

FAX COVER SHEET

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SUBJECT: *0-017 Preliminary Data for east side of hospital.*

NUMBER OF PAGES *9* **(INCLUDING COVER SHEET)**

MESSAGE:



**INFORMATION SHEET
FOR
SOLID WASTE MANAGEMENT UNIT (SWMU) 0-017 WASTE LINES
RCRA FACILITY INVESTIGATION (RFI)**

Description

SWMU 0-017 consists of waste lines that were or are located in TA-0 on privately owned and Los Alamos County lands. Portions of waste line remaining in TA-0 (Figure 1) include the following:

- Line segments 170 and 171 are portions of line that connected the HRL to the industrial waste line near the intersection of Diamond Drive and Trinity Drive
- Portions of Line 167 that ran under the Los Alamos Canyon Bridge. Nine concrete anchors remain with 3-foot long sections of pipe encased in the concrete. The pipe that was left was decontaminated and the pipe ends were plugged with concrete.
- An uncontaminated 12-inch diameter steel casing left near the intersection of Canyon Road and Diamond Drive.

RCRA Facility Investigation

In order to minimize impacts to hospital and HRL operations, and because of imminent hospital construction, the RFI investigation was divided into three stages of drilling. Stage I concentrated on the area east of the hospital wing, in the parking lot slated for construction of a new doctors building (Figure 2). Stage II of the investigation focused on the area between the hospital wing and the HRL building and Stage III focused on an area in Los Alamos canyon, where the original acid waste line formerly ran.

The following discussion focuses primarily on Stage I activities (Table 1) and preliminary results. All field work has been completed, with only Stage I analytical results received to date.

Stage I field work was conducted from September 21 to 24. During this time period two trenches were excavated to depths of approximately 20 feet and six borings were drilled to depths ranging from 25 to 27.5 feet below ground surface. A total of 15 soil samples (Table 2) were collected from immediately under the pipe, and several feet below the pipe. Borehole spacing was based on pipe joint lengths of 4 feet as measured from a joint location observed in Trench 1. Samples were analyzed for metals (and cyanide), volatile organics, semivolatile organics, PCBs/pesticides, radionuclides (gamma spectroscopy), tritium, isotopic plutonium and isotopic uranium.

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Stage I Preliminary Results

Preliminary sample results have been received for the Stage I soil samples. This data is presently undergoing validation.

A summary of the preliminary results are as follows:

Seven metals were detected above background levels. Arsenic was detected at levels ranging from nondetect to 4.5 mg/kg in the tuff (Qbt 4), compared to a background screening value of 2.18 mg/kg. Arsenic levels in the overburden material did not exceed background screening values. Mercury was found in four samples at levels ranging from 0.16 to 3.4 mg/kg, compared to a background screening value of 0.1 mg/kg, and a screening action level (SAL) of 23 mg/kg. Each occurrence was in the shallow sample at each location, with the deeper sample showing nondetect for mercury. The other five metals, aluminum, barium, chromium, magnesium and cyanide were detected in isolated samples significantly below Screening Action Levels (SALs).

Radionuclides plutonium 238, plutonium 239, americium 241, and cesium 137 were detected in six samples exceeding background values. The highest concentration detected was for plutonium 239 at a level of 14.68 pCi/g, found at a depth of 18.5 to 19 feet. This compares to the SAL for plutonium 239 of 24 pCi/g. However, in all cases levels detected were below SALs, and in every case, the concentration of the corresponding deeper sample showed a significant decrease in concentration.

Only one organic chemical was detected; arochlor 1254 was detected in one sample and its duplicate at concentrations ranging from 0.11 to 0.16 mg/kg.

Significant Findings

- where detected, arsenic, mercury, Pu-238, and Pu-239 show a decreasing trend in concentration with depth indicating contaminants are vertically bound.
- the depth of the pipe was confirmed at depths of 18 to 19 feet below ground surface, consistent with information provided at the August 31, 1998 meeting at HRMB offices.

References

- Ryti, R., P. Longmire, and D.E. Broxton, May 7, 1998. "Inorganic and Radionuclide Background Data for Soils, Canyons Sediments, and Bandelier Tuff at Los Alamos National Laboratory", LANL, Los Alamos, New Mexico. (Ryti et al. 1998, ER ID 58093)
- EP A, 1998, "Region 9 Preliminary Remediation Goals (PRGs)", EPA San Francisco, CA. (LANL ER ID 58751)

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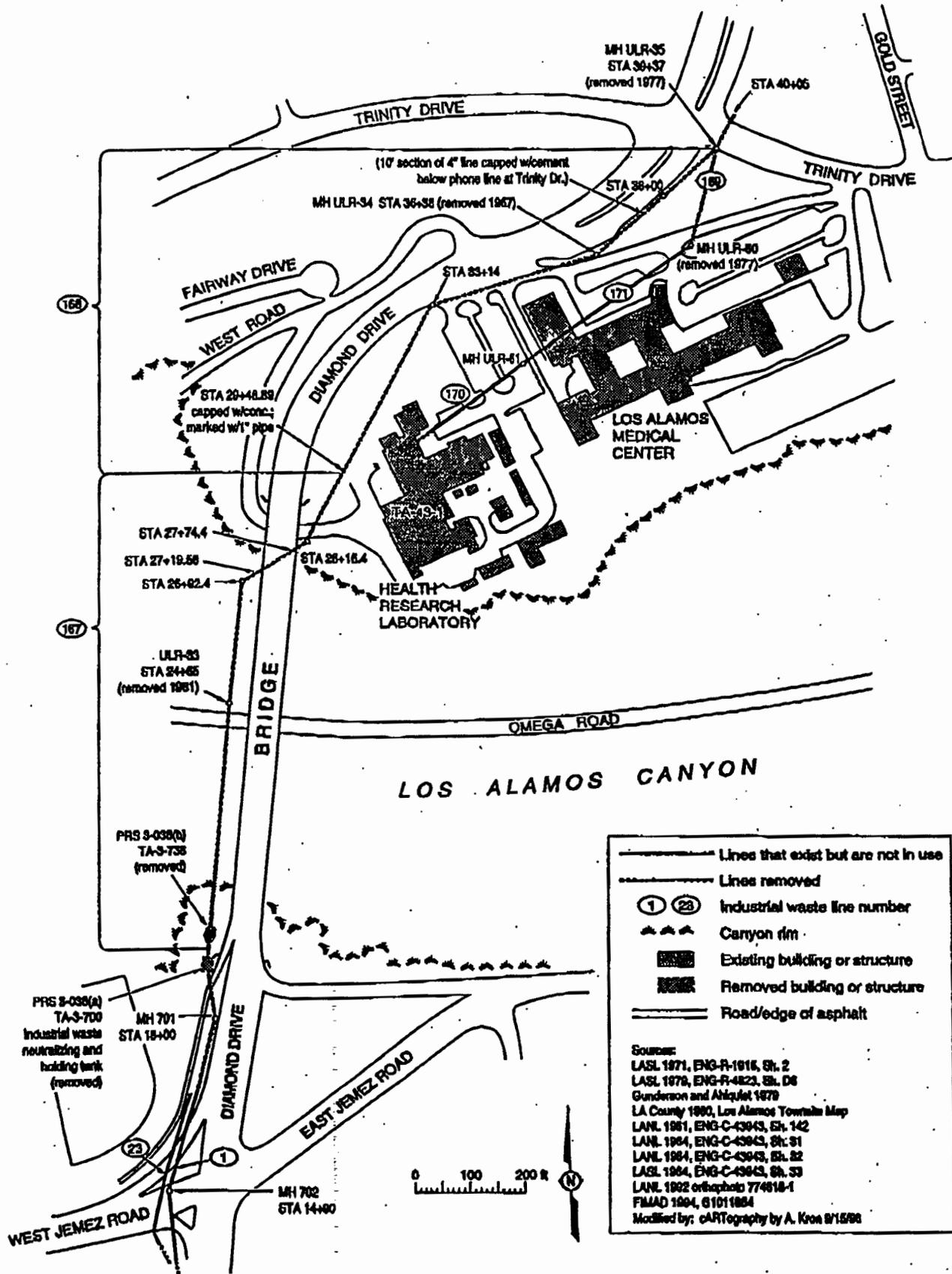
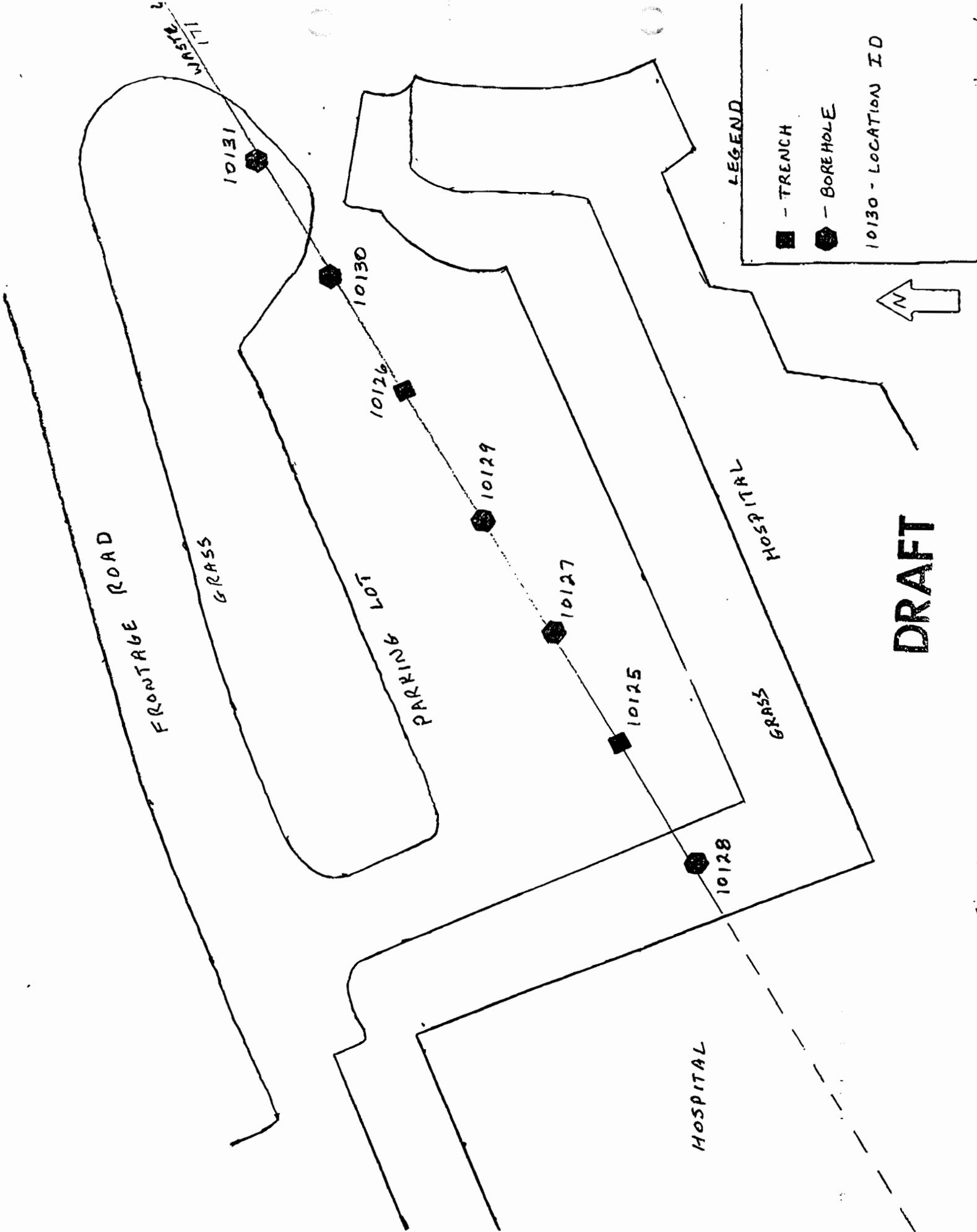


Figure 1 Location of PRS 0-017 waste lines.

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**TABLE 1
CHRONOLOGICAL SUMMARY OF REPORTING REQUIREMENTS**

DOCUMENT	DATE	SUMMARY
OU 1071 Work Plan	May 1992	LANL submits work plan to EPA.
Approval Letter	Rec. January 1993	EPA gives approval to OU 1071 Work Plan.
Draft Sampling and Analysis Plan	Faxed to HRMB August 28, 1998	LANL submits draft SAP for input to investigative approach.
Request for Supplemental Information	September 22, 1998	HRMB issues RSI on draft SAP; fieldwork proceeds at risk due to hospital construction start date.
Response to RSI and revised SAP	October 19, 1998	LANL submits RSI Response and a revised SAP as fieldwork proceeds with last stage of work.

**TABLE 2
SAMPLE SUMMARY TABLE**

Location ID	Sample ID	Depth (feet)	Sample Type	Media
10125	RE00-98-0050 shallow	18.5 - 19	Trench	fill
10125	RE00-98-0051 shallow dupl.	18.5 - 19	Trench	fill
10125	RE00-98-0052 deep	19 - 19.5	Trench	Qbt4
10126	RE00-98-0053 shallow	20 - 20.6	Trench	fill
10126	RE00-98-0054 deep	22.5 - 25	Borehole	Qbt4
10127	RE00-98-0056 shallow	19 - 21.5	Borehole	Qbt4
10127	RE00-98-0057 deep	22.5 - 25	Borehole	Qbt4
10128	RE00-98-0059 shallow	19 - 21.5	Borehole	fill/Qbt4
10128	RE00-98-0060 deep	22.5 - 25	Borehole	Qbt4
10129	RE00-98-0062 shallow	19.5 - 22	Borehole	fill/Qbt4
10129	RE00-98-0063 deep	22.5 - 25	Borehole	Qbt4
10130	RE00-98-0065 shallow	19.5 - 22	Borehole	fill/Qbt4
10130	RE00-98-0066 deep	24 - 26.5	Borehole	Qbt4
10131	RE00-98-0068 shallow	20.5 - 23	Borehole	fill/Qbt4
10131	RE00-98-0069 deep	25 - 27.5	Borehole	Qbt4

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**SWMU 0-017
LAMC Parking Lot Samples
Preliminary Inorganic Chemical Results (1)**

			Aluminum	Arsenic	Barium	Chromium	Magnesium	Mercury	Cyanide
			SAL 77,000	SAL 8.17	SAL 5,300	SAL 210		SAL 23	SAL 1,300
BV Soil/Qbt4			29200/7340	8.17/2.79	295/46	19.3/7.14	4610/1690	0.1/0.1	NA/NA
Sample Id	Loc. Id	Interval (ft)	mg/kg						
RE00-98-0050	00-10125	18.5-19 (fill)	15000	3.2	74	3.1	1800	3.4	ND
RE00-98-0051	00-10125	18.5-19 (fill)	12000	3.1	71	2.4	1400	3.1	ND
RE00-98-0052	00-10125	19-19.5 (Qbt4)	10000	4.5	72	7.0	1500	ND	ND
RE00-98-0053	00-10126	20-20.6 (fill)	17000	ND	57	5.7	1300	0.18	1.6
RE00-98-0054	00-10126	22.5-25 (Qbt4)	15000	1.6	45	3.6	860	ND	ND
RE00-98-0056	00-10127	19-21.5 (Qbt4)	700	2.9	21	1.7	760	ND	ND
RE00-98-0057	00-10127	22.5-25 (Qbt4)	550	3.0	25	2.0	480	ND	ND
RE00-98-0059	00-10128	19-21.5 (fill)	7400	4.0	44	4.9	1300	ND	ND
RE00-98-0060	00-10128	22.5-25 (Qbt4)	1200	3.9	17	1.9	370	ND	ND
RE00-98-0062	00-10129	19.5-22 (fill)	800	2.9	19	1.8	400	ND	ND
RE00-98-0063	00-10129	22.5-25 (Qbt4)	790	2.9	17	1.7	410	ND	ND
RE00-98-0065	00-10130	19.5-22 (fill)	5500	2.2	32	5.0	770	6.16	ND
RE00-98-0066	00-10130	24-26.5 (Qbt4)	840	2.6	18	1.9	460	ND	ND
RE00-98-0068	00-10131	20.5-23 (fill)	3100	5.6	26	11	830	2.9	ND
RE00-98-0069	00-10131	25-27.5 (Qbt4)	1000	3.8	17	2.8	520	ND	ND

Notes:

(1) Only inorganic chemicals with at least one concentration exceeding background are tabulated.

Inorganic chemicals with concentrations exceeding background values (BVs) are shaded.

NA = Not Available

ND = Not Detected

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**SWMU 0-017
LAMC Parking Lot Samples
Preliminary Radiological Results (1)**

			Pu-238	Pu-239	U-235	H-3	Cs-137	Am-241
			SAL 27	SAL 24	SAL 10	SAL 280	SAL 5.1	SAL 22
BV Soil/Qbt4			0.023(2)/0.05	0.054(2)/0.05	0.20/0.09	NA/NA	1.65(2)/0.1	0.013(2)/0.05
Sample Id	Loc. Id	Interval (ft)	pCi/g					
RE00-98-0050	00-10125	18.5-19 (fill)	0.165 ± 0.022	12.89 ± 0.77	0.075 ± 0.014	ND	4.27 ± 0.325	2.5 ± 0.6
RE00-98-0051	00-10125	18.5-19 (fill)	0.208 ± 0.024	14.88 ± 0.87	0.089 ± 0.015	ND	3.01 ± 0.315	3.6 ± 0.7
RE00-98-0052	00-10125	19-19.5 (Qbt4)	ND	4.015 ± 0.077	0.072 ± 0.015	0.07 ± 0.02	ND	ND
RE00-98-0053	00-10126	20-20.6 (fill)	ND	0.791 ± 0.054	0.081 ± 0.016	ND	ND	ND
RE00-98-0054	00-10126	22.5-25 (Qbt4)	ND	ND	0.109 ± 0.018	ND	ND	ND
RE00-98-0056	00-10127	19-21.5 (Qbt4)	ND	ND	ND	ND	ND	ND
RE00-98-0057	00-10127	22.5-25 (Qbt4)	ND	ND	ND	ND	ND	ND
RE00-98-0059	00-10128	19-21.5 (fill)	ND	0.068 ± 0.015	0.041 ± 0.010	ND	0.25 ± 0.08	ND
RE00-98-0060	00-10128	22.5-25 (Qbt4)	ND	ND	0.0258 ± 0.0081	ND	ND	ND
RE00-98-0062	00-10129	19.5-22 (fill)	ND	ND	0.0293 ± 0.0097	ND	ND	ND
RE00-98-0063	00-10129	22.5-25 (Qbt4)	ND	ND	0.035 ± 0.010	ND	ND	ND
RE00-98-0065	00-10130	19.5-22 (fill)	ND	3.25 ± 0.24	0.0275 ± 0.0093	ND	ND	ND
RE00-98-0066	00-10130	24-26.5 (Qbt4)	ND	ND	0.0269 ± 0.0092	ND	ND	ND
RE00-98-0068	00-10131	20.5-23 (fill)	0.066 ± 0.015	2.82 ± 0.39	ND	ND	ND	1.33 ± 0.20
RE00-98-0069	00-10131	25-27.5 (Qbt4)	ND	ND	0.0391 ± 0.0098	ND	ND	ND

Notes:

- (1) Only radionuclides with at least one value potentially exceeding background are tabulated.
- (2) Background values apply to samples collected from 0-6 inches only. However, they are used in this table for lack of a more appropriate comparison value.

Results potentially exceeding background values are shaded.

NA = Not Available

ND = Not Detected

Screening Action Levels (SALs) are calculated using the RESRAD computer code (Version 5.61) and a 10mrem/yr (above background) dose limit. Input parameters are representative of mesa-top environments at the Laboratory.

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SWMU 0-017
LAMC Parking Lot Samples
Preliminary Organic Chemical Results

Sample Id	Loc. Id	Interval (ft)	Aroclor 1254 (mg/kg)
RE00-98-0050	00-10125	18.5-19 (fill)	0.11
RE00-98-0051	00-10125	18.5-19 (fill)	0.16
RE00-98-0052	00-10125	19-19.5 (Qbt4)	ND
RE00-98-0053	00-10126	20-20.6 (fill)	ND
RE00-98-0054	00-10126	22.5-25 (Qbt4)	ND
RE00-98-0056	00-10127	19-21.5 (Qbt4)	ND
RE00-98-0057	00-10127	22.5-25 (Qbt4)	ND
RE00-98-0059	00-10128	19-21.5 (fill)	ND
RE00-98-0060	00-10128	22.5-25 (Qbt4)	ND
RE00-98-0062	00-10129	19.5-22 (fill)	ND
RE00-98-0063	00-10129	22.5-25 (Qbt4)	ND
RE00-98-0065	00-10130	19.5-22 (fill)	ND
RE00-98-0066	00-10130	24-26.5 (Qbt4)	ND
RE00-98-0068	00-10131	20.5-23 (fill)	ND
RE00-98-0069	00-10131	25-27.5 (Qbt4)	ND

Note:

Aroclor 1254 was the only detected organic chemical. All other pesticide/PCB, semivolatile, and volatile organic chemicals were reported as not detected (ND).

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