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Date: April 19, 1996
Refer to: EM/ER:96-220

Mr. Benito Garcia
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: FINAL ACCELERATED CLEANUP REPORTS 19-002

Dear Mr. Garcia:

Enclosed are the final reports and Certifications of Completion for the voluntary corrective actions completed in Fiscal Year 1995. The reports with potential release sites (PRSs) listed in the Hazardous and Solid Waste Amendments (HSWA) Module of the Los Alamos National Laboratory's Resource Conservation and Recovery Act operating permit contain our request for no further action (NFA). Upon your approval of these reports, we will submit a permit modification request for NFA of these PRSs.

For PRSs not listed in the HSWA Module, reports are included as informational copies for your records.

If you have any questions, please call David Bradbury at 505-665-6208.

Thank you for your timely attention to this matter.

Sincerely,

Jorg Jansen, Program Manager
Environmental Restoration

Sincerely,

Theodore Taylor, Program Manager
Los Alamos Area Office

JJ/TT/rfr

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Enclosures: (1) Final Reports for HSWA: C-9-001, 6-007(f), 8-005, 16-016(b), 18-001(a), 19-002, 21-013(c), 21-013(d), 21-013(e), 21-024(d), 21-024(e), 21-024(h), 31-001, 33-016, 39-007(a), and 69-001
(2) Final Reports for non-HSWA: C-0-036(a-d), C-0-041, C-10-001, C-21-027, C-36-001, 0-032, 1-001(f), 3-003(p), 3-022, 3-047(d), 3-051(c), 9-010(a-b), 16-011, 16-016(f), 20-003(c), 21-022(j), 39-002(c), 53-010, and 57-006
(3) Certifications of Completion

Cy (w/enclosures):
B. Driscoll, EPA, R.6, 6PD-N, (2 copies of HSWA)
D. Griswold, ERD, AL, MS A906
J. Harry, EM/ER, MS M992
B. Hoditschek, NMED-HRMB
R. Kern, NMED-HRMB
N. Naraine, EM-453, DOE-HQ
M. Shaner, P&PI, MS J591 (5 copies)
N. Weber, Bureau Chief, NMED-AIP, MS J993
J. White, ESH-19, MS K490
S. Yanicak, NMED-AIP, MS J993
RPF, MS M707

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T. Baca, EM, MS J591
D. Bradbury, EM/ER, MS M992
T. Glatzmaier, DDEES/ER, MS M992
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G. Rael, ERD, AL, MS A906
W. Spurgeon, EM-453, DOE-HQ
T. Taylor, LAAO, MS A316
J. Vozella, LAAO, MS A316
EM/ER File, MS M992

Voluntary Corrective Action Completion Report for

Potential Release Site

19-002

Surface Disposal Area

Former TA-19

Field Unit 1

Environmental Restoration Project

February 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-433

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1.0 DESCRIPTION

Potential Release Site (PRS) 19-002 is a former surface disposal area located on DOE property along the north-facing wall of Pueblo Canyon, immediately north of former Technical Area (TA) 19 (Figure 1). PRS 19-002 is included in Table A of the Hazardous and Solid Waste Amendments (HSWA) module of the Resource Conservation and Recovery Act (RCRA) Part B Permit for Los Alamos National Laboratory (LANL), EPA I.D. #NM0890010515.

The actions taken at PRS 19-002 are presented in this report in lieu of preparing a separate RCRA Facility Investigation (RFI) report. The Phase I investigation was conducted as part of the VCA and results show that no RCRA concerns remain. This VCA report presents the information that would otherwise be provided in an RFI report.

PRS 19-002 is part of PRS Group 19-1, which also includes PRSs C-19-001, 19-001, and 19-003 as described in the Operable Unit (OU) 1071 RFI Work Plan (LANL 1992, 11698). However, this VCA addressed only PRS 19-002. Several structures, including a battery building, were located at TA-19, which was also known as the East Gate Laboratory. The battery building and several other structures were decommissioned in 1956, with the remaining buildings removed prior to 1987.

Numerous batteries and concrete debris from the decommissioned TA-19 structures were disposed at PRS 19-002. Battery-related waste includes two sizes of dry cell batteries, batteries consisting of vertical plates, and a tar-like substance derived primarily from the interior of the batteries. All batteries found on the site were carbon-type batteries, akin to common flashlight batteries. The OU 1071 RFI Work Plan identifies only solid wastes, including batteries and concrete debris, to be present at PRS 19-002, therefore, this VCA was for housekeeping purposes only to remove the solid waste.

2.0 SUMMARY OF INVESTIGATIONS

Previous Sampling

In June 1995, a site reconnaissance was completed at PRS 19-002 to assess the extent of the concrete and battery debris at the site prior to initiation of these activities. Two surface soil samples (0.0 to 0.5 ft) were collected; sample 0119-95-0002 from a sediment catchment basin immediately below a large battery pile and sample 0119-95-0003 from a drainage channel crossing the site through a large battery pile. A third sample (0119-95-0001), consisting of materials from each of the three types of batteries found at the site, was also collected. Each

of the samples was screened in the field for alpha radiation using a Ludlum 139 ratemeter with a 43-32 probe, and for beta/gamma radiation using an ESP-1 equipped with an HP-260 probe. All three samples were submitted to a fixed laboratory for a suite of analyses that included Toxicity Characteristic Leaching Procedure (TCLP) metals, semi-volatile organic compounds (SVOCs) by EPA SW 846 Method 8270, volatile organic compounds (VOCs) by EPA SW 846 Method 8240, and gamma spectroscopy. Although not required by the workplan for site characterization purposes, VOC analysis was done for waste characterization. The sample locations are shown on Figure 2. Analytical results are presented in tables contained in Attachment A and are summarized below:

- The analytical laboratory analyzed each of the samples for total metals rather than TCLP. Total lead was detected in one sample (0119-95-0002) at a concentration of 282 parts per million (ppm), which is less than the 400 ppm LANL screening action level (SAL). This sample was subsequently analyzed for TCLP lead and results indicated lead was present at a concentration of 0.629 ppm, well below the TCLP threshold of 5.0 ppm. All remaining total metals results were within Laboratory background levels or less than 20 times the TCLP threshold.

- Each of the three samples were also analyzed for VOCs for waste characterization purposes with the results summarized below:

  Trichlorotrifluoroethane, acetone, and toluene were detected in the battery material sample (0119-95-0001) at concentrations of 0.009 parts per million (ppm), 0.069 ppm and 0.190 ppm, respectively, which are above the analytical detection limit of 0.005 ppm. For waste disposal purposes, historic information presented in the RFI Work Plan indicates that the only VOC used at TA-19 was toluene. Toluene was mixed with trimethylborate for some experiments and not used as a solvent. According to historical information, no VOCs were used as solvents at the site, therefore, the presence of the VOCs would not make the battery debris a RCRA listed waste.

  Methylene chloride was detected in one of the soil samples (0119-95-0002) and in a laboratory QC blank, and is considered a laboratory contaminant. Toluene was detected in the two soil samples (0119-95-0002 and -0003) at concentrations of 0.028 and 0.210 ppm, respectively.

- No SVOCs were detected in the battery material sample (0119-95-0001) or soil samples (0119-95-0002 and -0003) at concentrations above the analytical detection limits.
- Gamma spectroscopy of the battery material and two soil samples, and ER Project Sample Nuclide Analysis (performed by ESH-1) of two concrete samples, revealed no radioactivity above regional background levels.

RCRA Facility Investigation

In August 1995, PRS 19-002 was sampled as part of the Phase I RFI for OU 1071. The RFI Work Plan called for the collection of surface soil samples and channel sediment samples in first-order drainages within the disposal area and downslope of the disposal area. In accordance with the Work Plan, the samples could be collected at the nodes of a 30-ft grid or randomly, with spatial stratification to ensure adequate site coverage. The sampling was conducted randomly within the disposal area, with two soil samples (0119-95-0014 and -0021) collected from an area in Pueblo Canyon beneath the debris (see Figure 2).

The OU 1071 Work Plan also called for all samples to be field screened for gross alpha, beta and gamma radiation. Analytical results from the samples collected during the first sampling event in June 1995 indicated that no gross radioactivity nor specific radionuclides were present above background levels. Other soil, battery material and concrete debris were also field screened for gross radiation during the site reconnaissance in June 1995, and no gross radioactivity above background was detected. Therefore, no additional samples were field screened for gross radioactivity or submitted for laboratory analysis of gross radioactivity or radionuclides.

Based on initial sampling results which showed no SVOCs to be present at concentrations above the analytical detection limits, further SVOC sampling was determined to be unnecessary and, therefore, was not conducted in deviation from the workplan.

In August 1995, a total of 19 surface soil and drainage sediment samples (0119-95-0004, -0006 through -0009, -0011 through -0021, and -0024 through -0026) were collected from areas immediately surrounding battery piles and from first-order drainages around PRS 19-002. Biased random sampling locations were chosen in the field to evaluate a worst-case representation of the site, if contamination was found to be present. One composite sample of the battery material (0119-95-0023RE), for waste characterization, and one trip blank (0119-95-0022), for QA/QC purposes, were also collected. Five of the soil samples (0119-95-004 and

-0006 through -0009) were analyzed for total metals by X-Ray Fluorescence (XRF) to compare metals concentrations to those observed in samples from the first sampling event in June 1995. Eleven soil samples (0119-95-0011 through -0021), the single sample of battery material (0119-95-0023RE), and the trip blank (0119-95-0022) were analyzed for VOCs by EPA Method 8240 in a Mobile Chemical Analytical Laboratory (MCAL) in an effort to expedite the acquisition of data and to aid in the determination of fixed lab analytical needs. Three soil samples (0119-95-0024, 0119-95-0025 and 0119-95-0026) were sent to a fixed laboratory for VOC analysis by EPA Method 8240. All analytical results are summarized on the following page as follows:

- Total lead was detected above the background concentration of 39 ppm by XRF in two soil samples (0119-95-0006 and -0007) at concentrations of 172 and 62 ppm, respectively.
- VOCs were not present in any of the soil samples or the battery material sample at concentrations above analytical detection limits.

In September 1995, a second battery collection site was discovered on the slope of the mesa wall, approximately 150 ft west of the primary battery debris pile. One battery material sample and two soil samples (0119-95-0028, -0029, and -0030) were collected and analyzed for VOCs by EPA SW 846 Method 8240 and total metals by XRF by the MCAL. Analytical results from the two soil samples revealed no VOCs at concentrations above analytical detection limits and no metals concentrations above background levels or LANL SALs.

Initial VOC results from the battery material sample (0119-95-0028) revealed the presence of 2-butanone (methyl ethyl ketone), toluene, and 4-methyl-2-pentanone at concentrations of 0.017 ppm, 0.004 ppm and 0.007 ppm, respectively. However, the laboratory director stated that results for 2-butanone and 4-methyl-2-pentanone were false positives. Therefore, the sample was reanalyzed for VOCs with the results showing only the toluene still present at a concentration of 0.023 ppm.

XRF results indicated manganese was detected at a concentration of 360,000 ppm, mercury at 120 ppm, and zinc at 180,000 ppm. This sample was then reanalyzed. A new sample (0119-95-0031) for TCLP and XRF metal analysis was collected from the battery debris, which had been collected from the site and placed into waste containers. XRF analysis revealed manganese at a concentration of 170,000 ppm and zinc at 71,000 ppm, mercury was not detected. TCLP results indicated that only barium was present above detection limits at a concentration of 0.9 mg/L, well below the TCLP threshold of 100 mg/L. Manganese and zinc do not have RCRA hazardous waste TCLP threshold limits.

All analytical results are presented in tables attached to this report. Copies of all data reports are available and will be provided upon request. Table 1 indicates those data above background and/or SAL.

TABLE 1

SUMMARY OF DATA ABOVE BACKGROUND AND/OR SAL

SAMPLE NUMBER	ANALYTE CONCENTRATION (mg/kg)		SAL (mg/kg)	UTL (mg/kg)	MCAL OR FIXED LABORATORY
0119-95-0001	Zinc	480		101	Fixed
0119-95-0002	Copper	494		15.7	Fixed
	Lead	282		39	
	Manganese	7 490		1 030	
	Mercury	1.3		0.1	
	Selenium	3.5		1.7	
	Zinc	5 690		101	
0119-95-0003	Manganese	1 670		1 030	Fixed
	Mercury	2.8		0.1	
	Zinc	1 220		101	
0119-95-0004	Cobalt	115.7		5.11	MCAL
	Manganese	1 225.3		1030	
	Potassium	26 081		6 180	
	Thallium	2.47		0.9	
	Zinc	1 122.3		101	
0119-95-0006	Cadmium	4.7		2.7	MCAL
	Cobalt	98.5		5.11	
	Copper	113.9		15.7	
	Lead	172.4		39	
	Manganese	8 906.5		1 030	
	Potassium	22 602		6 180	
	Selenium	2.9		1.7	
	Zinc	4 178.2		101	
0119-95-0007	Cobalt	144.2		5.11	MCAL
	Copper	42.8		15.7	
	Lead	62.1		39	
	Manganese	1 125.2		1 030	
	Potassium	18 677		6 180	
	Zinc	1 483.1		101	
0119-95-0008	Cobalt	172.4		5.11	MCAL
	Potassium	2 1059		6 180	

TABLE 1 (CONTINUED)

SUMMARY OF DATA ABOVE BACKGROUND AND/OR SAL

SAMPLE NUMBER	ANALYTE CONCENTRATION (mg/kg)		SAL (mg/kg)	UTL (mg/kg)	MCAL OR FIXED LABORATORY
0119-95-0009	Cobalt	116.9		5.11	MCAL
	Copper	17.9		15.7	
	Manganese	1 124.4		1 030	
	Potassium	24 697		6 180	
	Zinc	590.8		101	
0119-95-0028	Manganese	360 000	11 000	1 030	MCAL
	Zinc	180 000	24 000	101	
	Mercury	120	24	0.1	
	Thallium	54	6.4	0.9	
	Nickel	210		26.7	
	Copper	170		15.7	
	Arsenic	500		11.6	
	Selenium	12		1.7	
	Antimony	9		2.5	
0119-95-0028 REANALYZED	Manganese	170 000	11 000	1 030	MCAL
	Copper	3 600	3 000	15.7	
	Zinc	71 000	24 000	101	
	Lead	900	400	39	
	Nickel	70		26.7	
	Arsenic	130		11.6	
	Selenium	7		1.7	
	Cadmium	6		2.7	
	Antimony	5		2.5	
0119-95-0029	Copper	21 000		6 180	MCAL
	Lead	5 200		1 030	
	Manganese	41		5.11	
	Mercury	71		15.7	
	Selenium	2 700		101	
	Zinc	150		39	
0119-95-0030	Manganese	22 000		6 180	MCAL
	Mercury	5 800		1 030	
	Zinc	16		15.7	
		140		5.11	
		1 200		101	
		71		39	

3.0 RESULTS

Data Quality

All analyses requested were reported and analytical quality was acceptable for the intended purpose, which was to verify residual contaminant levels. However, metals results by XRF are not valid for site characterization or decision-making purposes. XRF results are used as a gross indication of the presence of metals in a sample or at a site. As a comparison, XRF results are generally higher than fixed laboratory, SW 846 methods, results.

The two soil samples submitted for fixed laboratory analysis of total metals (0119-95-0002 and -0003) were collected from areas in which high concentrations of contaminants would be expected to be detected, if present, in the site soils and sediments. This "worst case" approach would then be representative of the site, and total metals results from fixed laboratory analyses of other soil and sediment samples would be expected to be within the same range as, or less than, these two samples.

VOC results from the battery material sample (0119-95-0028), collected for waste characterization purposes, originally revealed false positives for 2-butanone and 4-methyl-2-pentanone, the sample was reanalyzed for VOCs with the results showing only toluene still present at a concentration of 0.023 ppm. This sample was then analyzed for XRF metals, which indicated manganese at a concentration of 360,000 ppm, mercury at 120 ppm, and zinc at 180,000 ppm. A new sample (0119-95-0031) was collected from the collected battery debris for metals analyses by XRF. The analysis revealed manganese at a concentration of 170,000 ppm and zinc at 71,000 ppm, and mercury was not detected.

No other data QA/QC problems were identified.

Background Comparison

Seven metals (cadmium, copper, lead, manganese, mercury, selenium, and zinc) were detected by fixed laboratory analyses at concentrations greater than their respective upper tolerance limit (UTL) in samples 0119-95-0002 and -0003. All other metals were detected at concentrations less than their respective UTL. Because these metals were detected in concentrations greater than their respective UTLs, the values were then compared to LANL SALs (see attached table, "Total Metals, 22 June 1995").

Toluene was the only VOC detected in any of the soil samples. Volatile organics do not have UTL values.

Screening Assessment

Receptors of possible contaminated soil or battery debris include animals and humans. Potential exposure routes to receptors included dermal contact, inhalation, and/or ingestion of soil or debris. Fixed laboratory analytical results indicated that cadmium, copper, lead, manganese, mercury, selenium, and zinc were detected at concentrations above their respective background levels in two soil samples (0119-95-0002 and -0003). However, none of the metals were detected at concentrations greater than their respective SAL.

No VOCs or SVOCs were present in soil samples at concentrations exceeding SALs. No radioactivity or specific radionuclides were detected at levels exceeding background.

All potential contaminant source materials (battery debris) were removed from the surface and the top 2 to 3 inches of the site and no soil remediation was required.

Ecotoxicological Screening Assessment

Pueblo Canyon is a habitat for the peregrine falcon, a threatened and endangered species, and PRS 19-002 is located on the north facing wall of the canyon. The areal extent of the PRS is approximately 10,000 square feet, while the areal extent of Pueblo Canyon is approximately 69,696,000 square feet (2.5 square miles). Additionally, PRS 19-002 is located near the convergence of Pueblo Canyon and Bayo Canyon, which is a hunting area for the falcon.

Because of the small areal extent of the PRS, in comparison to all of Pueblo Canyon, the likelihood of a peregrine falcon feeding on a mouse within the PRS location is extremely small. Therefore, an ecotoxicological screening assessment is not deemed necessary for this PRS.

Nature and Extent of Contamination

Review of analytical results suggest that no residual soil contamination remains at PRS 19-002. Analytical results of the samples collected in June 1995 suggest that toluene may be present in the two soil samples (0119-95-0002 and -0003) at concentrations of 0.028 and 0.210 ppm, respectively. However, analytical results of additional soil and sediment samples collected at the same locations, as well as other locations within the PRS, indicate that no VOCs are present above analytical detection limits. The fixed lab total lead result of 282 ppm is below lead cleanup levels used at other LANL sites, which have been as high as 1,000 ppm.

4.0 CORRECTIVE ACTION

The Voluntary Corrective Action (VCA) for PRS 19-002 was implemented in accordance with the VCA Plan, as prepared for and approved by DOE. Site remediation activities were conducted from 11 September through 15 September 1995. Approximately 2 cubic yards of concrete debris and 1.5 cubic yards of old batteries and associated debris were removed by hand from the top 2 to 3 inches of the surface. The concrete and battery materials were hoisted to the mesa top using a 40-ton crane and a backhoe to which a cable and pulley system was attached. The concrete and battery materials were then transported to the Los Alamos County Landfill for disposal.

Site restoration was not required since no excavation, other than the removal of battery debris from the top 2 to 3 inches of soil, was performed. Existing trees and bushes were not removed or disturbed.

5.0 CONCLUSIONS

Upon completion of the field work, the site was inspected by a LANL ER Project representative and the VCA was declared complete. All visible battery and concrete debris has been removed. See the attached Certificate of Completion from Garry Allen, Field Unit One Project Leader.

Deviation from the work plan occurred during the implementation of this investigation/corrective action in order to expedite data acquisition for decision making and based upon the benign nature of the site. Deviation included the collection of 23 soil and sediment samples as opposed to 14 as called for in the workplan. Although additional samples were collected, there was a corresponding increase in reliance on MCAL data in an effort to expedite the completion of the corrective action.

On the basis of analyses for VOCs, SVOCs, and metals, we conclude that no release of RCRA hazardous materials occurred at PRS 19-002 and the site should be removed from the HSWA list of solid waste management units. This report serves as the formal request for regulator concurrence to remove PRS 19-002 from the HSWA module.