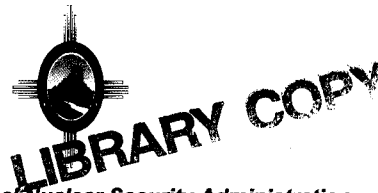




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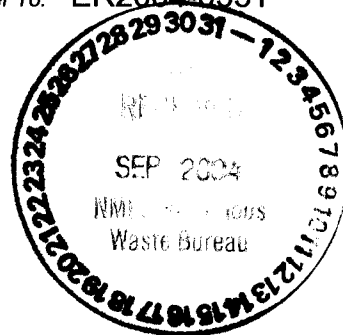
TA-03



National Nuclear Security Administration
 Los Alamos Site Operations, MS A316
 Environmental Restoration Program
 Los Alamos, New Mexico 87544
 (505) 667-7203/FAX (505) 665-4504

Date: September 27, 2004
 Refer To: ER2004-0551

Mr. John Young, Project Leader
 Permits Management Program
 NMED – Hazardous Waste Bureau
 2905 Rodeo Park Drive East
 Building 1
 Santa Fe, NM 87505-6303



**SUBJECT: SOLID WASTE MANAGEMENT UNIT (SWMU) ASSESSMENT PLAN FOR
 NEWLY IDENTIFIED SWMU 03-013(i) LOS ALAMOS NATIONAL
 LABORATORY (LANL), EPA ID#:NM0890010515**

Dear Mr. Young:

Enclosed please find two copies of the "Solid Waste Management Unit (SWMU) Assessment Plan for SWMU 03-013(i)." This plan was prepared in response to the New Mexico Environment Department's (NMED's) request dated June 29, 2004. The plan addresses the requirements of Section G.3 of Module VIII of LANL's Hazardous Waste Facility Permit.

As described in the enclosed plan, assessment activities for this SMWU, including sampling and analysis, will be performed in conjunction with demolition and removal of the structures associated with this SWMU. These activities are currently planned for the first quarter of Fiscal Year 2005. LANL will notify NMED at least 15 days prior to the start of these activities. Following completion of the assessment activities, a SWMU assessment report for SWMU 03-013(i) will be prepared and submitted to NMED in accordance with Section G.5 of Module VIII.

If you have any questions, please contact Joe English at (505) 667-9641.

Sincerely,

David McInroy, Deputy Project Director
 Remediation Services
 Los Alamos National Laboratory

Sincerely,

David Gregory, Federal Project Director
 Department of Energy
 Los Alamos Site Operations



Mr. John Young
ER2004-0551

2

September 27, 2004

DM/DG/JE/jr

Enclosures: 2 copies of Solid Waste Management Unit (SWMU) Assessment Plan for
SWMU 03-013(i)

Cy:(w/enc)

A. Dorries, RRES-ECR, MS M992
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IM-9, MS A150
RPF MS M707

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LA-UR-04-6783
September 2004
ER2004-0549

Solid Waste Management Unit (SWMU) Assessment Plan for SWMU 03-013(i)



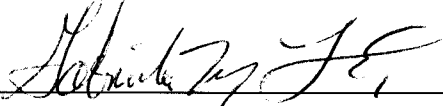
Los Alamos NM 87545

September 2004
ER2004-0549

Solid Waste Management Unit (SWMU) Assessment Plan for SWMU 03-013(i)

September 2004

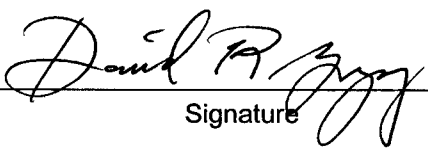
Responsible project leader:

Gabriela Lopez Escobedo		Project Team Leader	RRES-RS	9/29/04
Printed Name	Signature	Title	Organization	Date

Responsible UC representative:

David McInroy		Deputy Project Director	RRES-RS	9/29/04
Printed Name	Signature	Title	Organization	Date

Responsible DOE representative:

David Gregory		Federal Project Director	DOE-LASO	9/29/04
Printed Name	Signature	Title	Organization	Date

Disclaimer

This document contains data on radioactive materials, including source, special nuclear, and by-product material. The management of these materials is regulated under the Atomic Energy Act and is specifically excluded from regulation under the Resource Conservation and Recovery Act and the New Mexico Hazardous Waste Act. These data are provided to the New Mexico Environment Department for informational purposes only.

Prepared by
Risk Reduction and Environmental Stewardship–Remediation Services

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ACRONYMS

BTEX	benzene, toluene, ethyl benzene, and xylene
DRO	diesel range organics
FWO-IP	Facility and Waste Operations Division, Infrastructure Projects
GRO	gasoline range organics
Laboratory	Los Alamos National Laboratory
NMED	New Mexico Environment Department
PCB	polychlorinated biphenyl
ppm	parts per million
QC	quality control
RRES-RS	Risk Reduction and Environmental Stewardship – Remediation Services
RRES-SWRC	Risk Reduction and Environmental Stewardship – Solid Waste Regulatory Compliance
SOP	standard operating procedure
SSL	soil screening level
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	Technical Area
TAL	target analyte list
TCLP	toxicity characteristic leaching procedure
TPH	total petroleum hydrocarbons
VOC	volatile organic compound

SOLID WASTE MANAGEMENT UNIT (SWMU) ASSESSMENT PLAN FOR SWMU 03-013(I)

This solid waste management unit (SWMU) assessment plan describes activities proposed to investigate whether a release of hazardous wastes, including hazardous constituents, has occurred from SWMU 03-013(i) at Los Alamos National Laboratory (the Laboratory). SWMU 03-013(i) was discovered by the Laboratory in June 2004 and notification of this newly identified SWMU was provided to the New Mexico Environment Department (NMED) by the Laboratory on June 8, 2004 (McInroy and Gregory 2004, 87055). This notification was provided in accordance with Section G.1 of Module VIII of the Laboratory's Hazardous Waste Facility Permit (EPA 1994, 44146). Pursuant to Section G.2 of Module VIII, NMED requested that the Laboratory prepare an assessment plan for SWMU 03-013(i).

The following sections present the information needed to satisfy the requirements for a SWMU assessment plan contained in Section G.3 of Module VIII. Section 1.0 provides a description of the site and its history. The results of previous investigations are presented in Section 2.0. Section 3.0 describes the future activities planned for this site, including demolition and removal of the buildings associated with the SWMU. Finally, Section 4.0 presents a plan for sampling and analysis necessary to confirm the nature and extent of contamination at the site and demonstrate that the site does not pose an unacceptable risk to human or ecological receptors.

1.0 SITE DESCRIPTION AND HISTORY

SWMU 03-013(i) is located in Technical Area (TA)-03 at the Laboratory (Figure 1) and consists of soil and gravel contaminated with historical releases of hydraulic oil at Buildings 03-246 and 03-247.

Building 03-246, the Cable Control Building, and Building 03-247, the Cable Stress Building, are collectively referred to as the Pull Test Facility. The purpose of this facility was to test the tensile strength of various steel cables used in conjunction with underground nuclear test assemblies. The facility was constructed prior to 1967 and operated until the mid-1980s when a replacement facility was constructed on Sigma Mesa.

Building 03-246 is a corrugated metal building constructed on a concrete slab and occupies an area of approximately 64 ft² (approximately 8 ft x 8 ft). This building contained the controls for the pull test equipment as well as a hydraulic oil compressor and storage tank. A protective barrier was constructed of steel beams and cables next to two sides of the building to protect the building and occupants in case of cable failure during a test.

Building 03-247 is a corrugated metal building constructed on a concrete curb surrounding a gravel floor. The building occupies an area of approximately 340 ft² (approximately 14 ft x 24 ft) and contains two hydraulic rams used to perform the tensile strength testing. To conduct the tests, one end of the cable would be fastened to the rams in Building 03-247 and the other end would be fastened to a concrete anchor block north of the building. Hydraulic oil was provided to the rams through two underground pipes between Buildings 03-246 and 03-247.

The area north of Buildings 03-246 and 03-247 is paved and is currently used as a laydown area for steel and other construction materials. The ground surface to the east and south of the buildings is unpaved up to the fence that borders the site and is paved beyond the fence. The area to the west of Building 03-247 is part of a paved parking area.

The contamination identified at SWMU 03-013(i) consists of oil-stained soil around Building 03-246 (Figures 2 and 3) and oil-stained gravel inside Building 03-247 (Figure 4). At Building 03-246, hydraulic oil appears to have been released to the concrete slab floor inside the building and to have subsequently flowed beneath the building walls and onto the soil surrounding the building. Visible soil contamination

exists along the north side of the building and along the northeast and northwest corners. The stained area does not appear to extend more than 1 ft from the building and the total area of contaminated soil appears to be less than 10 ft². The gravel floor inside Building 03-247 is visibly stained with oil in several locations beneath the hydraulic ram assembly. The total area of stained gravel appears to be less than 10 ft². Release of hydraulic oil from the buried piping between Buildings 03-246 and 03-247 may also have occurred, though underground portions of the piping have not been inspected.

Based on the nature of activities conducted at the Pull Test Facility, the primary potential contaminant is hydraulic oil. Polychlorinated biphenyls (PCBs) are a potential contaminant based on the historical presence of PCBs in some hydraulic oils. The hydraulic oil tank on the compressor in Building 03-246 is currently marked with a label indicating PCB concentration less than 5 parts per million (ppm). This label indicates that the oil presently in the tank contains low concentrations of PCBs, if any. It is unknown, however, whether this is consistent with historical operations. The use of oil-filled equipment at the Pull Test Facility indicates that degreasing solvents may also have been used for maintenance activities. Potential contaminants associated with use of solvents include volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Based on the operations conducted at this facility, radiological contaminants are not expected.

2.0 RESULTS OF PREVIOUS INVESTIGATIONS

After discovery of this site, the Laboratory's Risk Reduction and Environmental Stewardship – Remediation Services (RRES-RS) project arranged for sampling of the site by the RRES Solid Waste Regulatory Compliance (RRES-SWRC) Group to verify the nature of contaminants present at the site. Two samples of oil-contaminated soil were collected and submitted for expedited analysis of PCBs (Method 8082), VOCs (Method 8260B), SVOCs (Method 8270C), and target analyte list (TAL) metals (Methods 6010B, 7000, 7471B). These samples were collected from the surface adjacent to Building 03-246 (Figure 5) and were biased to areas of heaviest staining. One of the samples was also submitted for analysis of total petroleum hydrocarbons – diesel range organics (TPH-DRO, Method 8015A); TPH – gasoline range organics (GRO, Method 8015A); benzene, toluene, ethyl benzene, and xylenes (BTEX, Method 8021B); and toxicity characteristic leaching procedure (TCLP) metals, VOCs, and SVOCs. The analytical results are presented in Appendix A and are summarized below.

Four metals (cadmium, copper, lead, and zinc) were detected above background values for Laboratory soils (LANL 1998, 59730), but below NMED residential and industrial soil screening levels (SSLs) (NMED 2004, 85615). In addition, three metals (antimony, selenium, and thallium) were not detected but had detection limits above background values. The detection limits for antimony and selenium are below residential and industrial SSLs, while the detection limit for thallium is above the residential SSL but below the industrial SSL. The results of inorganic chemicals detected above background values or having detection limits above background values are summarized in Table 1.

In addition to total metals analysis, one of the samples was also analyzed for TCLP metals. Three metals (barium, cadmium, and lead) were detected in the TCLP leachate but were below regulatory levels. Detection limits for the nondetected metals were all below regulatory levels. The detected TCLP metals are summarized in Table 2.

No organic chemicals were detected in the total VOC analysis, total SVOC analysis, BTEX analysis, PCB analysis, TCLP VOC analysis, or TCLP SVOC analysis. Detection limits for TCLP VOCs and SVOCs were all below regulatory levels. TPH-DRO and TPH-GRO were detected, and these results are presented in Table 3.

3.0 PLANNED SITE ACTIVITIES

Buildings 03-246 and 03-247 are scheduled for demolition and removal by the Laboratory's Facility and Waste Operations Division, Infrastructure Projects (FWO-IP) Disposition Team. The demolition and removal activities will include

- disconnection of all utilities from the buildings;
- removal of all equipment from the buildings; and
- demolition of the buildings to the floor slab/foundation and removal of all demolition debris.

Additional activities will be conducted by FWO-IP to remove contamination associated with SWMU 03-013(i). These activities are

- removal of the Building 03-246 floor slab;
- removal of oil-contaminated soil surrounding Building 03-246;
- removal of oil-contaminated soil, if any, beneath the Building 03-246 floor slab;
- removal of the buried oil pipelines between Buildings 03-246 and 03-247;
- removal of oil-contaminated soil, if any, surrounding or beneath the buried oil pipelines;
- removal of oil-contaminated gravel and underlying soil from Building 03-247; and
- collection of confirmatory samples.

Confirmatory samples will be collected to verify that the nature and extent of contamination at the site is known and that all hazardous wastes or hazardous constituents released from the SWMU, if any, are present below NMED industrial SSLs (NMED 2004, 85615).

Based on the results of the preliminary characterization sampling described above, the oil-contaminated soil, gravel, and concrete would not be hazardous waste but would be regulated as a New Mexico Special Waste under Title 20, Chapter 9, Part 1, of the New Mexico Administrative Code.

After the results of the confirmatory sampling have been received, the Laboratory will prepare a report documenting the demolition and removal activities, soil removal, and confirmatory sampling. Upon NMED review and approval, the Laboratory will request a certificate of completion for this SWMU.

The activities described above are currently scheduled to begin during the fall 2004. The Laboratory will notify NMED at least 15 days prior to the start of these activities.

4.0 SAMPLING AND ANALYSIS PLAN

The confirmation sampling is designed to verify that the nature and extent of contamination from releases from SWMU 03-013(i) has been determined and that residual levels of contamination are below industrial SSLs. The sampling will address three areas: Building 03-246, Building 03-247, and the underground piping between the two buildings. Proposed sample locations and analyses are summarized in Table 4 and Figure 6 and described below. All samples will be collected using RRES-RS Standard Operating Procedure (SOP)-06.09, "Spade and Scoop Method for Collection of Soil Samples" or SOP-06.10, "Hand Auger and Thin-Wall Tube Sampler." Field quality control (QC) samples will include one field duplicate, one rinsate blank, and one trip blank for VOCs.

4.1 Building 03-246

Releases of hydraulic oil to the soil surrounding this building are known to have occurred, as evidenced by the appearance of oil-stained soil on the north and east sides of the building. This oil appears to have leaked from the hydraulic machinery in the building onto the concrete slab floor and flowed on top of the slab, beneath the building walls, and onto the adjacent soil. The visibly contaminated soil appears to be limited to within one ft of the building wall. The floor slab inside the building appears to be in good condition, though some of the slab is covered with equipment and cannot be inspected.

Objectives of the confirmatory sampling at Building 03-246 are to

- verify the cleanup of soil and extent of contamination east and north of the building.
- verify the cleanup of soil and extent of contamination beneath the building footprint.
- determine the extent of contamination at locations east of the building potentially impacted by storm water runoff.

Previously sampled locations. All visibly contaminated soil around the building will be removed prior to sampling. The two locations previously sampled during the initial investigation of this SWMU will be resampled at two depths to verify cleanup of the soil and to verify that the vertical extent of contamination is determined. At each location a sample will be collected at the surface (i.e., the bottom of the excavation) and at a depth of 1.5 ft below the surface. All samples will be analyzed for TAL metals, SVOCs, PCBs, and TPH. Because of the potential for historical use of solvents at this facility, the deeper samples will also be analyzed for VOCs.

Building footprint. The concrete floor slab will be removed prior to sampling. If oil contamination is observed beneath the slab, all visibly contaminated soil will be removed. A confirmation sample location will be selected within the area that was contaminated. If no contamination is observed following removal of the slab, the sample location will be the center of the building footprint. A sample will be collected at the surface (i.e., the bottom of the excavation) and at a depth of 1.5 ft below the surface. Both samples will be analyzed for TAL metals, SVOCs, PCBs, and TPH. Because of the potential for historical use of solvents at this facility, the deeper sample will also be analyzed for VOCs.

Extent of contamination. The most likely mechanism for transport of contaminants released from Building 03-246 is surface runoff. Based on the site topography, runoff from areas of heavy soil contamination north and east of the building would be to the east. Confirmatory samples will be collected from two locations to the east of Building 03-246, at the edge of the unpaved area east of the building, approximately 10 ft from the building (Figure 6). At each location, a sample will be collected at two depths. The upper depth will be the ground surface. The deeper sample will be collected at the same elevation as the deeper samples collected at the previous sampling locations and building footprint. All samples will be analyzed for TAL metals, SVOCs, PCBs, and TPH. Because of the potential for historical use of solvents at this facility, the deeper samples will also be analyzed for VOCs.

4.2 Building 03-247

Releases of hydraulic oil to the soil gravel floor inside this building are known to have occurred, as evidenced by the appearance of oil-stained gravel beneath the equipment inside the building. Because the gravel is surrounded by a concrete curb and is enclosed within the building, no release of oil outside the building is expected. The gravel will be removed from the building prior to sampling. If any oil-stained soil is observed beneath the gravel, it will also be removed. Confirmation samples will be collected at two locations within the footprint of Building 03-247. These locations will be where the heaviest soil staining is apparent. If no soil staining is observed beneath the gravel, the locations will be where the heaviest oil

staining occurs on the gravel prior to removal. At each location, a sample will be collected at the surface (i.e., the bottom of the excavation) and at a depth of 1.5 ft below the surface. All samples will be analyzed for TAL metals, SVOCs, PCBs, and TPH. Because of the potential for historical use of solvents at this facility, the deeper samples will also be analyzed for VOCs.

Because there appear to have been no releases outside Building 03-247 (i.e., oil contamination is limited to the inside of the building), confirmatory samples to determine nature and extent outside the building are not proposed. If evidence of releases from the building is observed during demolition and removal, additional samples outside the building will be collected.

4.3 Underground Piping

No releases of hydraulic oil from the underground piping between Buildings 03-246 and 03-247 are known to have occurred. The piping and any oil-stained soil observed around the piping will be removed prior to sampling. A confirmation sample location will be selected within the area that was contaminated. If no soil staining is observed around the piping, the sample location will be beneath a joint in the pipe. If no pipe joints are found, the sample will be collected from the middle of the pipe trench. A sample will be collected at the surface (i.e., the bottom of the excavation) and at a depth of 1.5 ft below the surface. All samples will be analyzed for TAL metals, SVOCs, PCBs, and TPH. Because of the potential for historical use of solvents at this facility, the deeper sample will also be analyzed for VOCs.

5.0 REFERENCES

EPA (Environmental Protection Agency), May 23, 1994. "Transmittal of Hazardous Waste Permit to the Los Alamos National Laboratory (NM0890010515)," EPA Region VI, Dallas, Texas. (EPA 1994, 44146)

LANL (Los Alamos National Laboratory), September 1998. "Inorganic and Radionuclide Background Data for Soils, Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Los Alamos National Laboratory document LA-UR-98-4847, Los Alamos, New Mexico. (LANL 1998, 59730)

McInroy, D. and D. Gregory, June 8, 2004. "Notification for a Newly-Identified Solid Waste Management Unit (SWMU) at Technical Area (TA-)03," Los Alamos National Laboratory memorandum to J. Kieling, NMED-HWB, from D. McInroy, RRES-RS, and D. Gregory, DOE-LASO, Los Alamos, New Mexico. (McInroy and Gregory 2004, 87055)

NMED (New Mexico Environment Department, February 2004. "Technical Background Document for Development of Soil Screening Levels, Revision 2.0," Santa Fe, New Mexico. (NMED 2004, 85615)

Table 1
Inorganic Chemicals Detected Above Background Values or Having Detection Limits Greater than Background Values

Sample ID	Location ID	Antimony	Cadmium	Copper	Lead	Selenium	Thallium	Zinc
Soil Background Value		0.83	0.4	14.7	22.3	1.52	0.73	48.8
NMED Residential SSL		31.3	74.1	3,30	400	391	5.16	23,500
NMED Industrial SSL		454	8600	45,400	750	5680	74.9	100,000
04SWRC428	1	2.5 (U)	2.29	20.1	72.9	3.0 (U)	10 (U)	714
04SWRC437	2	2.5 (U)	4.27	38.8	109	3.0 (U)	10 (U)	1420
04SWRC441	2	2.5 (U)	3.16	12.1	58.1	3.0 (U)	10 (U)	415

All values in mg/kg.
 (U) – Not detected; value is detection limit.

Table 2
Inorganic Chemicals Detected in TCLP Leachate

Sample ID	Location ID	Barium	Cadmium	Lead
Regulatory Level		100	1.0	5.0
04SWRC432	1	0.2	0.036	0.17

All values in mg/L.

Table 3
Total Petroleum Hydrocarbons Detected in Soil Samples

Sample ID	Location ID	TPH-DRO	TPH-GRO
04SWRC426	1	3600	—
04SWRC427	1	—	6.2

All values in mg/kg.
 — Not analyzed.

Table 4
Summary of Confirmatory Samples and Analyses.

Location	Depth (ft)	Purpose	Analytes
1: Previous sample east of Building 03-246	0-0.5 ^a	Verify cleanup of soil	TAL metals, SVOCs, PCBs, TPH
	1.5-2.0 ^a	Determine vertical extent	TAL metals, SVOCs, PCBs, TPH, VOCs
2: Previous sample north of Building 03-246	0-0.5 ^a	Verify cleanup of soil	TAL metals, SVOCs, PCBs, TPH
	1.5-2.0 ^a	Determine vertical extent	TAL metals, SVOCs, PCBs, TPH, VOCs
3: Building 03-246 footprint	0-0.5 ^a	Verify cleanup of soil	TAL metals, SVOCs, PCBs, TPH
	1.5-2.0 ^a	Determine vertical extent	TAL metals, SVOCs, PCBs, TPH, VOCs
4: East of Building 03-246	0-0.5 ^b	Determine extent of contamination due to runoff	TAL metals, SVOCs, PCBs, TPH
	TBD ^b	Determine extent of contamination due to runoff	TAL metals, SVOCs, PCBs, TPH, VOCs
5: East of Building 03-246	0-0.5 ^b	Determine extent of contamination due to runoff	TAL metals, SVOCs, PCBs, TPH
	TBD ^b	Determine extent of contamination due to runoff	TAL metals, SVOCs, PCBs, TPH, VOCs
6: Building 03-247 footprint	0-0.5 ^a	Verify cleanup of soil	TAL metals, SVOCs, PCBs, TPH
	1.5-2.0 ^a	Determine vertical extent	TAL metals, SVOCs, PCBs, TPH, VOCs
7: Building 03-247 footprint	0-0.5 ^a	Verify cleanup of soil	TAL metals, SVOCs, PCBs, TPH
	1.5-2.0 ^a	Determine vertical extent	TAL metals, SVOCs, PCBs, TPH, VOCs
8: Underground piping	0-0.5 ^a	Verify cleanup of soil	TAL metals, SVOCs, PCBs, TPH
	1.5-2.0 ^a	Determine vertical extent	TAL metals, SVOCs, PCBs, TPH, VOCs

^a Depth measured from bottom of excavation following soil removal.

^b Depth to be determined (TBD) based on depths of deeper samples at locations 1, 2, and 3.