :

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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50789-002
Sample ID: 9901451031

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50783-002
Sample ID: 9901451032
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	EH1 01/07/00	0007	4780
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1			
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1			
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1			
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1			
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1			
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1			
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1			
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1			
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1			
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1			
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1			
2-Chlorophenol	U	ND	5	333	ug/kg	1			
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1			
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1			
2-Nitrophenol	U	ND	3.66	333	ug/kg	1			
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1			
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1			
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1			
4-Chloroaniline	U	ND	58.9	333	ug/kg	1			
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1			
4-Nitrophenol	U	ND	156	333	ug/kg	1			
Acenaphthene	U	ND	4	33.3	ug/kg	1			
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1			
Anthracene	U	ND	4.66	33.3	ug/kg	1			
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1			
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1			
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1			
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1			
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1			
Butylbenzylphthalate	U	ND	12	333	ug/kg	1			
Carbazole	U	ND	5	333	ug/kg	1			
Chrysene	U	ND	6.33	33.3	ug/kg	1			
Di-n-butylphthalate	U	ND		333	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50783-002
Sample ID: 9901451032

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	86.88%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	74.94%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	77.05%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50783-002
Sample ID: 9901451032

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		73.81%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		78.25%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		92.99%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50783-002
Sample ID: 9901451032

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50784-002	Project:	SNLS00396
Sample ID:	9901451033	Client ID:	SNLS001
Matrix:	Soil		
Collect Date:	20-DEC-99		
Receive Date:	23-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	EH1 01/07/00	0036	4780
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1			
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1			
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1			
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1			
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1			
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1			
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1			
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1			
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1			
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1			
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1			
2-Chlorophenol	U	ND	5	333	ug/kg	1			
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1			
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1			
2-Nitrophenol	U	ND	3.66	333	ug/kg	1			
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1			
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1			
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1			
4-Chloroaniline	U	ND	58.9	333	ug/kg	1			
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1			
4-Nitrophenol	U	ND	156	333	ug/kg	1			
Acenaphthene	U	ND	4	33.3	ug/kg	1			
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1			
Anthracene	U	ND	4.66	33.3	ug/kg	1			
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1			
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1			
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1			
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1			
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1			
Butylbenzylphthalate	U	ND	12	333	ug/kg	1			
Carbazole	U	ND	5	333	ug/kg	1			
Chrysene	U	ND	6.33	33.3	ug/kg	1			
Di-n-butylphthalate	U	ND		333	ug/kg	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-002
Sample ID: 9901451033

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
			14						
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	88.57%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	68.11%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	72.2%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-002
Sample ID: 9901451033

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		66.28%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		71.1%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		86.92%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50784-002
Sample ID: 9901451033

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-002
Sample ID: 9901451034
Matrix: Soil
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Semi-Volatiles-GC/MS Federal										
3550/8270C TCL BNA Soil										
1,2,4-Trichlorobenzene	U	ND	4.66	333	ug/kg	1	EH1	01/07/00	0106	4780
1,2-Dichlorobenzene	U	ND	4.33	333	ug/kg	1				
1,3-Dichlorobenzene	U	ND	3.33	333	ug/kg	1				
1,4-Dichlorobenzene	U	ND	5.99	333	ug/kg	1				
2,4,5-Trichlorophenol	U	ND	24.3	333	ug/kg	1				
2,4,6-Trichlorophenol	U	ND	5.33	333	ug/kg	1				
2,4-Dichlorophenol	U	ND	7.99	333	ug/kg	1				
2,4-Dimethylphenol	U	ND	6.99	333	ug/kg	1				
2,4-Dinitrophenol	U	ND	15.7	667	ug/kg	1				
2,4-Dinitrotoluene	U	ND	5	333	ug/kg	1				
2,6-Dinitrotoluene	U	ND	3	333	ug/kg	1				
2-Chloronaphthalene	U	ND	3.66	33.3	ug/kg	1				
2-Chlorophenol	U	ND	5	333	ug/kg	1				
2-Methyl-4,6-dinitrophenol	U	ND	33.3	333	ug/kg	1				
2-Methylnaphthalene	U	ND	4	33.3	ug/kg	1				
2-Nitrophenol	U	ND	3.66	333	ug/kg	1				
3,3'-Dichlorobenzidine	U	ND	143	333	ug/kg	1				
4-Bromophenylphenylether	U	ND	4.66	333	ug/kg	1				
4-Chloro-3-methylphenol	U	ND	19.6	333	ug/kg	1				
4-Chloroaniline	U	ND	58.9	333	ug/kg	1				
4-Chlorophenylphenylether	U	ND	3.33	333	ug/kg	1				
4-Nitrophenol	U	ND	156	333	ug/kg	1				
Acenaphthene	U	ND	4	33.3	ug/kg	1				
Acenaphthylene	U	ND	3.66	33.3	ug/kg	1				
Anthracene	U	ND	4.66	33.3	ug/kg	1				
Benzo(a)anthracene	U	ND	5.99	33.3	ug/kg	1				
Benzo(a)pyrene	U	ND	5.66	33.3	ug/kg	1				
Benzo(b)fluoranthene	U	ND	8.99	33.3	ug/kg	1				
Benzo(ghi)perylene	U	ND	8.99	33.3	ug/kg	1				
Benzo(k)fluoranthene	U	ND	37.6	33.3	ug/kg	1				
Butylbenzylphthalate	U	ND	12	333	ug/kg	1				
Carbazole	U	ND	5	333	ug/kg	1				
Chrysene	U	ND	6.33	33.3	ug/kg	1				

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
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Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-002
Sample ID: 9901451034

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Semi-Volatiles-GC/MS Federal									
3550/8270C TCL BNA Soil									
Di-n-butylphthalate	U	ND	14	333	ug/kg	1			
Di-n-octylphthalate	U	ND	8.99	333	ug/kg	1			
Dibenzo(a,h)anthracene	U	ND	4.66	33.3	ug/kg	1			
Dibenzofuran	U	ND	2.66	333	ug/kg	1			
Diethylphthalate	U	ND	6.33	333	ug/kg	1			
Dimethylphthalate	U	ND	27.3	333	ug/kg	1			
Diphenylamine	U	ND	84.9	333	ug/kg	1			
Fluoranthene	U	ND	5	33.3	ug/kg	1			
Fluorene	U	ND	3	33.3	ug/kg	1			
Hexachlorobenzene	U	ND	4.66	333	ug/kg	1			
Hexachlorobutadiene	U	ND	6.66	333	ug/kg	1			
Hexachlorocyclopentadiene	U	ND	2.33	333	ug/kg	1			
Hexachloroethane	U	ND	4.33	333	ug/kg	1			
Indeno(1,2,3-cd)pyrene	U	ND	8.99	33.3	ug/kg	1			
Isophorone	U	ND	2.33	333	ug/kg	1			
N-Nitrosodipropylamine	U	ND	6.66	333	ug/kg	1			
Naphthalene	U	ND	3.33	33.3	ug/kg	1			
Nitrobenzene	U	ND	11	333	ug/kg	1			
Pentachlorophenol	U	ND	115	333	ug/kg	1			
Phenanthrene	U	ND	4	33.3	ug/kg	1			
Phenol	U	ND	3.66	333	ug/kg	1			
Pyrene	U	ND	8.66	33.3	ug/kg	1			
bis(2-Chloroethoxy)methane	U	ND	5.99	333	ug/kg	1			
bis(2-Chloroethyl) ether	U	ND	6.66	333	ug/kg	1			
bis(2-Chloroisopropyl)ether	U	ND	5.99	333	ug/kg	1			
bis(2-Ethylhexyl)phthalate	U	ND	19.6	33.3	ug/kg	1			
m,p-Cresols	U	ND	5.66	333	ug/kg	1			
m-Nitroaniline	U	ND	62.9	333	ug/kg	1			
o-Cresol	U	ND	7.66	333	ug/kg	1			
o-Nitroaniline	U	ND	80.9	333	ug/kg	1			
p-Nitroaniline	U	ND	83.9	333	ug/kg	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	3550/8270C TCL BNA Soil	82.94%	(45%-126%)
2-Fluorobiphenyl	3550/8270C TCL BNA Soil	63.37%	(45%-110%)
2-Fluorophenol	3550/8270C TCL BNA Soil	65.93%	(37%-102%)

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-002
Sample ID: 9901451034

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Nitrobenzene-d5		3550/8270C TCL BNA Soil		61.14%		(42%-107%)			
Phenol-d5		3550/8270C TCL BNA Soil		63.6%		(42%-102%)			
p-Terphenyl-d14		3550/8270C TCL BNA Soil		87.03%		(46%-104%)			

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50785-002
Sample ID: 9901451034

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Reviewed by

GC/MS VOLATILES SAMPLE DATA

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50798-005	Project:	SNLS00396
Sample ID:	9901642001	Client ID:	SNLS001
Matrix:	Ground Water		
Collect Date:	17-DEC-99		
Receive Date:	22-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
1,1,1-Trichloroethane	U	ND	0.093	1	ug/L	1	MAP 12/29/99	1226	4842
1,1,2,2-Tetrachloroethane	U	ND	0.273	1	ug/L	1			
1,1,2-Trichloroethane	U	ND	0.193	1	ug/L	1			
1,1-Dichloroethane	U	ND	0.099	1	ug/L	1			
1,1-Dichloroethylene	U	ND	0.09	1	ug/L	1			
1,2-Dichloroethane	U	ND	0.158	1	ug/L	1			
1,2-Dichloropropane	U	ND	0.07	1	ug/L	1			
2-Butanone	U	ND	1.18	5	ug/L	1			
2-Hexanone	U	ND	1.74	5	ug/L	1			
4-Methyl-2-pentanone	U	ND	0.696	5	ug/L	1			
Acetone	J	2.12	0.224	5	ug/L	1			
Benzene	U	ND	0.149	1	ug/L	1			
Bromodichloromethane	U	ND	0.024	1	ug/L	1			
Bromoform	U	ND	0.085	1	ug/L	1			
Bromomethane	U	ND	0.628	1	ug/L	1			
Carbon disulfide	U	ND	0.349	5	ug/L	1			
Carbon tetrachloride	U	ND	0.124	1	ug/L	1			
Chlorobenzene	U	ND	0.603	1	ug/L	1			
Chloroethane	U	ND	0.14	1	ug/L	1			
Chloroform		1.1	0.198	1	ug/L	1			
Chloromethane	U	ND	0.179	1	ug/L	1			
Dibromochloromethane	U	ND	0.089	1	ug/L	1			
Ethylbenzene	U	ND	0.051	1	ug/L	1			
Methylene chloride	U	ND	0.971	5	ug/L	1			
Styrene	U	ND	0.078	1	ug/L	1			
Tetrachloroethylene	U	ND	0.385	1	ug/L	1			
Toluene	U	ND	0.262	1	ug/L	1			
Trichloroethylene	U	ND	0.15	1	ug/L	1			
Vinyl acetate	U	ND	1.86	5	ug/L	1			
Vinyl chloride	U	ND	0.096	1	ug/L	1			
Xylenes (total)	U	ND	0.437	3	ug/L	1			
cis-1,2-Dichloroethylene	U	ND	0.129	1	ug/L	1			
cis-1,3-Dichloropropylene	U	ND	0.035	1	ug/L	1			
trans-1,2-Dichloroethylene	U	ND	0.105	1	ug/L	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50798-005 Project: SNLS00396
Sample ID: 9901642001 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
trans-1,3-Dichloropropylene	U	ND	0.106	1	ug/L	1			

Surrogate recovery	Test	Recovery %	Acceptable Limits
Bromofluorobenzene	8260B TCL Liquid Federal	105.31%	(73%-129%)
Dibromofluoromethane	8260B TCL Liquid Federal	101.51%	(66%-117%)
Toluene-d8	8260B TCL Liquid Federal	97.88%	(73%-122%)

Notes:
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H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50798-005
Sample ID: 9901642001

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID:	50799-006	Project:	SNLS00396
Sample ID:	9901642002	Client ID:	SNLS001
Matrix:	Ground Water		
Collect Date:	17-DEC-99		
Receive Date:	22-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
1,1,1-Trichloroethane	U	ND	0.093	1	ug/L	1	MAP 12/29/99	1256	4842
1,1,2,2-Tetrachloroethane	U	ND	0.273	1	ug/L	1			
1,1,2-Trichloroethane	U	ND	0.193	1	ug/L	1			
1,1-Dichloroethane	U	ND	0.099	1	ug/L	1			
1,1-Dichloroethylene	U	ND	0.09	1	ug/L	1			
1,2-Dichloroethane	U	ND	0.158	1	ug/L	1			
1,2-Dichloropropane	U	ND	0.07	1	ug/L	1			
2-Butanone	U	ND	1.18	5	ug/L	1			
2-Hexanone	U	ND	1.74	5	ug/L	1			
4-Methyl-2-pentanone	U	ND	0.696	5	ug/L	1			
Acetone	U	ND	0.224	5	ug/L	1			
Benzene	U	ND	0.149	1	ug/L	1			
Bromodichloromethane	U	ND	0.024	1	ug/L	1			
Bromoform	U	ND	0.085	1	ug/L	1			
Bromomethane	U	ND	0.628	1	ug/L	1			
Carbon disulfide	U	ND	0.349	5	ug/L	1			
Carbon tetrachloride	U	ND	0.124	1	ug/L	1			
Chlorobenzene	U	ND	0.603	1	ug/L	1			
Chloroethane	U	ND	0.14	1	ug/L	1			
Chloroform	U	ND	0.198	1	ug/L	1			
Chloromethane	U	ND	0.179	1	ug/L	1			
Dibromochloromethane	U	ND	0.089	1	ug/L	1			
Ethylbenzene	U	ND	0.051	1	ug/L	1			
Methylene chloride	U	ND	0.971	5	ug/L	1			
Styrene	U	ND	0.078	1	ug/L	1			
Tetrachloroethylene	U	ND	0.385	1	ug/L	1			
Toluene	U	ND	0.262	1	ug/L	1			
Trichloroethylene	U	ND	0.15	1	ug/L	1			
Vinyl acetate	U	ND	1.86	5	ug/L	1			
Vinyl chloride	U	ND	0.096	1	ug/L	1			
Xylenes (total)	U	ND	0.437	3	ug/L	1			
cis-1,2-Dichloroethylene	U	ND	0.129	1	ug/L	1			
cis-1,3-Dichloropropylene	U	ND	0.035	1	ug/L	1			
trans-1,2-Dichloroethylene	U	ND	0.105	1	ug/L	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50799-006
Sample ID: 9901642002

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
trans-1,3-Dichloropropylene	U	ND	0.106	1	ug/L	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	8260B TCL Liquid Federal	103.36%	(73%-129%)
Dibromofluoromethane	8260B TCL Liquid Federal	104.76%	(66%-117%)
Toluene-d8	8260B TCL Liquid Federal	99.7%	(73%-122%)

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50799-006
Sample ID: 9901642002

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50790-005
Sample ID: 9901642005
Matrix: Ground Water
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
1,1,1-Trichloroethane	U	ND	0.093	1	ug/L	1	MAP 12/29/99	1325	4842
1,1,2,2-Tetrachloroethane	U	ND	0.273	1	ug/L	1			
1,1,2-Trichloroethane	U	ND	0.193	1	ug/L	1			
1,1-Dichloroethane	U	ND	0.099	1	ug/L	1			
1,1-Dichloroethylene	U	ND	0.09	1	ug/L	1			
1,2-Dichloroethane	U	ND	0.158	1	ug/L	1			
1,2-Dichloropropane	U	ND	0.07	1	ug/L	1			
2-Butanone	U	ND	1.18	5	ug/L	1			
2-Hexanone	U	ND	1.74	5	ug/L	1			
4-Methyl-2-pentanone	U	ND	0.696	5	ug/L	1			
Acetone	J	1.47	0.224	5	ug/L	1			
Benzene	U	ND	0.149	1	ug/L	1			
Bromodichloromethane	U	ND	0.024	1	ug/L	1			
Bromoform	U	ND	0.085	1	ug/L	1			
Bromomethane	U	ND	0.628	1	ug/L	1			
Carbon disulfide	U	ND	0.349	5	ug/L	1			
Carbon tetrachloride	U	ND	0.124	1	ug/L	1			
Chlorobenzene	U	ND	0.603	1	ug/L	1			
Chloroethane	U	ND	0.14	1	ug/L	1			
Chloroform	U	ND	0.198	1	ug/L	1			
Chloromethane	U	ND	0.179	1	ug/L	1			
Dibromochloromethane	U	ND	0.089	1	ug/L	1			
Ethylbenzene	U	ND	0.051	1	ug/L	1			
Methylene chloride	J	1.23	0.971	5	ug/L	1			
Styrene	U	ND	0.078	1	ug/L	1			
Tetrachloroethylene	U	ND	0.385	1	ug/L	1			
Toluene	U	ND	0.262	1	ug/L	1			
Trichloroethylene	U	ND	0.15	1	ug/L	1			
Vinyl acetate	U	ND	1.86	5	ug/L	1			
Vinyl chloride	U	ND	0.096	1	ug/L	1			
Xylenes (total)	U	ND	0.437	3	ug/L	1			
cis-1,2-Dichloroethylene	U	ND	0.129	1	ug/L	1			
cis-1,3-Dichloropropylene	U	ND	0.035	1	ug/L	1			
trans-1,2-Dichloroethylene	U	ND	0.105	1	ug/L	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50790-005 Project: SNLS00396
Sample ID: 9901642005 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
trans-1,3-Dichloropropylene	U	ND	0.106	1	ug/L	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	8260B TCL Liquid Federal	100.34%	(73%-129%)
Dibromofluoromethane	8260B TCL Liquid Federal	107.05%	(66%-117%)
Toluene-d8	8260B TCL Liquid Federal	95.72%	(73%-122%)

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

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Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50790-005
Sample ID: 9901642005

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50791-006
Sample ID: 9901642006
Matrix: Ground Water
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
1,1,1-Trichloroethane	U	ND	0.093	1	ug/L	1	MAP 12/29/99	1355	4842
1,1,2,2-Tetrachloroethane	U	ND	0.273	1	ug/L	1			
1,1,2-Trichloroethane	U	ND	0.193	1	ug/L	1			
1,1-Dichloroethane	U	ND	0.099	1	ug/L	1			
1,1-Dichloroethylene	U	ND	0.09	1	ug/L	1			
1,2-Dichloroethane	U	ND	0.158	1	ug/L	1			
1,2-Dichloropropane	U	ND	0.07	1	ug/L	1			
2-Butanone	U	ND	1.18	5	ug/L	1			
2-Hexanone	U	ND	1.74	5	ug/L	1			
4-Methyl-2-pentanone	U	ND	0.696	5	ug/L	1			
Acetone	J	2.45	0.224	5	ug/L	1			
Benzene	U	ND	0.149	1	ug/L	1			
Bromodichloromethane	U	ND	0.024	1	ug/L	1			
Bromoform	U	ND	0.085	1	ug/L	1			
Bromomethane	U	ND	0.628	1	ug/L	1			
Carbon disulfide	U	ND	0.349	5	ug/L	1			
Carbon tetrachloride	U	ND	0.124	1	ug/L	1			
Chlorobenzene	U	ND	0.603	1	ug/L	1			
Chloroethane	U	ND	0.14	1	ug/L	1			
Chloroform	U	ND	0.198	1	ug/L	1			
Chloromethane	U	ND	0.179	1	ug/L	1			
Dibromochloromethane	U	ND	0.089	1	ug/L	1			
Ethylbenzene	U	ND	0.051	1	ug/L	1			
Methylene chloride	U	ND	0.971	5	ug/L	1			
Styrene	U	ND	0.078	1	ug/L	1			
Tetrachloroethylene	U	ND	0.385	1	ug/L	1			
Toluene	U	ND	0.262	1	ug/L	1			
Trichloroethylene	U	ND	0.15	1	ug/L	1			
Vinyl acetate	U	ND	1.86	5	ug/L	1			
Vinyl chloride	U	ND	0.096	1	ug/L	1			
Xylenes (total)	U	ND	0.437	3	ug/L	1			
cis-1,2-Dichloroethylene	U	ND	0.129	1	ug/L	1			
cis-1,3-Dichloropropylene	U	ND	0.035	1	ug/L	1			
trans-1,2-Dichloroethylene	U	ND	0.105	1	ug/L	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042
Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Report Date: February 1, 2000

Client Sample ID: 50791-006 Project: SNLS00396
Sample ID: 9901642006 Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
trans-1,3-Dichloropropylene	U	ND	0.106	1	ug/L	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	8260B TCL Liquid Federal	101.27%	(73%-129%)
Dibromofluoromethane	8260B TCL Liquid Federal	105.98%	(66%-117%)
Toluene-d8	8260B TCL Liquid Federal	94.11%	(73%-122%)

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50791-006
Sample ID: 9901642006

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50786-005
Sample ID: 9901642007
Matrix: Ground Water
Collect Date: 20-DEC-99
Receive Date: 23-DEC-99
Collector: Client

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
1,1,1-Trichloroethane	U	ND	0.093	1	ug/L	1	MAP 12/29/99	1424	4842
1,1,2,2-Tetrachloroethane	U	ND	0.273	1	ug/L	1			
1,1,2-Trichloroethane	U	ND	0.193	1	ug/L	1			
1,1-Dichloroethane	U	ND	0.099	1	ug/L	1			
1,1-Dichloroethylene	U	ND	0.09	1	ug/L	1			
1,2-Dichloroethane	U	ND	0.158	1	ug/L	1			
1,2-Dichloropropane	U	ND	0.07	1	ug/L	1			
2-Butanone	U	ND	1.18	5	ug/L	1			
2-Hexanone	U	ND	1.74	5	ug/L	1			
4-Methyl-2-pentanone	U	ND	0.696	5	ug/L	1			
Acetone	J	1.39	0.224	5	ug/L	1			
Benzene	U	ND	0.149	1	ug/L	1			
Bromodichloromethane	U	ND	0.024	1	ug/L	1			
Bromoform	U	ND	0.085	1	ug/L	1			
Bromomethane	U	ND	0.628	1	ug/L	1			
Carbon disulfide	U	ND	0.349	5	ug/L	1			
Carbon tetrachloride	U	ND	0.124	1	ug/L	1			
Chlorobenzene	U	ND	0.603	1	ug/L	1			
Chloroethane	U	ND	0.14	1	ug/L	1			
Chloroform	U	ND	0.198	1	ug/L	1			
Chloromethane	U	ND	0.179	1	ug/L	1			
Dibromochloromethane	U	ND	0.089	1	ug/L	1			
Ethylbenzene	U	ND	0.051	1	ug/L	1			
Methylene chloride	U	ND	0.971	5	ug/L	1			
Styrene	U	ND	0.078	1	ug/L	1			
Tetrachloroethylene	U	ND	0.385	1	ug/L	1			
Toluene	U	ND	0.262	1	ug/L	1			
Trichloroethylene	U	ND	0.15	1	ug/L	1			
Vinyl acetate	U	ND	1.86	5	ug/L	1			
Vinyl chloride	U	ND	0.096	1	ug/L	1			
Xylenes (total)	U	ND	0.437	3	ug/L	1			
cis-1,2-Dichloroethylene	U	ND	0.129	1	ug/L	1			
cis-1,3-Dichloropropylene	U	ND	0.035	1	ug/L	1			
trans-1,2-Dichloroethylene	U	ND	0.105	1	ug/L	1			

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50786-005
Sample ID: 9901642007

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch
Volatile Organics Federal									
8260B TCL Liquid Federal									
trans-1,3-Dichloropropylene	U	ND	0.106	1	ug/L	1			

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	8260B TCL Liquid Federal	103.75%	(73%-129%)
Dibromofluoromethane	8260B TCL Liquid Federal	107.54%	(66%-117%)
Toluene-d8	8260B TCL Liquid Federal	95.16%	(73%-122%)

Notes:
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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)
H Holding time was exceeded
J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 1, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50786-005
Sample ID: 9901642007

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent

Reviewed by

INORGANICS SAMPLE DATA

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50799-008	Project:	SNLS00396
Sample ID:	9901642004	Client ID:	SNLS001
Matrix:	Ground Water		
Collect Date:	17-DEC-99		
Receive Date:	22-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7470 Cold Vapor Hg Liquid										
Mercury	U	ND	0.06	0.2	ug/L	1	RMJ	01/12/00	1606	6601
Metals Analysis-ICP Federal										
EPA 6010B/3005 RCRA Metals Fed										
Arsenic	U	ND	0.00257	0.005	mg/L	1	KAR	01/05/00	1915	5515
Barium	J	0.0023	0.000748	0.005	mg/L	1				
Cadmium	U	ND	0.000631	0.005	mg/L	1				
Chromium	J	0.00142	0.00106	0.005	mg/L	1				
Lead	U	ND	0.00183	0.005	mg/L	1				
Selenium	J	0.00304	0.00236	0.005	mg/L	1				
Silver	U	ND	0.000529	0.005	mg/L	1				
Metals Analysis-ICPMS Federal										
3005/6020 Uranium Federal										
Uranium	J	0.035	0.018	0.2	ug/L	1	JSS	12/29/99	2048	5800

Notes:

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B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50799-008
Sample ID: 9901642004

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

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Edie M. Kent
Reviewed by

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID:	50791-008	Project:	SNLS00396
Sample ID:	9901642009	Client ID:	SNLS001
Matrix:	Ground Water		
Collect Date:	20-DEC-99		
Receive Date:	23-DEC-99		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch
Mercury Analysis Federal										
7470 Cold Vapor Hg Liquid										
Mercury	U	ND	0.06	0.2	ug/L	1	RMJ	01/12/00	1608	6601
Metals Analysis-ICP Federal										
EPA 6010B/3005 RCRA Metals Fed										
Arsenic	U	ND	0.00257	0.005	mg/L	1	KAR	12/30/99	2326	4549
Barium	J	0.00206	0.000748	0.005	mg/L	1				
Cadmium	U	ND	0.000631	0.005	mg/L	1				
Chromium	J	0.00147	0.00106	0.005	mg/L	1				
Lead	U	ND	0.00183	0.005	mg/L	1				
Selenium	J	0.0029	0.00236	0.005	mg/L	1				
Silver	U	ND	0.000529	0.005	mg/L	1				
Metals Analysis-ICPMS Federal										
3005/6020 Uranium Federal										
Uranium	J	0.159	0.018	0.2	ug/L	1	JSS	12/29/99	2152	5800

Notes:
The Qualifiers in this report are defined as follows :

* Recovery not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

B The analyte was found in the blank above the effective MDL (Organics), or the effective PQL (Inorganics)

H Holding time was exceeded

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-1042
P.O. Box 5800
Albuquerque, NM 87185-1042

Report Date: February 2, 2000

Contact: Mr. Doug Salmi
Project: Doug Salmi Raw Data Package

Client Sample ID: 50791-008
Sample ID: 9901642009

Project: SNLS00396
Client ID: SNLS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Edie M. Kent at 843-769-7385 Ext. .

Edie M. Kent

Reviewed by

ATTACHMENT 1

NMED DOE OVERSIGHT BUREAU REVIEW COMMENTS

Trujillo, Leonard "Tony"

From: Griswold, Deborah Couchman
Sent: Friday, November 05, 1999 1:26 PM
To: Arthur, William John; Themelis, John; Jenks, Brian R.
Cc: Trujillo, Leonard "Tony"; Rael, George
Subject: FW: NMED report recommendations

FYI

From: Stephen Yanicak[SMTP:syanicak%lanl.gov@internet.al.gov]
Sent: Friday, November 05, 1999 12:31 PM
To: mary ann scott
Cc: Griswold, Deborah Couchman
Subject: NMED report recommendations

Mary Ann—These are our recommendations we gave DOE today——sy

ps—You should have the reports by now—if not let me know now!!!!

NMED DOE OB staff reviewed the site-investigation report of the 133 La Senda Property submitted by Science Applications International Corp. (SAIC), October 1999, and the following comments and recommendations are being provided.

Investigation Results:

- The radiological survey of the house, sheds, septic system/leach field and property show no significant radiological anomalies;
- Of the 10 (ten) surface sediment/soil samples (0"-6" depth) collected, one sample from the south side of the east shed showed elevated uranium-238 (result of 5.61 pCi/g) at about 8 times the assumed background activity (0.69 pCi/g); and
- One surface sediment/soil sample (0"-6" depth) from the east side of east shed showed elevated zinc (result of 190 mg/kg) at about 6 times that of the assumed background (32 mg/kg).
- Based on the above information, the house, sheds, septic system/leach field and property show no significant contamination anomalies (with exception of east shed area below door).

Recommendations:

- Collect additional verification samples (up to five samples—best professional judgement) in the vicinity of the elevated uranium-238 detect (estimated cost including sample collection, data validation and reporting will be about $7000).

Post-investigation findings:

- The report noted that two (2) dry wells/french drains exist at the site that were not investigated—these significantly change the original conceptual model for contaminant pathways. A careful review of Ms. Scott's house plan and architectural drawings by SAIC indicate that the sink in Mr. Guy R.B. Elliott's laboratory (studio room) drained directly east to one of the wells, completely by-passing the septic system. The other well, located west of the house, apparently received shower-drain water from another part of the house.

  Recommendations:

  - All existing documentation (previous investigations, licensing, etc.) concerning Guy Elliott's activities at the 133 La Senda property should be compiled, inventoried and place into a retrievable format (estimated cost of about $1300);

- Accurately locate the two wells and their associated drain-lines (cost unknown);
- Determine whether contamination exists in the wells and drain-lines (cost unknown);
- Compile all investigation data and information into a final report to support risk and/or cleanup decisions (cost unknown).

ATTACHMENT 2
TEXT OF SAIC REPORT

Site Investigation of the La Senda Property

Los Alamos, New Mexico

Prepared by

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1.0 Introduction and Objectives

Science Applications International Corporation (SAIC) on behalf of the New Mexico Environment Department - Department of Energy Oversight Bureau (NMED DOEOB) has performed a preliminary investigation of a private residence located in White Rock (Los Alamos), New Mexico to evaluate the possible presence of residual contaminants. The presence of potential contaminants at the site could be the result of the historical use and storage of chemicals and possibly radionuclides by a previous owner of the property who operated a small-scale laboratory.

The investigation was conducted under the authority of the Agreement-in-Principle (AIP) between the U.S. Department of Energy and the State of New Mexico. The objective of the investigation was to document the condition of the property and evaluate the possible presence of residual contaminants relating to the historical use of metals and radioactive materials on the property.

1.1 Site Description

The site is a private residence located at 133 La Senda Road, which is located in the La Senda subdivision in White Rock, New Mexico. The property is a residential house on a lot that comprises approximately 2.02 acres. The residential house is approximately 4000 ft^2, with attached 2-car garage (Dority, 1981). Two large storage outbuildings about the size of single-car garages are located north of the house, and a former Morgan storage shed was located near the northeast corner of the house. The map of the site is in Attachment 1; the site map shows the approximate property boundary and the locations of the outbuildings and the former location of the Morgan storage shed. A bicycle path extends from south to north along the western side of the property and also provides access to the storage buildings and the north side of the property.

The front of the house faces toward the south and La Senda Road extends approximately west to east along the south side of the property. The two storage outbuildings are located on the north side of the property north of the northwest corner of the house; the former Morgan storage shed was located northeast of the house. The two storage buildings that remain at the site are approximately 14 ft wide and 20 ft long and are about 4 ft apart. The storage building have single garage door openings on the south but the concrete floors of the buildings are about 1 to 2 ft above grade, which does not allow entry access to vehicles but does allow access for loading and unloading. No roadway access to the storage buildings is present, but access to the storage buildings is available from the bicycle path along the west side of the property and from the neighboring driveway west of the property.

A graveled access road leads from La Senda Road at the southeast corner of the property along the east side of the house to the northeast corner of the house. This access road provides access to the north side of the house and the former Morgan storage shed at the northeast corner of the house. The house and storage buildings are located on the southern half of the property; the northern half of the property is not developed.

A 1000-gallon septic tank is buried south of the house between the house and La Senda Road. The septic tank drains to a leach field that is approximately 40 ft long and 22.5 ft wide, which is located near the southeast corner of the property. The site map in Attachment 1 shows the approximate locations of the septic tank and the leach field. A buried 4-in. diameter waste line extends south from the south side of the house to the septic tank. The septic tank and leach field is currently in active use.

Two dry wells are present on the property. One is located approximately 25 ft west of the garage. The other well is located approximately 25 ft northeast of the northeast corner of the house near the former location of the Morgan building. Buried 2-in. diameter water lines connect the dry wells

to the house. The dry wells are 4 ft deep and 4 ft in diameter and filled with gravel. The dry wells are used to drain sinks, showers, and floor drains from the residence.

Buried utility lines service the house from utility hookups located at the southwest corner of the property. A buried gas line and a buried water line extend from near the southwest corner of the property to the west side of the garage. A buried gas line extends around the west side and part of the north side of the house. Buried electric lines probably extend from the southeast and south side of the property to the house.

The site is vegetated with native grasses and piñon and juniper trees. Ponderosa trees have been planted along the east side of the bicycle path. The property is located on the Pajarito Plateau west of the Rio Grande at an elevation of approximately 6427 ft at the southeast side of the property to 6442 ft at the northwest side of the property; the total topographic relief across the site is approximately 15 ft. Surface drainage is from the northwest to the southeast across the property. A berm and swale have been constructed around the northwest side of the house to prevent runoff from entering the structure and to direct water around the west side of the house. The berm is about 4 ft higher than the swale.

Recent landscaping of the site has modified the original site plan and site conditions including surface drainage patterns. The two storage outbuildings and the septic system were apparently not modified.

The site has 1 to 3 feet of soil and gravel backfill material on massive basalt bedrock. The thickness of the basalt is several hundred feet. The depth to the nearest known groundwater supply is approximately 600 ft.

1.2 Site History

The history of the site was derived from historical information provided by NMED DOEOB personnel. The information summarized below is to provide an understanding of the types of chemicals and radionuclides that were used and stored on the property and is not intended to be a complete history of the site.

The house was built and the property was developed circa 1981. From 1981 until 1994 a small laboratory was operated at the site. The operations included the use, storage, and possible disposal of chemicals, chemical solutions, chemical powders, and depleted uranium. Chemicals included metals, organic compounds, acids, bases, solvents, and possibly asbestos. The chemicals and radioactive sources that were present at the site were removed circa 1995. A partial list and amount of chemicals removed in 1995 include the following.

- Iodine – 2500g
- Lithium oxide, anhydrous, 2 x 10g
- Terbium oxide – 1-2 lbs.
- Hydrochloric acid – 300 ml
- Muratic Acid (hydrochloric acid)
- Di iodo methane (methylene iodide) – 100g
- Titanium hydride (TiH_2) (black metallic powder)
- Barium powder in quart jar
- Magnesium metal powder – 3 – 1-gal cans, labeled flammable dangerous
- Magnesium metal powder – 0.5 lb.
- Magnesium metal shavings – 1 lb.
- Hydrofluoric acid 55%, 1 lb.
- Nitric Acid (HNO_3) – 10-10 lb. jug

- Calcium shot under argon – 1 lb.
- Caustic soda (NaOH) 2-5 gal drums
- Sodium metal (partially under oil, outside surface reacted and swelled)
- ZrSiOx, 3 jars, 20-lbs. (zirconium silicate)
- White powders – 5 small unlabeled vials partially full
- 1-40 gal drum, unlabeled with shipping warning:, DOT 7AT REACTIVE
- 1-55 gal. Drum, unlabeled
- 3-20-gal drums not labeled (flammable solid)
- Assorted chemicals in containers - unlabeled
- Methane cylinder (Mathason)
- Assorted bottles and jars containing:
    - Calcium chloride ($CaCl_2$)
    - Cesium iodide (CsI)
    - Lithium bromide (LiBr)
    - Lithium iodide (LiI)
    - Magnesium fluoride (MgF_2)
    - Manganese fluoride (MnF_2)
    - Stannous fluoride (SnF_2)
    - Potassium iodide (KI)

The former laboratory was located in the studio portion of the residence. Drains used in the laboratory may have drained to the septic tank and to the leach field located on the southeast corner of the property. Areas of potential concern that may have been contaminated during operation of the laboratory include the following:

- The former laboratory in the house (e.g. walls, sink, floor),
- the septic tank and associated drain lines,
- the leach field,
- the two metal storage buildings (e.g. walls, floors, nearby soil),
- the site of the former Morgan storage shed (nearby soil),
- ground surfaces surrounding the storage buildings and former shed and the site in general.

A waste pile and a water boiler were found near the site of the portable Morgan storage shed. The waste pile contained small amounts of asbestos. The waste pile and water boiler were removed before April 1996.

On April 1, 1996, Mr. Guy R.B. Elliott, the former owner of the property signed a notarized statement that stated the following:

> "... to the best of his knowledge, information and belief there are no hazardous substances of any kind or nature which could constitute an environmental or health hazard presently located upon the Property, including, but not limited to , the residence and the septic system, which were introduced by him or during his possession of the Property."

In 1996 the contents of the septic tank from the site were analyzed for conformance with the Los Alamos County NPDES permit. Personnel of International Technology Corporation (IT) collected samples from the septic tank for analyses at Quanterra Analytical Laboratory. The results of the analyses are present in Section 4.2. Based on the results of the analyses, Los Alamos County agreed to accept sewage from the septic tank for disposal through the manhole on Olive Street. The acceptance was based on the test results by IT that the sewage met requirements of the County's NPDES permit (Ortega 1996).

1.3 Investigation Objectives

The data collected during the Historical Site Assessment (HSA) presented in the Sample and Analysis Plan (SAP) (SAIC, 1999) indicate that the site and structures could possibly contain residual contaminants as the result of historical activities at the site. The objective of the investigation was to collect site data to augment the HSA, refine the conceptual model, and provide recommendations concerning the possible presence of potential contaminants at the site.

The specific objectives of the scoping radiation surveys were to:

- establish the background radiological conditions of survey units;
- evaluate the possible presence of residual radioactive surface soil contaminants above background levels at the site;
- evaluate the possible presence of residual radioactive contaminants above background levels within the storage shed structures and within the former laboratory room in the primary residence;

For scoping radiation surveys with these objectives, identifying radiological decision levels is necessary for selecting instruments and procedures with the necessary detection sensitivities to demonstrate compliance with the release criterion. The radiation survey design and results are documented in the following sections. For scoping radiation surveys that potentially serve to release the site from further consideration, the survey design consists of sampling based on the HSA and professional judgment. The results of the judgmental sampling are described in Section 3 of this report.

The specific objectives of the judgmental sampling were to:

- confirm the results of the scoping radiation survey;
- identify the nature of the residual contaminants;
- identify the possible presence of residual radioactive contaminants present below the detection limits of the survey instrumentation;
- identify the presence above background concentrations of non-radioactive residual contaminants (i.e. metals, organic chemicals).

1.4 Disclaimer

Science Applications International Corporation (SAIC) has prepared this report for the exclusive use of the New Mexico Environment Department - Department of Energy Oversight Bureau (NMED DOEOB) in investigating the possible presence of residual contaminants that may have been associated with the historical use of certain identified metals and radioactive materials on the subject property at the time of this investigation, and makes no representations for its use by any other party or for any other purpose. SAIC's investigation was restricted to collection and analyses of a limited number of environmental samples and visual observations obtained during the physical site visit, and from records made available by NMED DOEOB during the investigation. Because the investigation consisted of collecting and evaluating a limited supply of information, SAIC may not have identified all potential items of concern. All conclusions and judgments presented in this report are based on information obtained at the time of the investigation. A full and complete determination as to whether the subject property is or is not free from environmental (chemical or radiological) contamination cannot be made under the scope of this investigation and SAIC is not making such a determination, either expressly or impliedly, in this report.

In preparing this report, SAIC has relied on verbal and written information provided by NMED DOEOB personnel. SAIC has made no independent investigation concerning the accuracy or completeness of such information relied upon in preparing this report. SAIC cannot and does not guarantee the authenticity or reliability of the information on which conclusions and judgments in this report are based. A full and complete determination as to the presence or absence of residual contamination cannot be made under the scope of this investigation and SAIC is not making such a determination, either expressly or impliedly, in this report. In addition, conclusions and judgments may be formed based on conditions at the time of the investigation that are not representative of past activities conducted on the property, and/or conditions that have changed since the time of the on-site portion of the investigation. To the extent that SAIC has, in whole or in part, based any conclusions or judgments in this report on such information, the conclusions and judgments are contingent on and subject to the validity of the information provided.

SAIC warrants only that project activities under this contract have been performed, within the parameters communicated by NMED DOEOB, with that degree of skill and judgment normally exercised by recognized professional firms performing services of a similar nature. SAIC specifically disclaims and client waives any express or implied standards, guarantees, or warranties, including but not limited to warranties of merchantability or fitness for a particular purpose, custom or usage, or otherwise as to any goods or services that are the subject of this contract.

1.5 References for Section 1.0

Dority, Alex, April 1981, "Residence for Guy and Glo Elliot," Architectural drawings, A.I.A. Architects, 10 sheets, Santa Fe, New Mexico.

Ortega, Chris, April 1, 1996, Letter to Mary Ann Scott from Chris Ortega, Utilities Manager, Department of Public Utilities, Los Alamos County, Los Alamos, New Mexico.

SAIC 1999, "Sample and Analysis Plan for the Site Investigation of the 133 La Senda Road Property, Los Alamos, New Mexico;" Prepared by Science Applications International Corporation Los Alamos, New Mexico for the Sate of New Mexico Environment Department DOE Oversight Bureau, Santa Fe, New Mexico.

2.0 Site Radiation Surveys

Two types of radiation surveys were performed at the site that utilized two types of radiation detection systems. The first type of radiation survey was a structure radiation survey that was designed to detect residual radioactive contaminants from depleted uranium associated with structures where depleted uranium was processed or stored. The structure survey was performed in the primary residence and in the storage structures located along the northern boundary of the property. The second type of radiation survey was a ground radiation survey that was designed to detect residual radioactive soil contaminants that may have resulted from spills or discharges of depleted uranium materials or airborne deposition from laboratory processing of depleted uranium.

The procedures used to perform the radiological surveys were implemented according to SAIC Field Technical Procedure *FTP-451 Field Measurement Procedure: Operation of Radiation Survey Instruments*. Documentation of calibration, efficiency and performance checks, etc. was performed in accordance with SAIC *FTP-1215 Use of Field Logs*. The field logs and survey notes obtained during the surveys are in Attachment 2. Calibration records for the radiation instrumentation are included in Attachment 4.

2.1 Historical Radioactive Process and Material Identification

The planning of the radiation surveys included review of the HSA presented in the SAP (SAIC, 1999). Additional information about former laboratory activities was received from NMED after award of the contract to SAIC and revision of the HSA and conceptual model was necessary. The revised conceptual model based on supplemental information obtained and the revised results of the HAS investigation are presented in Section 5.0 of this report.

A copy of the former owner's application for a radioactive materials license to handle large amounts of depleted uranium in various chemical forms is in Attachment 3 of this document. Included with the materials license is design information for a larger facility to perform chemical processing of depleted uranium, an application for extension of the license for an additional five years from the date of expiration, and a copy of the final radioactive materials license, number NM-SFA-DU-00-1 that was issued by the state of New Mexico.

The HSA (SAIC, 1999) includes a list of chemicals that were found to be stored in the storage shed structures. The application for the radioactive materials license in Attachment 3 provides a brief description of the processes that may have been performed at the site. The types of chemicals stored on the site are consistent with the types of chemicals needed to perform laboratory tests as described in the application for the radioactive materials license. Photodocumentation of the types and quantities of chemical found stored on the site in 1994 was provided by the NMED; the historical photographs of the site are provided in Attachment 6.

The processes described in the radioactive materials license application are summarized below:

The chemical reactions to be carried out in the inert atmosphere of the furnace inside the glove box include:

- Melting depleted uranium at 1133°C in molten halides, e.g., mixtures of calcium chloride with magnesium fluoride, for scrap recycle.
- Reacting magnesium powder with uranium tetrafluoride as pellets at about 700 °C in the glove box to form magnesium fluoride and solid uranium.
- Passing these reacted pellets into molten halides to complete the reduction reactions and melt and agglomerate the uranium metal in the furnace.

- Flowing molten uranium continuously from the collected molten metal to billet molds, all in the inert atmosphere.
- Decontaminating traces of uranium from magnesium fluoride and from other molten halides used in the furnace.
- performing other related experiments needed to carry out the developments above.
- Outside of the glove box but in the DU room, we will perform chemical analyses and other activities related to the programs being carried out.

Chemicals consistent with the operations described above found to be stored on site include:

- Magnesium fluoride and other halides (calcium chloride, cesium iodide, lithium bromide, lithium iodide, manganese fluoride, stannous fluoride, potassium iodide)
- magnesium powder
- calcium shot under argon

Reviewing the radioactive materials application and license provided information about the identity, locations, and general quantities of radioactive material used at the site. This information helps to determine which areas (survey units) are likely to contain residual radioactivity and, thus, indicated areas where radiation survey activities were concentrated. The radioactive materials license (see Attachment 3) indicates that the radioactive material element and mass number of the radioactive isotope used at the site was uranium-238. The chemical form of the uranium is listed as a metal alloy depleted in uranium-235 and uranium-234. The maximum quantity that the licensee could possess at any one time was not to exceed 1820 kilograms.

Background radiation levels for the two parts of the radiation surveys were established by appropriate methods described in the following sections. The background radiation levels were used as decision levels in determining if residual radioactive material is present at the site.

2.2 Radiation Survey Unit Identification

Based on the HSA, professional judgement, and guidance set forth in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (EPA, 1997), the site was separated into a number of survey units for performing the radiation surveys. Separate background radiation levels were established for each survey unit, as described in Section 2.4. The radiological survey units are listed in Table 2.2-1.

Table 2.2-1 Description of Radiological Survey Units

Survey Unit Description	Approximate Surface Area (ft^2)	Background Unit Description	Approximate Surface Area (ft^2)
Structure Survey			
Lab floor	864	Office floor	198
Lab walls and ceiling	1904	Office walls	443
West shed walls	364	Clean piece of aluminum set against shed wall	NA
East shed walls	364		
West shed floor	266	Clean piece of concrete set against shed floor	NA
East shed floor	266		
Ground Survey			
Survey area	10,720	North undeveloped portion of site	6,000

2.3 Radiation Instrument Selection

A Ludlum model 2350-1 ratemeter/datalogger was selected for the radiation measurements because the instrument can be programmed to accept multiple types of detectors. The meter was used with two different detectors for the two types of radiation surveys as described below. Calibration records for the meter and probes are in Attachment 4.

2.3.1 Structure Survey Instrumentation

The present owner has recently remodeled the primary residence structure and original laboratory wall surfaces have been painted and the floors have been covered with a ceramic type tile. Alpha radiation will not penetrate such surfaces so the possibility of detecting removable alpha contaminants was rejected. However, residual contaminants from depleted uranium release a variety of beta and gamma emissions. If residual contaminants are present beneath the painted surfaces of the walls and ceiling or the tile surface of the floor, then the radiation will most likely be detectable using a Geiger Mueller (GM) pancake type probe. The GM pancake probe is 30% efficient for detection of alpha radiation so this instrument was deemed appropriate for the survey of the unpainted surfaces of the storage shed structures. The shielded Ludlum 44-40 Geiger Mueller pancake probe, typically referred to as a beta/gamma detector, was also selected for its efficiency in detecting beta emissions from depleted uranium progeny and the low background provided by thick lead shielding around the detector. The calibration records for the Ludlum 44-40 probe are in Attachment 4.

2.3.2 Ground Radiation Survey Instrumentation

Laboratory operations at the site are believed to have ceased prior to 1994. Portions of the site have recently been re-landscaped by the present owner. Subsequently, the potential for the presence of subsurface contaminants as well as for surface contaminants exists. Gamma radiation is the most penetrating of the radioactive emissions given off by depleted uranium and if residual radionuclide contaminants are present in the surface materials or within 1 to 2 feet of the surface, the radiation emissions will most likely be detected with gamma scintillation detectors. For this reason a gamma scintillation device was selected for the ground radiation survey. A shielded, collimated Ludlum 44-10 sodium iodide gamma scintillation probe was selected for the ground radiation survey. The shielded, collimated probe provides a lower background radiation level and increases the chance of discriminating low levels of residual radioactive material from background radiation levels.

2.4 Structure Radiation Survey

2.4.3 Laboratory Walls, Ceiling, and Floor Survey

2.4.3.1 Background Radiation Determination for the Structure Survey

The former office that was adjacent to the former laboratory room was selected for the determination of background due to the similarity of materials used for construction and remodeling. A recently constructed built wall in the former laboratory room was also selected for background measurements because of similarity in construction materials. The assumption is that laboratory activities utilizing depleted uranium were not performed outside the laboratory survey unit and that no radioactive materials were stored outside of the former laboratory room in the primary residence area that was used as an office. Because of the higher content of natural radioactivity in ceramic tile, background radiation levels were determined separately for the walls/ ceiling and for the floor.

Table 2.4-1 summarizes the activities performed to obtain the background radiation levels in the residence structure. To determine background radiation levels of the walls, 36 measurements were obtained from the south wall of the former office room and 33 measurements were obtained from the east wall of the former office room. Additionally, 12 measurements were obtained from the new wall within the former laboratory room. A total of 81 measurements were obtained over a surface area of 443 square feet for an average of one measurement every 5.5 square feet. To determine background radiation levels of the floors, 10 measurements were obtained from the office floor for an average of one measurement every 2 square feet. Field logs and survey notes of the survey to determine background radiation levels are included in Attachment 2.

Table 2.4-1. Background Radiation Measurements in Former Office and Laboratory

Location	Survey Grid Size	Number of Measurements
Former Office, South Wall	2' x 2'	36
Former Office, East Wall	2' x 2'	33
Former Laboratory, New Wall	6' x 2.5'	12
Total of Walls		81
Former Office, Floor	1' x 2'	10

2.4.3.2 Radiation Survey for Laboratory Walls, Ceiling, and Floor

The walls and ceilings of the two rooms that comprised the former laboratory were each partitioned into a grid with the grid size depending on the dimensions and available surface area. The doors, windows, and cabinets were not surveyed.

Table 4.4-2 summarizes the activities performed to obtain the radiation survey in the residence structure. A total of 131 measurements from ceilings and walls were obtained covering a surface area of approximately 1900 square feet for an average of one measurement every 15 square feet. Additionally, 8 measurements were obtained from the former laboratory floor for an average of one measurement every 108 square feet. Field logs and survey notes are included in Attachment 2.

Table 2.4-1. Background Radiation Measurements in Former Office and Laboratory

Location	Survey Grid Size	Number of Measurements
West Laboratory Room, Ceiling	7' x 6'	12
West Laboratory Room, South Wall	None, Random	7
West Laboratory Room, North Wall	7' x 2'	12
West Laboratory Room, West Wall	None, Random	7
East Laboratory Room, North Wall	5' x 2'	20
East Laboratory Room, South Wall	5' x 2.5'	29
East Laboratory Room, East Wall	6' x 2'	12
East Laboratory Room, Ceiling	6' x 5'	32
Total Survey Measurements		131

2.4.4 Storage Shed Structures Walls and Floors

2.4.4.1 Determination of Background Radiation Levels

A section of 1/8" thick aluminum plate was obtained from a local metal working shop and placed against the wall of the west storage shed. Ten successive radiation measurements were obtained to develop a background radiation level for the storage shed structure walls.

A clean sample of concrete similar in composition to the storage shed foundation concrete was obtained from a local contractor and placed on the floor of the west storage shed. Ten successive measurements were obtained to develop a background radiation level for the floors of the storage sheds.

Field logs and survey notes associated with the radiation surveys are included in Attachment 2.

2.4.4.2 Survey Implementation for Storage Shed Walls and Floor

The storage shed walls are separated into 18 upper and lower panels approximately 6' x 3.5' in dimension. One radiation measurement was obtained from each panel. A total of 36 measurements were obtained from the east and west storage shed walls. An average of one measurement was obtained every 20 square feet.

Six measurements were obtained from a 7' x 6' grid on the floor of each storage shed. An average of one measurement was obtained every 44 square feet. Measurements were also biased around staining and paint stripped locations. Field logs and survey notes of the radiation surveys are included in Attachment 2.

2.4.5 Ground Radiation Survey

2.4.5.1 Background Determination

A 60' by 90' background survey grid area was established upslope from structures on the north side of the property to represent background site conditions and to develop background radiation levels for the site. The individual grid size was 10' by 20' and a total of 40 radiation measurements were obtained from an area of 5400 square feet, for an average of one measurement every 135 square feet. The site map showing the location and orientation of the background survey grid points is shown in Attachment 1. A radiological isopleth map showing the results of the background radiation survey is shown in Figure 2.4-1. The higher radiation levels obtained during the background survey (> 2400 counts/30 seconds) represent areas of soil cover. The lower background values obtained (<1900 counts) represents areas of exposed basalt without soil. The middle range of background values represents combinations of exposed basalt and thin soil cover. The mean background value obtained was 2230 counts/30 seconds with a standard deviation of 323 counts/30 seconds.

2.4.5.2 Implementation of Ground Radiation Survey

Radiation measurements were obtained on the west and north portions of the site, including in the vicinity of the two storage shed structures, and to the property boundary on the east. A topological site map showing the location of the ground radiation survey points, structures, and property boundaries is in Attachment 1. Measurement locations were concentrated in front of the storage-shed structures and in the drainage areas. A total of 90 measurements were obtained from an approximate surface area of 10,720 square feet, for an average of one measurement every 120 square feet. Figure 2.4-2 is an isopleth map of the radiological levels encountered during the survey. The higher radiation levels observed correspond to areas of soil cover and the lower levels correspond to areas of exposed basalt. In general, soil is present on the western part of the site and basalt is exposed on the eastern part of the site, which can be observed in the decrease in ambient radiation levels from west to east across the property. The mean ground radiation value obtained was 2004 counts/30 seconds with a standard deviation of 226 counts/30 seconds. These surface radiological conditions observed at the site are not significantly different from those observed in the background radiation survey.

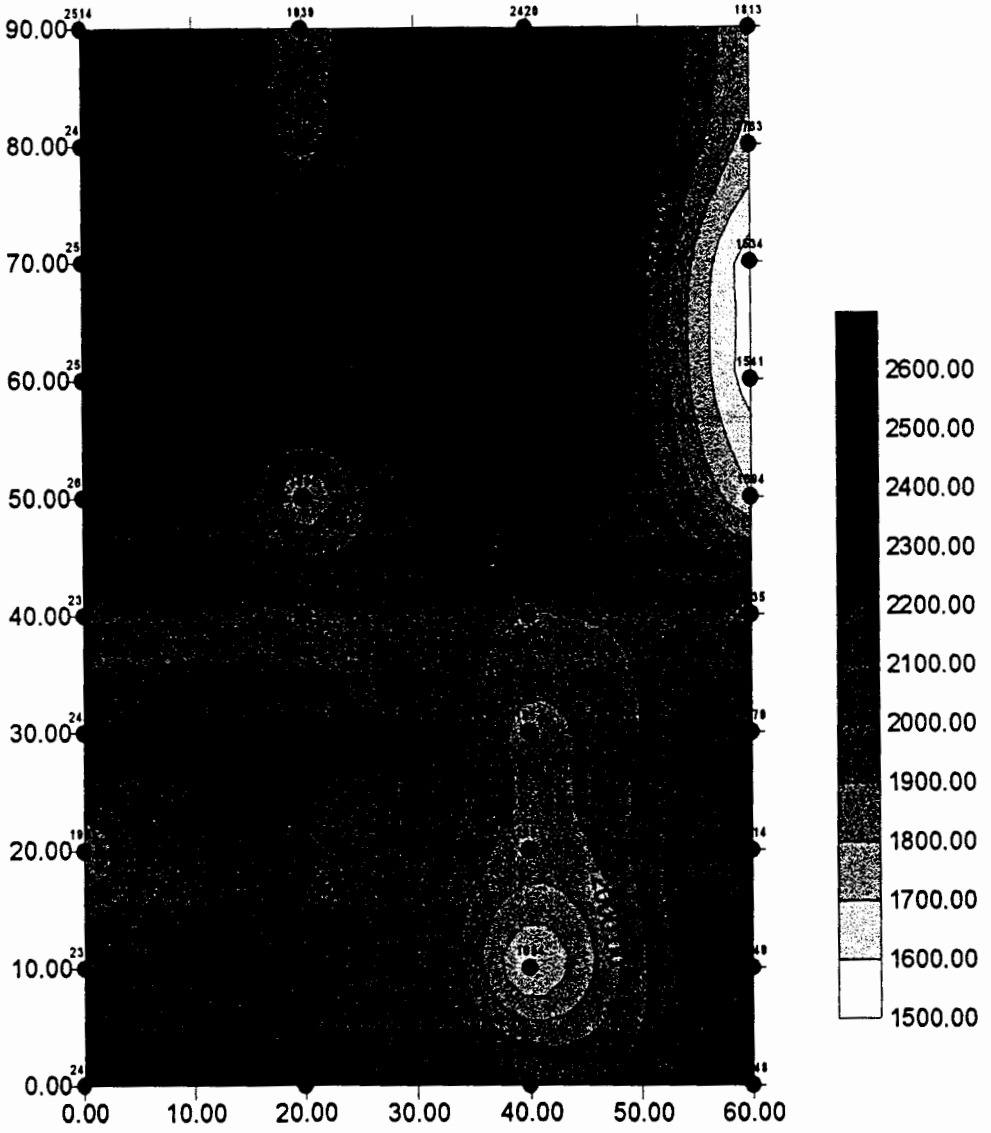


Figure 2.4-1. Isopleth Map of Background Radiation Levels
Area shown is of the background radiation grid area located north of the site, see site map in Attachment 1. Data values shown and contours are in counts per 30-second measurement interval, axes are in Distance (Ft).

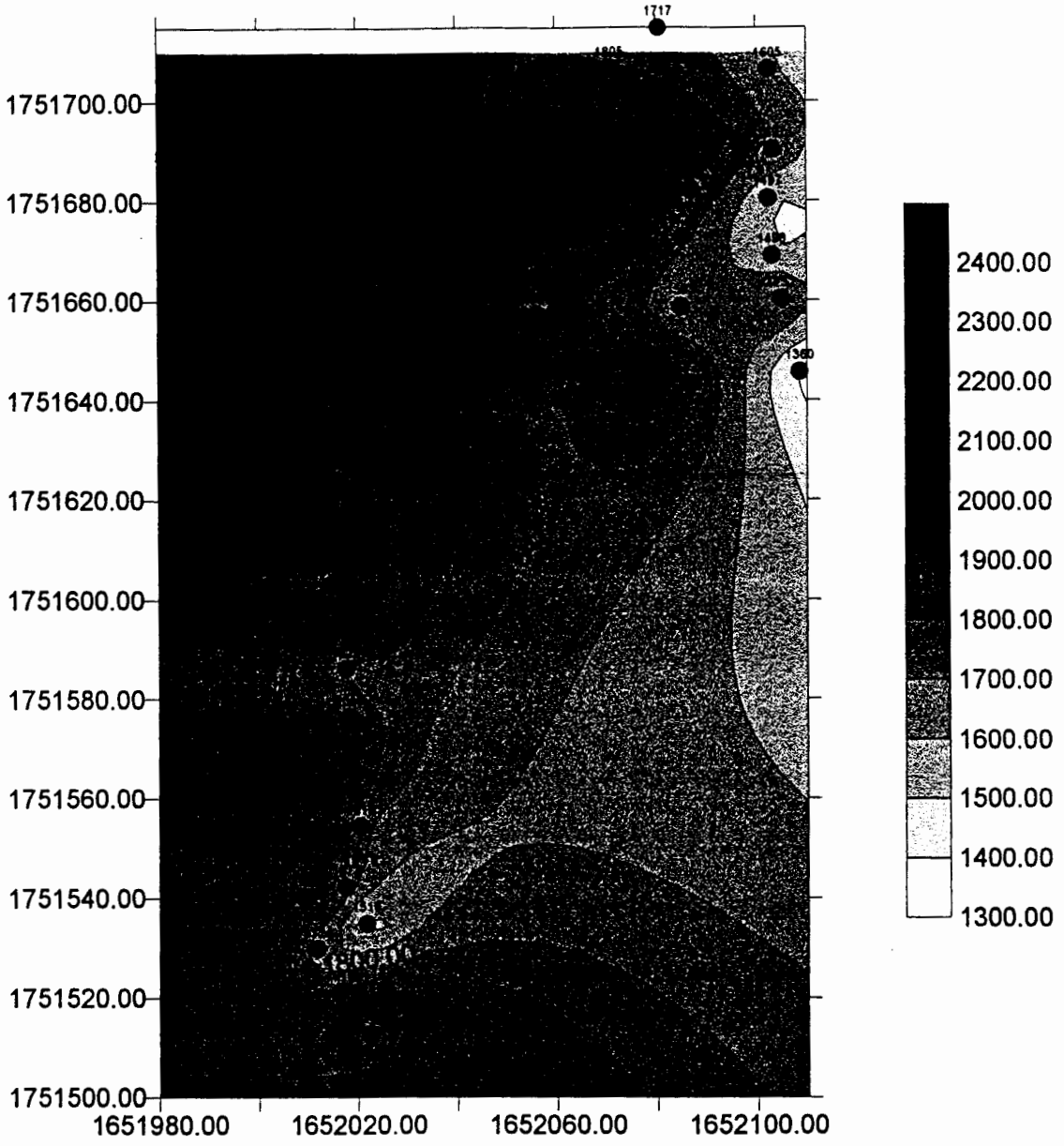


Figure 2.4-2 Isopleth Map of Site Radiation Levels
Area shown is of the site radiation grid area located at the site, see site map in Attachment 1. Data values shown and contours are in counts per 30-second measurement interval. Axes are in approximate New Mexico State Plan Coordinate system (1983) (Ft).

2.4.6 Radiation Survey Results

A summary of the results of the radiological scoping surveys is in Table 2.4-2. The radiological survey data shown includes the average radiation levels for each survey unit and the standard deviation of the survey data for each survey unit and the results of the background radiation survey for each survey unit.

The average results of the ground radiation survey were not above the average results of the background radiation survey. In general, the higher counts were obtained on the west side of the property and related to a thicker soil and backfill materials; the lower counts were obtained on the east side of the property where thinner soils and outcrops of basalt are present.

The average of the results of the radiation surveys in the east storage shed walls, the west and east storage shed floors, and the former laboratory floor and walls were slightly higher than the average background counts for each survey unit. However, the standard deviations of these average values are within those of the background values, so no statistically significant elevations in the average values were observed.

The results of the radiological scoping surveys indicate that no significant radiological anomalies were observed at the site.

Table 2.4-2 Results of the Radiological Scoping Surveys

Survey Unit	Average Survey Unit Counts*	Standard Deviation	Average Background Survey Counts*	Standard Deviation
Ground Survey	2005	226	2231	323
West Shed Walls	19.83	4.7	20.6	6.4
East Shed Walls	19.5	4.7		
West Shed Floor	37.7	9.6	35.4	4
East Shed Floor	42.7	7.4		
Lab Floor	49	7.32	48.2	7.8
Lab Walls and Ceiling	25.9	5.92	22.99	4.19

*All measurements were obtained over a 30 sec. counting period. See Section 2.3 for instrumentation.

2.5 References for Section 2

EPA et al., 1997, Multi-Agency radiation Survey and Site Investigation Manual (MARSSIM), December, 1997, Environmental Protection Agency EPA 402-R-97-016, NUREG-1575, Washington, DC.

SAIC 1999, "Sample and Analysis Plan for the Site Investigation of the 133 La Senda Road Property, Los Alamos, New Mexico;" Prepared by Science Applications International Corporation Los Alamos, New Mexico for the Sate of New Mexico Environment Department DOE Oversight Bureau, Santa Fe, New Mexico.

3.0 Soil and Swipe Sampling

A total of 10 soil samples and 3 radiological swipe samples were collected at the site. Soil samples were collected from the area around the storage sheds, in the site drainages, and from the septic tank leach field. Two swipe samples were collected from the floors and walls of the east and west storage shed structures. Swipe sample locations were concentrated where staining and peeling of the concrete was observed. One swipe sample was collected from the inside of the septic tank chase clean out pipe located north of the septic tank and near the primary residence structure.

One background soil sample from site E1 was collected from the vacant area north of the structures on the property. This location was chosen for the background sample based on the recommendation of NMED personnel. This background sample was used as a comparison for the concentrations of naturally occurring metals and radionuclides in the samples collected from near structures at the site. Samples A1 and B1 were collected in front of the entrances to the west and east storage sheds, respectively. Sample A2 was collected from the west side of the west storage shed and sample B2 was collected from the east side of the east storage shed. Sample C1 was collected from between the two storage sheds. Sample D1 was collected from the backyard about 20 ft north of the house. Sample F1 was collected from the site of the former Morgan storage shed at the northeast corner of the house. Samples H1 and H2 were collected from the leach field area associated with the septic tank.

A site map showing the locations of the soil samples is in Attachment 1. Sample collection logs and chain of custody forms are in Attachment 5. Table 3.0-1 summarizes the sample collection information and the types of analyses requested.

Table 3.0-1 Summary of Samples Collected

Sample ID	Location ID	Depth	Sample Type	Collection Date	Analyses Requested
A1-91699	A1	0-1 ft	soil	9/16/99	Total Metals. Gross α/β, ISO Uranium (H1 and H2 were also analyzed for SVOCs)
A2-91699	A2	0-1 ft	soil	9/16/99	
B1-91699	B1	0-1 ft	soil	9/16/99	
B2-91699	B2	0-1 ft	soil	9/16/99	
C1-91699	C1	0-1 ft	soil	9/16/99	
D1-91699	D1	0-1 ft	soil	9/16/99	
E1-91699	E1	0-1 ft	soil	9/16/99	
F1-91699	F1	0-1 ft	soil	9/16/99	
H1-91699	H1	2-3 ft	soil	9/16/99	
H2-91699	H1	3-4 ft	soil	9/16/99	
CSW-92099	Septic Tank Chase	NA	swipe	9/20/99	Gross α/β, ISO Uranium
ESW-91699	East Shed	NA	swipe	9/16/99	
WSW-91699	West Shed	NA	swipe	9/16/99	

3.1 Analytical Results

The following sections describe the quantitative results of the analyses requested on the soil and swipe samples collected. Section 3.1.1 describes the results of the analyses for total Metals, Section 3.1.2 describes the results of the radiological analyses for isotopic uranium and gross radiation levels, and Section 3.1.3 describes the results of the organic chemical analysis.

3.1.1 Total Metals Analytical Results

The soil samples were submitted for total metals analysis following SW-846 procedures (EPA 1983). The laboratory case narrative and report for the analyses is in Attachment 7. Table 3.1-1 summarizes the results of the analysis and provides comparison of the background sample values to the analytical results. The analytic results exceeding the background values are shown in bold type. The analytical results for the background sample, E1 are provided to show comparison with the results of the soil samples collected at the site. The one background sample does not provide a statistical basis for determining background concentrations and therefore, soil samples that contain slightly higher concentrations of metal constituents are not necessarily above background conditions. The background sample was collected from an area containing soil cover while many of the site soil samples were collected from weathered basalt or backfill materials, which may naturally have different background concentrations.

The results of the soil sampling show that barium, calcium, potassium, and sodium concentrations at the site were consistently higher than in the background sample, which may be attributed to the differences in the rock type sampled. Copper concentrations in the samples from the leach field were elevated (approximately by 3 times) compared to the background sample, which could possibly be attributed to the use of sewer line or septic tank chemicals. Zinc was significantly elevated (approximately by 6 times) in concentration in sample B2 collected east of the east storage shed.

Table 3.1-1 Inorganic Analytical Results of Soil Samples*

Sample ID	E1 (Back-ground)		A1		A2		B1		B2		C1		D1		F1		H1		H2	
Analyte	Mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q
Aluminum	10000		10000		**11000**		9500		9700		9500		8100		5700		5700		6700	
Antimony	2.2	U	2.2	U	2.3	U	2.2	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U	2.4	U
Arsenic	4.8		4.2		5		4.2		3.9		4.8		3.6		3		3.1		3.4	
Barium	180		**210**		170		**210**		160		**230**		180		140		**240**		**210**	
Beryllium	1		0.99		1.1		0.94		0.94		0.93		0.73		0.57		0.57	U	0.59	U
Cadmium	0.55	U	0.55	U	0.58	U	0.55	U	0.57	U	0.56	U	0.56	U	0.56	U	0.57	U	0.59	U
Calcium	24000		**46000**		17000		**48000**		21000		**49000**		**72000**		**58000**		**170000**		**140000**	
Chromium	11		9.7		11		9.2		**14**		9.7		7.9		7.5		12		13	
Cobalt	8.4		7.1		7.8		6.5		7		7.9		5.6		4.4		4.1		4.8	
Copper	13		11		13		9.6		11		9.8		9.9		7.5		**35**		**43**	
Iron	15000		14000		15000		12000		13000		15000		10000		9000		6800		8600	
Lead	13		11		12		11		13		13		7.5		8		4.4		5	
Magnesium	3100		3100		2900		2800		2400		3300		**5700**		2800		3300		4200	
Manganese	400		300		360		280		320		390		230		170		120		120	
Mercury	0.11	U	0.11	U	0.12	U	0.11	U	0.11	U	0.11	U	0.11	U	0.11	U	0.11	U	0.12	U
Nickel	13		11		12		9.8		10		11		10		7.6		11		12	
Potassium	1800		**2100**		**1900**		**1900**		1700		**1900**		**2200**		1600		1200		1300	
Selenium	0.55	U	0.55	U	0.58	U	0.55	U	0.57	U	0.56	U	0.56	U	0.56	U	0.57	U	0.59	U
Silver	1.1	U	1.1	U	1.2	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.2	U
Sodium	110	U	**180**		120	U	**250**		110	U	**140**		**130**		**130**		**630**		**670**	
Thallium	1.5		1.1	U	1.2		1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.2	U
Vanadium	27		25		26		22		23		27		20		17		16		18	
Zinc	32		32		39		29		**190**		31		25		28		38		**49**	

* All Results in mg/kg. Q = Qualifier (laboratory); U= not detected. Analyte values exceeding background values are in bold type

3.1.2 Radiological Analytical Results

Table 3.1-2 shows the results of the radiochemical analyses for isotopic uranium of the soil samples collected on the property and compares them to the background sample value collected north of the property (E1). The results exceeding the background sample values are shown in bold type. The analytical results for the background sample, E1 are provided to show comparison with the results of the soil samples collected at the site. The one background sample does not provide a statistical basis for determining background concentrations and therefore, soil samples that contain slightly higher concentrations of radiological constituents are not necessarily above background conditions. The background sample was collected from an area containing soil cover while many of the site soil samples were collected from weathered basalt or backfill materials, which may naturally have different background concentrations.

The uranium-234 concentrations from the leach field area (H1 and H2) appear to be higher than the background sample by approximately by 2 times. Uranium-235 concentrations in soil samples from sites B1 and C1 appear to be elevated compared to the background soil sample by 3 and 2 times, respectively. Uranium-238 concentrations at site B1 appear to be significantly elevated (by 8 times) compared to the background sample.

Table 3.1-2 Isotopic Uranium Radiochemical Analyses of Soil Samples*

	Analytic Results(pCi/g)											
	U-234	(+/-)	MDC	Q	U-235	(+/-)	MDC	Q	U-238	(+/-)	MDC	Q
Sample ID												
E1 (Background Sample)	0.77	0.13	0.034		0.056	0.028	0.034	LT	0.69	0.12	0.034	
Blank (Soil)	0.022	0.021	0.031	U	0.011	0.015	0.026	U	0.001	0.013	0.031	U
A1	**0.93**	0.16	0.032		0.045	0.027	0.03	LT	**0.84**	0.15		
A2	0.72	0.13	0.041		0.038	0.026	0.032	LT	**0.75**	0.14	0.013	
B1	**1.44**	0.27	0.081		**0.165**	0.08	0.081		**5.61**	0.78	0.086	
B2	0.75	0.14	0.048		**0.094**	0.043	0.043	LT	**0.97**	0.17	0.038	
C1	**0.79**	0.18	0.072		**0.123**	0.21	0.049		**0.99**	0.21	0.049	
D1	**1.03**	0.17	0.045		**0.059**	0.17	0.029	LT	**0.97**	0.17	0.029	
F1	0.63	0.12	0.034		0.032	0.028	0.047	U	0.52	0.11	0.049	
H1	**1.35**	0.22	0.036		0.077	0.037	0.014	LT	**1.07**	0.18	0.014	
H2	**1.39**	0.24	0.034		0.047	0.033	0.034	LT	**1.29**	0.22	0.041	

* Values exceeding the background sample value are in bold type. MDC = minimum detectable concentration. Q = qualifier (laboratory); U = not detected; LT = result is less than MDC but greater than sample specific MDC.

Table 3.1-3 shows the results of the radiochemical analyses for isotopic uranium of the swipe samples collected from the interior of the storage shed structures and the septic tank chase clean out. The analytical report (see Attachment 7) recommends a decision criteria level of 0.2 pCi/swipe for determining the validity of the results. The results for uranium-234 and uranium-235 from one swipe sample from the east storage shed exceeded this decision level and are shown in bold type in Table 3.1-3.

Table 3.1-4 shows the results of the radiological analyses for gross alpha and beta radiation of the soil samples collected on the property and compares them to the background sample value collected north of the property (Sample E1). The results exceeding the background values are shown in bold type. The analytical results for the background sample, E1 are provided to show comparison with the results of the soil samples collected at the site. The one background sample does not provide a statistical basis for determining background concentrations and therefore, soil samples that contain slightly higher concentrations of radiological constituents are not necessarily

above background conditions. The background sample was collected from an area containing soil cover while many of the site soil samples were collected from weathered basalt or backfill materials, which may naturally have different background concentrations.

The data indicate that gross alpha activity in soil samples from sites A1 and B1 may potentially be significantly higher than that of the background soil sample. Gross beta activity in soil samples from sites A1, A2, B1, and B2 may potentially be significantly higher than that of the background soil sample.

Table 3.1-3 Isotopic Uranium Radiochemical Analyses of Swipe Samples*

	Analyte Results (pCi/g)											
	U-234	(+/-)	MDC	Q	U-235	(+/-)	MDC	Q	U-238	(+/-)	MDC	Q
Blank Swipe	0.089	0.047	0.057	B3	0.065	0.04	0.05	B3	0.033	0.024	0.02	B3
ESW	**0.251**	0.089	0.088		0.108	0.063	0.088	LT	**0.74**	0.16	0.088	
WSN	0.065	0.062	0.11	U	-0.013	0.054	0.12	U	0.045	0.049	0.087	U
CSW	0.155	0.063	0.063	LT	0.072	0.05	0.075	U	0.067	0.045	0.063	LT

* values exceeding decision level (0.2 pCi/g) are in bold type. MDC = minimum detectable concentration. Q = qualifier (laboratory): U = result is less than the sample specific minimum detectable activity, LT = result is less than requested MDC but greater than the sample specific MDC, B3 = results is greater than MDC but less than requested MDC.

Table 3.1-4 Gross Alpha and Beta Radiation Analyses of Soil Samples*

Sample ID	Gross Alpha (pCi/g)	(+/-)	Gross Alpha MDA	Gross Beta (pCi/g)	(+/-)	Gross Beta MDA
Blank (Soil)	0.19			0.28		
E1 (Background)	7.4	1.4	0.97	3.37	0.86	1.2
A1	**8.6**	2.2	1.9	**5**	1.3	1.7
A2	**10.2**	1.9	1.1	**5.17**	0.87	0.89
B1	**13.2**	2.7	2	**10.9**	1.8	1.9
B2	7	1.4	1	**5.07**	0.88	0.93
C1	6.6	1.5	1.4	**3.68**	0.89	1.2
D1	**7.9**	1.7	1.4	**4.07**	0.93	1.2
F1	4.2	1.2	1.4	3.0	0.89	1.3
H1	4.2	1.6	2	2.42	0.93	1.4
H2	4.1	1.9	2.6	2.38	0.96	1.5

* Values exceeding the background soil sample are shown in bold type

Table 3.1-5 shows the results of the radiological analyses for gross alpha and beta radiation of the swipe samples collected from the interior of the storage sheds and the septic tank chase clean out. Gross beta activity from the east storage shed swipe sample slightly exceeded the minimum detectable activity, but with an uncertainty of 1.6 pCi the result is not considered significant.

Table 3.1-5 Gross Alpha and Beta Radiation Analyses of Swipe Samples*

Sample ID	Gross Alpha pCi/Sam.	(+/-)	Gross Alpha MDA	Gross Beta (pCi/Sam.)	(+/-)	Gross Beta MDA
Blank	0.88			2.4		
ESW	0.1	0.4	0.88	**2.5**	1.6	2.4
WSN	-0.02	0.33	0.88	0.55	1.4	2.4
CSW	0.1	0.4	0.88	0.68	1.4	2.4

* Values exceeding decision level are shown in bold type. MDA = minimum detectable activity.

3.1.3 Organic Chemical Analytic Results

Two samples collected from approximately mid and bottom depth of the septic leach field were submitted for SVOC analysis. Sample H-1 was collected from a depth of 2-3 ft beneath the surface and sample H2 was collected from a depth of 3-4 ft beneath the surface. The soil samples were prepared and analyzed for semivolatile organic chemicals (SVOCs) according to SW-846 protocols (EPA 1983) utilizing Paragon Analytics Inc. standard operating procedures (SOPs). Specifically, the soil samples were extracted using soxhlet procedures according to SW-846 Method 3540 utilizing Paragon SOP 625. The analytical laboratory reports for the SVOC analyses are contained in Attachment 7.

SVOCs were not detected in sample H1 above the reporting limits. One SVOC was detected in an estimated concentration (J qualifier) in sample H2 above the reporting limits. Benzoic acid was detected below the reporting limit in an estimated quantity of 490 parts per billion (ppb). Benzoic acid has a number of uses such as plasticizers, food preservatives, seasoning tobacco, flavors, perfumes, dentrifices, standard in analytical chemistry, and as an antifungal agent. Benzoic acid in this instance is probably a lab contaminant given the minute quantity (490 ppb).

3.2 Quality Assurance

The following section summarizes the quality assurance procedures for each analytical method performed on the soil and swipe samples. A more detailed account of the quality assurance is included in the analytical reports contained in Attachment 7.

3.2.1 Total Metals Analysis Quality Assurance

The general quality control procedures followed in the extraction and analyses of the soil samples for total metals analyses are listed below.

- A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in each digestion batch. There were not more than 20 samples in each digestion batch.
- The preparation (method) blank results associated with each batch were below the reporting limits for the requested analytes. This indicates that no contaminants were introduced to the samples during the digestion procedure.
- The laboratory control sample associated with each batch was within acceptance limits. This indicates complete digestion according to the method.
- All initial and continuing calibration blanks associated with each batch were below the reporting limits for the requested analytes. This indicates a valid calibration and stable instrument conditions.
- The interference check samples, and high standard read-backs associated with Method 6010B analyses were within acceptance criteria.
- Final analysis of matrix spike and matrix spike duplicate revealed results that were acceptable indicating that the matrix was not significantly affecting quantitation of certain analytes described in analytical report contained in Attachment 7.

3.2.2 Quality Assurance of Isotopic Uranium Analysis for Soil and Swipe Samples

The general quality control procedures followed in the extraction and analyses of the soil and swipe samples for isotopic uranium are listed below.

- The samples were analyzed for the presence of isotopic uranium according to Paragon Anlaytics, Inc. procedure PAI SOP714R4. The analyses were completed on 10/05/99.
- Due to insufficient sample amount of the wipes, a duplicate laboratory control sample (LCS) was prepared in lieu of a prep batch duplicate.
- U-234, U-235, U-238 activity is reported in the associated blank above the minimum detectable concentration value for batch AS02827. The batch blank was prepared using a wipe provided by SAIC. The measured blank activity is below the standard MDC (0.2 pCi/sample). Results should be compared to the blank activity to determine the validity of the measurement.
- No further anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

3.2.3 Quality Assurance of Gross Radiological Analysis of Soil Samples

The general quality control procedures followed in the analysis of the soil samples for gross alpha and beta radiation levels are listed below.

- No anomalous situations were encountered during the preparation or analysis of these samples
- All quality control criteria were met

3.2.4 Quality Assurance of Gross Radiological Analysis of Swipe Samples

The general quality control procedures followed in the analysis of the swipe samples for gross alpha and beta radiation levels are listed below.

- Due to the matrix type (swipe) of the samples, a batch duplicate was not prepared
- The preparation of these samples was non-destructive in nature. Therefore, the prep of a LCS was not required. Calibration standards were analyzed and are reported in association with these samples. Continuing calibration was verified prior to sample counts. All continuing calibration checks met acceptance criteria.
- Background calibration was determined by averaging the results of ten 100 minute counts of DEFENSAP wipes in stainless steel counting planchets. A method blank was prepared and counted for each group of twenty samples. All background checks met acceptance criteria.
- No further anomalous situations were encountered during the preparation or analysis of these samples. All remaining quality control criteria were met.

3.2.5 Quality Assurance of SVOC Analysis of Soil Samples

The general quality control procedures followed in the analysis of the soil samples for semi-volatile organic compounds (SVOCs) are listed below.

- These samples were received cool and intact on September 18, 1999
- The samples were analyzed using GC/MS with a DB-5.625 capillary column according to Paragon SOP 506 based on SW-846 Method. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard
- All initial calibration criteria were met. Method 8270C states that if average of the percent relative standard deviations (RSDs) is less than 15, the average response factors may be used for quantitation
- All continuing calibration criteria were met

- There were no target compounds detected in the method blank
- All laboratory control spike and spike duplicate recoveries and RPDs were within the acceptance criteria
- Matrix spikes and matrix spike duplicates were not designated for this sample delivery group. A laboratory control spike and spike duplicate were performed instead
- The samples were extracted and analyzed within the established holding times
- All surrogate recoveries were within acceptance criteria

3.3 References for Section 3

EPA (US Environmental Protection Agency), March 1983. "Methods for Chemical Analysis of Water and Wastes," EPA-600 4-79-020, Environmental Monitoring and Support Laboratory, Office of Research and Development, Cincinnati, Ohio.

4.0 Deviations from SAP

One deviation from the SAP and the NMED Statement of Work (SOW) occurred when the septic tank was opened for the collection of septic tank sludge material. Sludge material was not present in sufficient quantity for sampling so sludge material could not be sampled from the tank. After discussion with NMED personnel, it was decided to swipe the interior of the septic tank chase or clean out pipe for residual radioactivity. Swipe sample CSW-92099-SAIC was collected in place of the septic tank sludge sample.

5.0 Conceptual Model

The initial understanding of the site involved developing a conceptual model based on the existing information collected during previous investigations. Conceptual models describe a site or facility and its environs, and present hypotheses regarding the radionuclides for known and potential residual contaminants. The conceptual model of the site is typically upgraded and modified as additional information becomes available throughout the site Investigation Process (EPA et al. 1997, Chapter 3).

The conceptual model of the property located at 133 La Senda Road, White Rock, New Mexico was initially based on data and information presented in the SAP (SAIC, 1999). The conceptual model has been revised based on additional information provided by the NMED and the results of the scoping radiation surveys and the results of the judgmental soil and swipe sampling obtained during the site investigation process.

5.1 Conceptual Site Conditions and Historical Activities

The following items represent the current conceptual understanding of the site.

- A small chemical laboratory was operated at the site from circa 1981 until 1994.
- Chemicals and reagents including metals, acids, bases, and organic solvents were used in the laboratory and stored on site.
- Depleted uranium may have been stored and used on site
- A temporary Morgan storage shed was formerly present at the northeast corner of the house that was used to store chemicals and possibly depleted uranium.

- Two outbuildings are present at the north side of the property that were used to store chemicals and reagents.
- Chemicals and reagents may have been disposed of on the ground at the property.
- Chemicals and reagents may have been disposed of in sinks in the laboratory that lead to the septic tank and leach field that are located on the south side and southeast corner of the property, respectively.

5.2 Conceptual Model of Geology

- The bedrock geology at the site is composed of massive basalt flows of Tertiary Age.
- A relatively thin veneer of soil and backfill gravel materials overlie the bedrock basaltic rocks and are present at the surface of the site.
- The topography of the site slopes to the southeast with about 15-ft of total relief.
- The elevation of the site ranges from about 6427 to 6433 ft above sea level.
- The septic tank and leach field were constructed in excavations and trenches into the basaltic bedrock.

5.3 Conceptual Model of Hydrology

- Two dry wells are present on the property. The depth of these wells is not known.
- Groundwater is present in the regional aquifer, which is located about 600 ft beneath the site.
- The presence of intermediate zones of saturation within the basalt is not known.
- Surface runoff at the site is generally from northwest to southeast.
- A berm and swale have been constructed around the northwest side of the house to direct runoff around the west and east sides of the house.

5.4 Conceptual Model of Contaminant Migration

- Potential contaminants released in storage buildings may have contaminated the structure and possibly the soil adjacent to the structures.
- Soil near doorways to the storage structures likely received the highest amounts of contaminants.
- Potential contaminants in soil would tend to migrate through processes of erosion and deposition associated with stormwater runoff.
- Potential contaminants released in the laboratory room in the residence building may have contaminated the walls, floor, cabinets, sinks, etc.
- Potential contaminants may have been discharged as liquid wastes down the sink drains and to the septic tank and the leach field.
- Potential contaminants discharged to the leach field could be in soil material in the leach field or could possibly migrate through the bedrock basalt to deeper horizons.

5.5 Refinement of the Conceptual Model

The objectives and approaches of an investigation are refined and modified as new data are obtained. Revisions or refinements to the different components of the conceptual model are based on the integration of results from all components of the investigation as well as the integration and further interpretive analysis of data from other previous and ongoing investigations.

After the field investigation was conduced and during preparation of the site map for this report, a review of architectural drawings of the site (Dority 1981) was performed. The drawings show that the sink in the former laboratory drained to a "dry well" that is located about 25 ft northeast of the house and not to the septic tank and leach field as previously conceptualized. This information

revises the following portions of the conceptual model that are shown underlined in the following bullets.

- Section 5.1. Site Conditions and Historical Activities. Chemicals and reagents may have been disposed of in sinks in the laboratory that lead to a "dry well" located northeast of the house and possibly to the septic tank and leach field that are located on the south side and southeast corner of the property, respectively.

- Section 5.2. Geology. The dry wells, septic tank, and leach field were constructed in excavations and trenches into the basaltic bedrock.

- Section 5.3. Hydrology. Two dry wells are present on the property. The depth and width of these wells is approximately 4 ft and the wells are used for the disposal of wastes from sinks and showers in the house.

- Section 5.4. Contaminant Migration. Potential contaminants may have been discharged as liquid wastes down the sink drains and to the "dry well" located northeast of the house and not to the septic tank and the leach field.

The results of the investigation show that copper and zinc and uranium isotopes may be present in slightly elevated concentrations when compared to a single soil sample that was collected to reference background conditions. The extent of the elevated metals and uranium isotope concentrations at the site was not determined by the investigation. The collection and analysis of additional surface and subsurface soil samples at the site would be necessary to further refine the conceptual model.

5.6 References for Section 5.0

Dority, Alex, April 1981, "Residence for Guy and Glo Elliot," Architectural drawings, A.I.A. Architects, 10 sheets, Santa Fe, New Mexico.

EPA et al., 1997, Multi-Agency radiation Survey and Site Investigation Manual (MARSSIM), December, 1997, Environmental Protection Agency EPA 402-R-97-016, NUREG-1575, Washington, DC.

SAIC 1999, "Sample and Analysis Plan for the Site Investigation of the 133 La Senda Road Property, Los Alamos, New Mexico;" Prepared by Science Applications International Corporation Los Alamos, New Mexico for the Sate of New Mexico Environment Department DOE Oversight Bureau, Santa Fe, New Mexico.

6.0 Summary and Conclusions

The investigation of the La Senda property included the performance of radiological surveys of the ground around the structures and of the interior walls of the former laboratory in the house and the interior of the storage buildings. Ten soil samples were collected from the site and three swipe samples were collected from the interior walls of structures.

The results of the radiological scoping surveys indicate that no significant radiological anomalies were observed at the site.

The results of the one background soil sample (E1) that was collected uphill from the structures at the site does not provide a statistical basis for determining background concentrations. Therefore, soil samples from the site that contain slightly higher concentrations of metals and radiological constituents are not necessarily above background concentrations. The background sample was collected from an area containing soil cover while many of the site soil samples were collected from weathered basalt and/or backfill materials, which may naturally have different background concentrations.

The results of the soil sampling show that barium, calcium, potassium, and sodium concentrations at the site were consistently higher than in the background sample; these results may be attributed to the differences in the rock or soil type sampled rather than to historical activities at the site. Copper concentrations in the samples from the leach field were elevated compared to the background sample; these results could possibly be attributed to the use of sewer line and septic tank chemicals. Zinc was significantly elevated in concentration in soil sample B2 collected east of the east storage shed.

The uranium-234 concentrations from the leach field area (H1 and H2) appear to be higher than the background sample by approximately by 2 times. Uranium-235 concentrations in soil samples from sites B1 and C1 appear to be elevated compared to the background soil sample by 3 and 2 times, respectively. Uranium-238 concentrations at site B1 appear to be significantly elevated (by 8 times) compared to the background sample.

The results for uranium-234 and uranium-235 from one swipe sample from the east storage shed exceeded this decision level and are shown in bold type in Table 3.1-3. Additionally, the analytical data indicate that gross alpha activity in soil samples from sites A1 and B1 may potentially be significantly higher than that of the background soil sample. Gross beta activity in soil samples from sites A1, A2, B1, and B2 may potentially be significantly higher than that of the background soil sample.

Two soil samples collected from approximately mid and bottom depth of the septic leach field did not contain significant concentrations of semi-volatile organic compounds (SVOCs). Two "dry wells" located on the property drained the former laboratory sinks and a shower. These "dry wells" were not sampled as part of the investigation.

In summary, the results of the investigation show that some metals and uranium isotopes may be present in elevated concentrations when compared to a single soil sample that was collected. The determination of whether a significant health risk is present at the site is beyond the scope of this investigation.

ATTACHMENT 3

SNL/NM SITE SPECIFIC SAMPLING AND ANALYSIS PLAN

Site-Specific Sampling and Analysis Plan
La Senda Road
Prepared by Sandia National Laboratories/New Mexico

Plan Authorization and Implementation

Prepared by _____ Date 12-16-99
Grace Haggerty, 6133
Assistant Task Leader

Review by _____ Date 12/16/99
Paul Freshour, 6134
Task Leader

Approved by _____ Date 12-16-99
Warren Cox, 6132
Environmental Restoration Project Manager

1. Project Information

Task Description: Conduct soil sampling in two dry wells and surface soil sampling at a private residence in White Rock, New Mexico

Department No. 6134 Project Leader Paul Freshour

Scheduled Start Date: December 14, 1999 Estimated Report Completion Date: January 17, 2000

2. Objectives of Sampling and Analysis Plan

This plan contains the procedures, requirements, and specific instructions for performing field work at 133 La Senda Road, White Rock, New Mexico (Figure 1). The site is a private residence, part of which was previously used as a research and development laboratory by a former owner. Sandia National Laboratories/New Mexico (SNL/NM) has been requested by the Department of Energy (DOE) to perform sampling and analyses activities at the site in order to address New Mexico Environment Department (NMED) DOE Oversight Bureau (OB) recommendations. These recommendations were sent to the current owner after the completion of a site investigation by Science Applications International Corporation (SAIC) under contract to NMED (SAIC, 1999). The NMED DOE OB suggested that additional samples (up to 5) be collected in the area the east shed to confirm an elevated U-238 result in a surface soil sample. Also the locations of two dry wells reportedly located on the property should be investigated. If located, the dry wells should be sampled. A map of the SAIC sampling locations is provided as Figure 2. The site history is described in more detail the SAIC report and summarized in Section 3 of this SAP.

The specific objectives of the work described in this SAP are:

Sampling:

Verify the existence of two dry wells on the La Senda property. If found, conduct sampling of soil underlying the bottom of the two dry wells. Two samples will be collected within each of the dry wells and one sample will be collected adjacent to each of the dry wells.

Conduct surface soil sampling in the area south of the east shed to confirm the presence of elevated U-238 in soil. Three surface soil samples will be collected in the area of the east shed and two surface soil samples will be collected on the western portion of the property near the closest neighboring residence. One of the surface samples collected on the western portion of the property will be used as a background sample and so will be collected uphill of the shed and dry well areas.

Analytical: To obtain analytical results for potential contaminants of concern at the site, including radionuclides (gamma spectroscopy), uranium isotopes, metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs).

3. Site Information

The information in this section was derived from the SAIC investigation report (SAIC, 1999). The site is a private residence located at 133 La Senda Road, in the La Senda subdivision in White Rock, New Mexico (Figure 1). The property is a residential house on a lot of approximately 2.02 acres. The residential house is about 4000 ft^2, with an attached 2-car garage. Two large storage buildings are located north of the house. A Morgan storage shed was located near the northeast corner of the house but is no longer present. A bicycle path extends from south to north along the western side of the property and also provides access to the storage buildings and the north side of the property.

A former owner of the property reportedly used the studio in the house as a research laboratory. He had contracts with the federal government to conduct studies which involved depleted uranium and the work was operated under a permit issued by the NMED HRMB. The storage buildings contained a variety of chemicals in liquid and powder form at the time the current owner purchased the property. An inventory of the materials known to be stored at the residence is provided in the SAIC report. All materials have been removed from the property by the former owner and no current hazard associated with these materials is present (SAIC 1999).

A review of the SAIC report by the NMED DOE OB concluded that the radiological survey of the house, sheds, septic system/leach field and property show no significant radiological anomalies. One surface soil sample of the 10 collected showed elevated U-238 (5.61 pCi/g) above the referenced background of 0.69 pCi/g (SAIC, 1999). This sample was located on the south side of the east metal storage building. One surface soil sample on the east side of the east storage building had elevated zinc (190 mg/kg) above the referenced background (32 mg/kg). Based on this information, the NMED DOE OB concluded that the house, sheds, septic system/leach field and property show no significant contamination anomalies with the exception of the east shed area. The NMED DOE OB recommended collecting additional verification samples in the vicinity of the elevated U-238 detection. After the investigation by SAIC, architectural drawings were located and the drawings indicated that two dry wells may exist on the property. The DOE has requested that SNL/NM personnel verify the existence of the dry wells and sample them for radiological anomalies and hazardous constituents. The site plan drawings showed the proposed construction of the dry wells (Figure 3). The

estimated total depth of the dry wells is 6 feet, with 4 feet of cobble size fill at the bottom, underlying clean soil backfill. There may be a layer of straw separating the soil and the rock fill.

On December 8, 1999, personnel from Johnson Controls (Los Alamos) used a stainless steel line and a ground penetrating radar (GPR) to determine the approximate locations of the two dry wells at the residence. The locations indicated by the GPR appear to be in general agreement with the architect's site plans. The SNL/NM RAP team was onsite to verify that none of the equipment used had been contaminated while in the drain lines. No radiation anomalies were found.

This SAP describes the work to be conducted to verify the location of the dry wells and collect soil samples of the fill and underlying native material beneath the drain pipe in each of the wells.

4. Organization

Management	Department Manager (acting) Dave Miller	Organization 6134
	Project Task Leader Paul Freshour	Organization 6133
	Assistant Task Leader Grace Haggerty	Organization 6134
Sampling	Field Team Leader Grace Haggerty	Organization 6133
	ERFO Coordinator Rod Nagel	Organization 6131
Analytical	Sample Management Doug Salmi	Organization 6133
	Analytical Laboratory GEL Lab Contact Edie Kent	

4. Health and Safety

All work will be conducted under the SNL/NM health and safety procedures and policies. Workers will be 40-hour HAZWOPER trained. In addition all personnel directly involved with intrusive work will be RAD II Worker trained. The site-specific health and safety requirements are provided in the Health and Safety Plan: Site- Specific Health and Safety Plan, La Senda Road Investigation, Date: December 1999. A visitor log will be maintained during operations at the site and a safety briefing will be provided to all site visitors during the sampling activities.

5. Sample Collection

Sample Media: X Environmental _ Waste **Matrix Type:** Soil

Sampling Approach and Method

This sampling and analysis plan describes the proposed work to be performed at the La Senda residence in White Rock, New Mexico. Any deviations from this plan will be documented in the field book and significant changes will be approved by the DOE and NMED/OB designated representatives. Figure 1 shows the proposed sample locations.

Upon arrival in White Rock and before entering the site, the sampling team will be briefed. A representative from the NMED OB office in White Rock must be present during any field operations on the property. The health and safety officer will give a tailgate safety meeting and the project leader will describe the work to be performed and answer any

questions from the sampling team. The team will then move to the first sampling location. An initial radiation and PID survey will be performed of the area to obtain ambient conditions. Field measurements will be documented in an official field book and/or in calibration log sheets.

Two soil samples will be collected for laboratory analyses from each of the dry wells. The first sampling location will be located on the southwest corner of the house where one of the dry wells is believed to be located. The 2-inch diameter, polyvinyl chloride (PVC) drain line leading from the master bedroom shower ends at this dry well. There is also a drain in the garage floor that connects to the well. The location of the dry well will be first verified by digging in the area determined to be the most likely location by the GPR. A small backhoe or other method (shovel) will be used to expose the top of the gravel bed, estimated at approximately 2 feet below ground surface. If possible the drain line leading into the dry well will also be exposed to avoid breaking the line. In two locations within the first dry well, a hollow stem auger will be advanced through the gravel fill. Split spoon samplers with dedicated plastic liners will be used to collect samples of the gravel and the underlying soil materials. A Borehole Lithologic Logging Form will be maintained describing the lithologic composition, volatile organic readings using a photo ionization detector, radiation screening readings, and sample location. Two samples will be collected for laboratory analyses for the list of parameters in Table 2. The selection of the samples will be based on results of the field screening measurements and the lithologic composition of the samples. The highest potential for detection of contaminants, if present, is in fine-grained soil material (clays and silts).

The equipment will be cleaned (decontaminated) prior to mobilizing to the other dry well location. Decontamination procedures are described in this SAP and in the Field Operating Procedures (FOP) 94-57. The second dry well is located northeast of the house and from the GPR and line locating results appears to be located under the present gravel driveway. The drain line to this well lead from the sink that was previously located in the backroom of the house. The back room was reportedly used by the previous owner as a laboratory. The sink was removed during remodeling but the drainpipe has been exposed from behind the wall and the steel line could be extended 30 ft to the northeast before it was blocked. The GPR indicated the dry well was approximately 30 ft from the northeast corner of the house (Figure 1). The dry well will first be located using a backhoe, shovel, or other method. The well will then be sampled in a similar manner to that of the first well.

Sampling Procedures

A list of applicable FOPs and AOPs are in Table 1; however, this site-specific SAP should be used as the primary guidance in the field. Any changes or deviations from the sampling procedures described in this FIP will be documented in the field notebook.

Surface sediment samples will be collected using the spade and scoop method (FOP 94-52). Except for VOC sampling, the sample will be homogenized in a stainless steel bowl and then placed in the sample containers. Samples for VOCs will be placed directly into the sample container until no void space remains.

Subsurface soil samples from the dry wells will be collected by augering two borings within the dry well. The construction of the dry wells and the lithology of the native materials may make it difficult to collect samples adequate for analytical analyses. An effort will be made to obtain sufficient and representative samples from the dry wells but the potential lack of soil material may preclude analyses particularly for metals and organic compounds.

Two soil samples will be collected at the bottoms of each of the wells. The borehole samples will be collected using a hydraulic power auger or Geoprobe to advance the borehole. When the borehole has been advanced to 6 inches above the sampling depth, the auger will be retrieved from the hole and a split spoon or comparable sampler will be used to collect the sample. Any soil suspected of having fallen down the hole will be discarded. If a bucket auger is used, the sample material will be put in a clean stainless steel pan. Enough soil will be collected until the required sample volume is reached, the sample will be homogenized and put it into the sample containers. If VOCs are collected, then the split spoon sample will first be collected using clean liner tubes and the sample will be transferred directly into the appropriate container. Field screening will be performed for radioactivity (Geiger Mueller probe) and VOCs (PID/FID) on each sample and of sample cuttings. A Borehole Lithologic Logging Form will be maintained describing the lithologic composition, PID/FID readings, and sample location/depth.

Table 1. Applicable Operating Procedures

Number of Procedure	Title of Procedure
FOP 92-04	Field Operating Procedure for Field Logbook Content and Control
FOP 94-01	Safety Meetings, Inspections, and Pre-Entry Briefings
FOP 94-25	Documentation of Field Activities
FOP 94-26	General Equipment Decontamination
FOP 94-28	Health and Safety Monitoring of Organic Vapors (FID and PID)
FOP 94-30	Health and Safety Monitoring of Combustible Gas Levels
FOP 94-34	Field Sample Management and Custody
FOP 94-05	Borehole Lithologic Logging
FOP 94-54	Surface Sediment/Soil Sampling
FOP 94-57	Decontaminating Drilling and Other Field Equipment
FOP 94-68	Field Change Control
FOP 94-69	Personnel Decontamination (Level D, C, and B Protection)
FOP 94-78	Environmental Restoration Project Waste Management and Characterization Procedure
TOP 94-03	Verification and Validation of Chemical and Radiochemical Data
AOP 94-22	Sample Management Office User's Guide
AOP 94-24	System and Performance Audits
AOP 94-25	Deficiency Reporting
AOP 95-16	Administrative Operating Procedure for Sample Management and Custody
RPOP 04-0411	Contamination Survey of Materials, Equipment and Portable Facilities to be Released for Unrestricted Use
RPOP 04-412	Contamination Survey of Vehicles and Heavy Equipment to be Released for Unrestricted Use

All samples will be immediately labeled, placed in a cooler, and stored at 4°C. An Radioaction Control Technician (RCT) will frisk and swipe the sample containers before leaving the site. The cooler(s) will be stored at Environmental Restoration Field Office (ERFO) until released by Radiological Protection Personnel. Samples will then be delivered to the Sample Management Office at Sandia National Laboratories for processing and shipment to the analytical laboratory. A completed Analysis Request and Chain-of-Custody (ARCOC) form will accompany the shipment.

As indicated on Attachment 1, all soil samples will be analyzed at an off-site laboratory for radionuclides, metals, VOCs, and SVOCs. Additionally, gamma spectroscopy will be performed at the SNL/NM RPSD laboratory on at least 20% of the samples.

Decon

Sample equipment will be decontaminated after each sample is collected (FOP 94-26). All decontamination water will be containerized and transported back to SNL/NM for characterization and disposal.

Waste Disposal

Waste containers will be clearly labeled with the date and sample reference number. Disposable PPE will be placed in a container for transportation and disposal at SNL/NM .

6. Analytical

Table 2 provides the sample methodology. Table 3 summarizes calibration requirements for field equipment. Soil samples will be analyzed for metals, VOCs, SVOCs, gamma-emitting radionuclides.

Table 2. Analytical Parameters and Test Methods for Soil Samples

Analytical Parameter	Test Method
Volatile Organic Compounds	EPA 8260
Semi-volatile Organic Compounds	EPA 8270
TAL metals + uranium	EPA 6010/7000 Series
Radionuclides	
Uranium isotopes	EPA 900
Gamma-emitting radionuclides	EPA 901.1

Table 3. Summary of Field Measurements and Calibration Requirements

Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
PID/FID	Calibration for accuracy	Once per day	± 10% of true value	Recalibrate; check meter; replace meter if necessary
	Duplicate sample for precision	One per day	< 20% RPD	Evaluate data for usability
Pancake Probe	Calibration for accuracy	Once per day	RPO to determine	Replace meter with RPO

Samples will be shipped via the SNL/NM Sample Management Office (SMO) to a contracted EPA-certified analytical laboratory.

7. Quality Control

Quality control requirements for sample analyses are specified in the SNL/NM Quality Assurance Program Plan (QAPP) and summarized below. For soil samples, additional volume is not required for the MS/MSD samples. However, sample MS/MSDs will be identified on the ARCOC.

Table 4. Quality Control Sample Analyses

Field		Laboratory	
__X__ Duplicate samples	10% or 2	___ Replicate	5% or NA
_____ Field Blank		X LCS	5% or 1 per batch
__X__ Trip Blank	1 per shipment	X DCS	5% or 1 per batch
__X__ Other (please describe)	1	X MS	5% or 1 per batch
Equipment Rinsate		X MSD	5% or 1 per batch
		X Method blank	1 per analytical batch
		X Surrogate spike	all GC/MS samples

8. Data Validation

Data validation will be performed on the analytical results in accordance with the data validation procedure: "Verification and Validation of Chemical and Radiological Data", SNL/NM TOP 94-03.

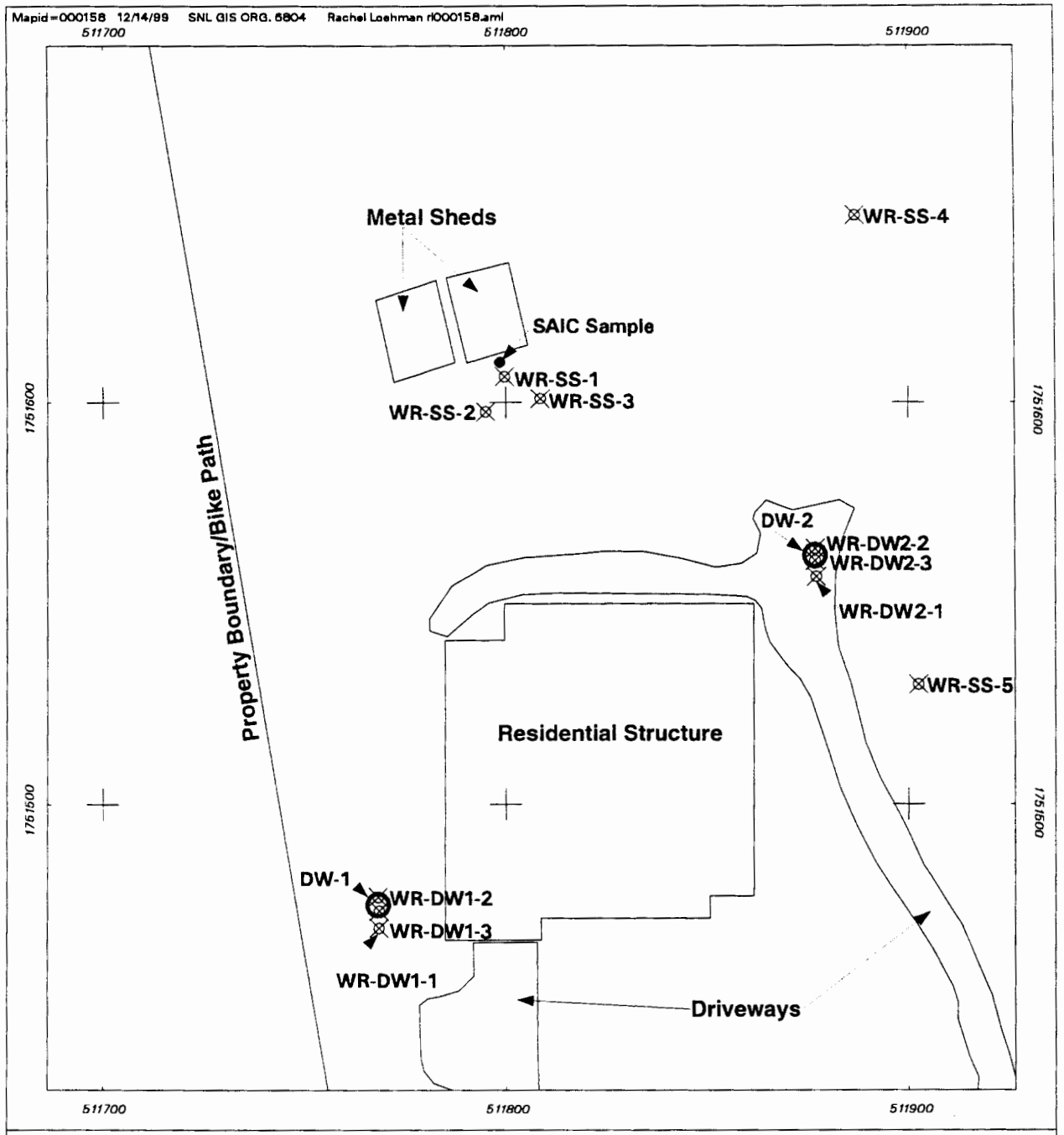
9. Data Evaluation and Reporting

The analytical results will be received at the SNL/NM SMO and verification will be performed. Data validation/verification will then be performed. Only after the QA/QC procedures have been completed will the data be released to the DOE. SNL/NM will only release information regarding this project to the DOE project manager. SNL/NM ER Project Task Leader will prepare a data report containing the analytical results, a description of the work performed, a map showing sample locations and other pertinent information, and a summary of the findings.

Field work is expected to commence and conclude on or about December 17, 1999. Sample results will be on a 15-day working day turnaround schedule. Upon receipt of the sample results at SNL/NM, a report will be generated and provided to all appropriate parties within 30 working days. The data and report are considered proprietary and will not be discussed or released by SNL/NM to any persons other than the DOE.

10. References

Science Applications International Corporation, October 1999. Site Investigation of the La Senda Property, Los Alamos, New Mexico, prepared for New Mexico Environment Department, Department of Energy Oversight Bureau.



Legend

- Proposed Sample Location
- SAIC Sample Location
- Dry Well (Approximate Location)
- Linear Feature (Labeled)
- Structure (Labeled)

Figure 1
Proposed Sample Locations
133 La Senda, White Rock

0 20 40
Scale in Feet

0 4.8 9.6
Scale in Meters

N

Sandia National Laboratories, New Mexico
Environmental Geographic Information System

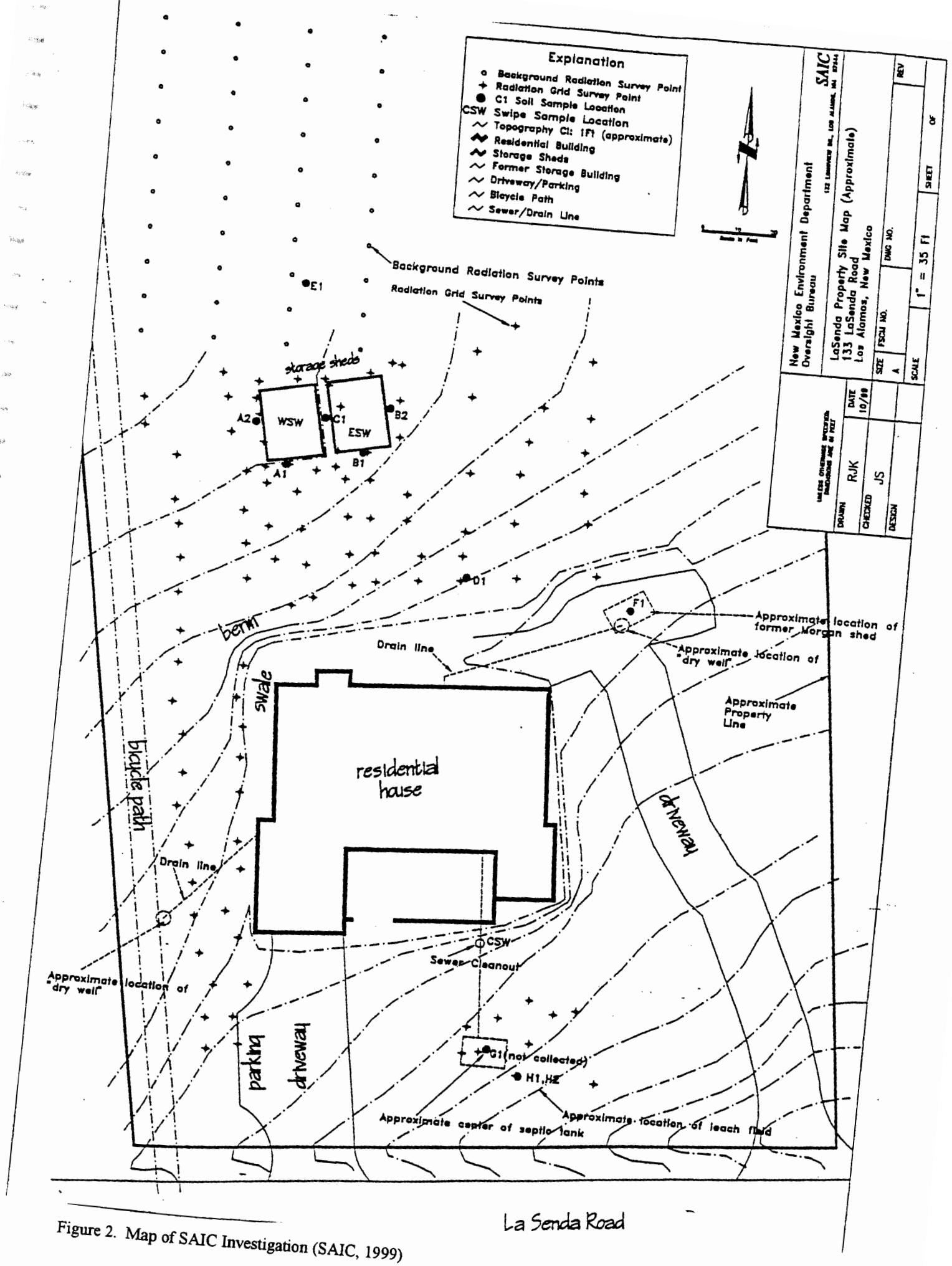
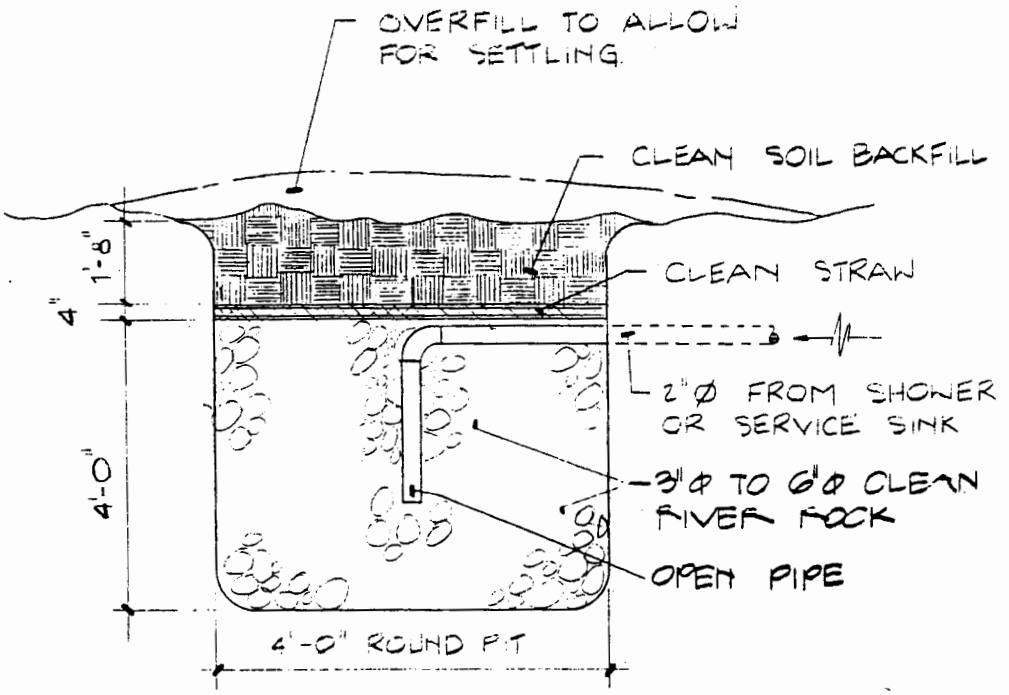


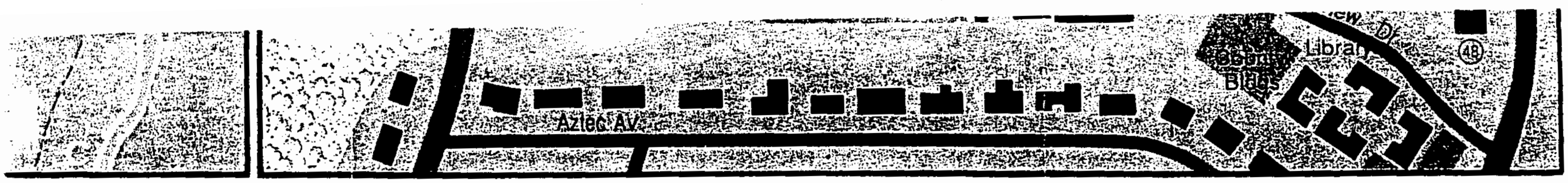
Figure 2. Map of SAIC Investigation (SAIC, 1999)

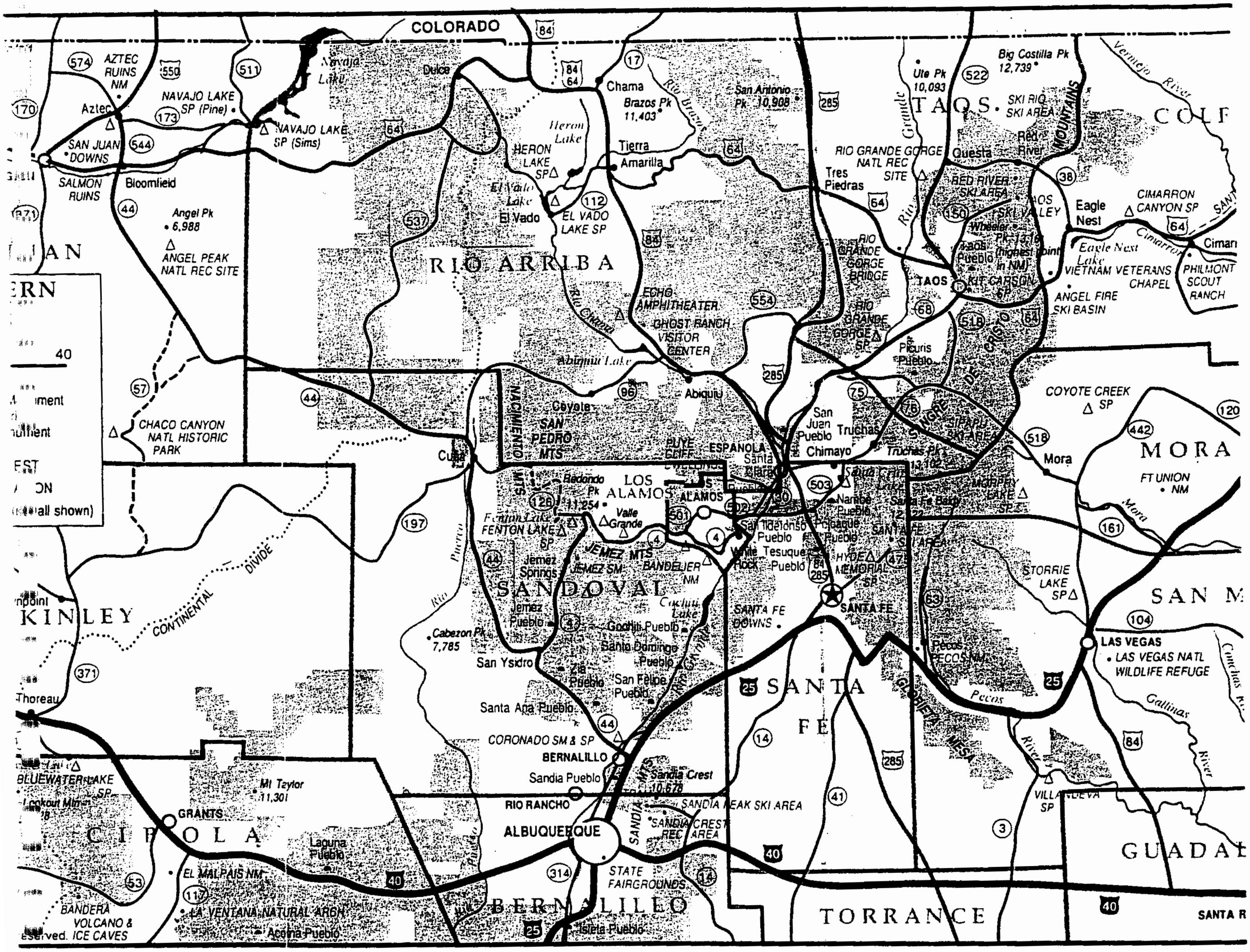


DRY WELL DETAIL

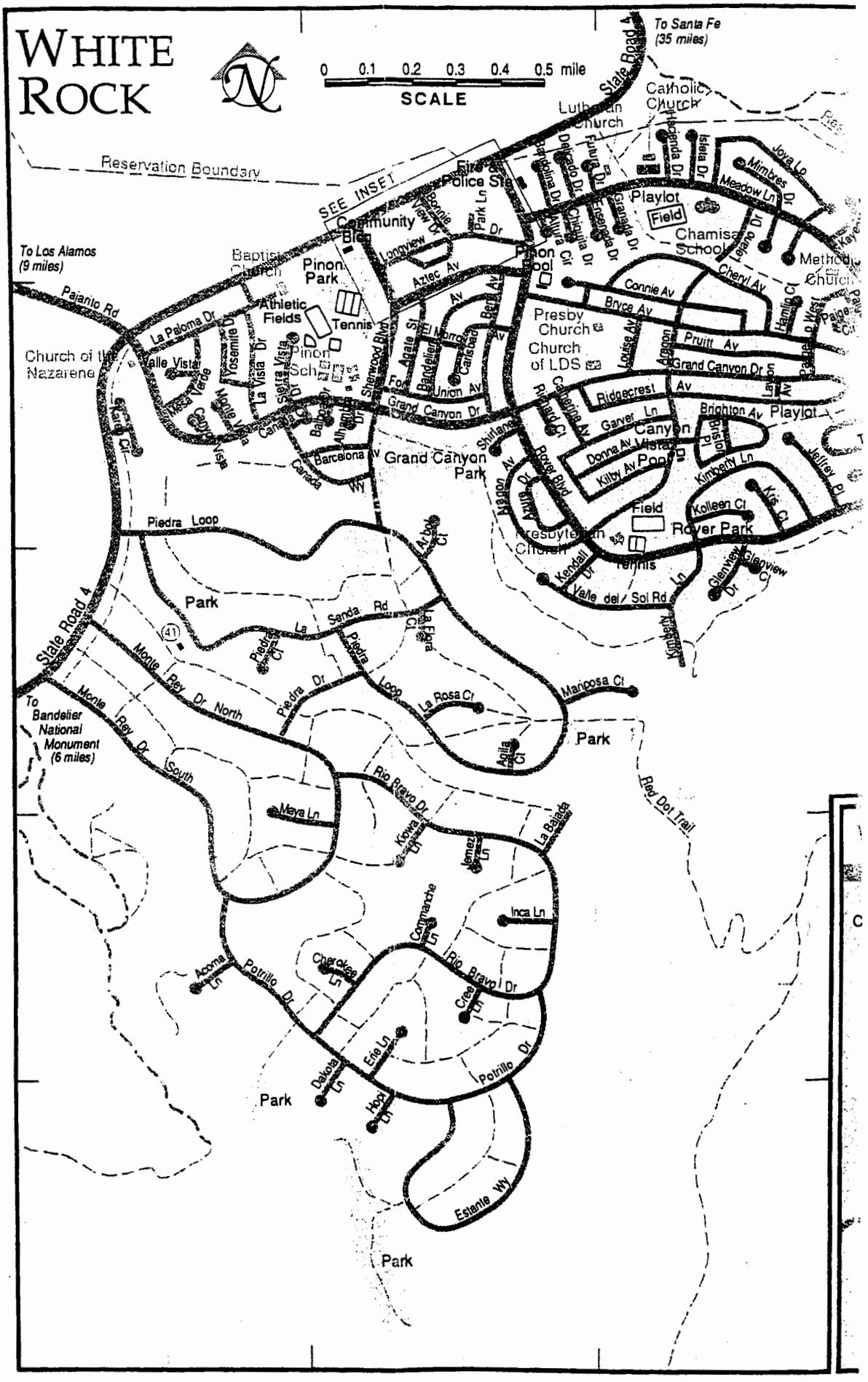
NOT TO SCALE

Figure 3. Schematic of dry well construction from building plans





ABQ → Santa Fe
285 to 502 Los Alamos - right
4 to Bandelier / White Rock
Through traffic light
Left on Sherwood just past McDs
Supermarket on left - stop at 9:00
To house: Sherwood to end, left on Piedra Loop
Right on La Senda, house 133 on right


WHITE ROCK
N
0 0.1 0.2 0.3 0.4 0.5 mile
SCALE
To Santa Fe (35 miles)
To Los Alamos (9 miles)
To Bandelier National Monument (6 miles)
Reservation Boundary
SEE INSET
State Road 4
Pajarito Rd
Catholic Church
Lutheran Church
Fire & Police Sta
Community Bldg
Baptist Church
Pinon Park
Athletic Fields
Tennis
Pinon Pool
Playlot
Field
Chamisa School
Methodist Church
Presby Church
Church of LDS
Church of the Nazarene
Pinon Sch
Grand Canyon Park
Canyon Vista Park
Rover Park
Park
Piedra Loop
Monte Rey Dr North
Monte Rey Dr South
Rio Bravo Dr
Maya Ln
Inca Ln
Potrillo Dr
Dakota Ln
Erie Ln
Hopi Dr
Estante Wy
Acoma Ln
Cherokee Ln
Comanche Ln
Cree Ln
Kiowa Dr
Jemez Ln
La Bajada
Mariposa Ct
La Rosa Ct
Aguila Ct
Arbol Ct
Rec Dot Trail
UTAH