



## Department of Energy

Los Alamos Area Office  
Albuquerque Operations Office  
Los Alamos, New Mexico 87544

MAY 31 1994

TA-3

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Benito Garcia, Chief  
Hazardous and Radioactive Materials Bureau  
New Mexico Environment Department  
525 Camino de los Marquez  
P.O. Box 26110  
Santa Fe, NM 87502

Dear Mr. Garcia:

To supplement the telephone conversation of May 20, 1994, between Jon Mack, Juan Corpion, and you, I am providing additional information regarding soil removed from a Solid Waste Management Unit (SWMU) at Technical Area (TA) 3, Building 30 (SWMU #3-010[a]) that was placed in TA-54, Area G, Pit 37. Pit 37 is a solid low level radioactive waste landfill. The soil was placed in the pit because it contained tritium and low levels of plutonium contamination. On May 20, 1994, this soil was also found to contain trace amounts of 1,1,1-trichloroethane (TCA) and trichloroethylene (TCE).

SWMU 3-010(a) was used for disposing pump oil from 1950 to 1957. Interviews were conducted in 1992 of personnel operating the pump shop that discharged to the SWMU. Those interviews did not reveal the use of solvents in the operation. Consequently, Volatile Organic Analyzes (VOA) were not conducted during remediation. Due to the presence of total petroleum hydrocarbons at the soil/tuff interface at SWMU 3-010(a), samples were taken to determine the presence of hydrocarbons. On May 13, 1994, preliminary analytical data of the tuff indicated the presence of volatile organics. Additional analysis confirmed the existence of low concentrations of TCA and TCE. An operator of the pump shop recalled during a subsequent interview conducted on May 20, 1994, that solvents had been used to clean the pumps. The soil is therefore suspected of containing constituents from a solvent-containing waste.

In late April and May, soils from the excavation of SWMU 3-010(a) were placed in Pit 37. Some of the soil was placed in two piles on top of the pit and some of the soil was spread as cover. Because of the results of the sampling conducted at SWMU 3-010(a), 10 VOA samples were taken on May 19, 1994, of the soil that originated from the SWMU placed in Pit 37. Eight samples were taken from various locations within the spread soil and one sample was taken from each pile located on top of the pit. Of the eight samples taken of the spread material, no hazardous constituents were detected in two of the samples and trace amounts of TCA were found in six samples (no greater than 1 milligram/kilogram [mg/kg]). Of the two pile samples, TCA at 3.1 mg/kg and TCE at 0.09 mg/kg were detected in one sample,



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and TCA at 4.5 mg/kg was found in the other sample. The soil that was placed in the piles has been removed from Pit 37.

Under an extremely conservative interpretation, this soil could arguably be construed to be a Resource Conservation and Recovery Act (RCRA)-listed hazardous waste. However, the Department of Energy (DOE) and the Los Alamos National Laboratory (LANL) believe the soil that was placed in Pit 37 is not a RCRA hazardous waste and are seeking concurrence of this determination from the New Mexico Environment Department (NMED). The following discussion is provided to examine both the basis for this conclusion and LANL's subsequent response to the issue.

#### I. Hazardous Waste Determination

DOE and LANL believe the soil placed in Pit 37 is not a hazardous waste based on the Environmental Protection Agency's (EPA) "contained in" policy. This policy states that soil contaminated with a listed hazardous waste must be managed as a hazardous waste until it no longer "contains" the hazardous waste (57 *Federal Register* [FR] 986). This *Federal Register* goes on to establish that soil can contain de minimis levels of hazardous constituents from a listed waste and not be a listed waste. EPA is currently developing constituent levels to determine when media (soil, debris, groundwater) no longer "contains" a listed waste, but at this time these levels are to be determined on a site-specific basis by the authorized state (57 *FR* 986, 58 *FR* 48123). EPA has suggested that, in determining whether soil still contains a listed hazardous waste, factors such as contaminant characteristics (e.g., concentrations) and exposure potential should be considered (58 *FR* 48123).

In determining if soil contains a listed hazardous waste based on constituent concentrations, three guidelines are helpful. These guidelines are the proposed exemption levels established by EPA in the Hazardous Waste Identification Rule; LANL's screening action levels established for LANL corrective action activities; and maximum allowed concentrations established for Superfund remedial responses.

EPA proposed constituent exemption levels for listed waste in the Hazardous Waste Identification Rule (HWIR) (57 *FR* 21450). In the rule, EPA proposed numeric criteria where RCRA jurisdiction ends for soil contaminated with a listed waste. If soil contains hazardous constituents at concentrations below established levels, the soil need not be managed as a hazardous waste. For TCA, the proposed level was 1000 mg/kg and for TCE the proposed level was 100 mg/kg (57 *FR* 21512). The proposed rule was withdrawn for further evaluation but provides an indication of the levels EPA considers necessary for hazardous constituents to constitute a hazardous waste.

A second indication of hazardous constituent levels that must be present for environmental media to contain a listed hazardous waste exists in LANL's investigation Screening Action Levels (SAL). LANL

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has calculated media-specific SALs by following the methodology in the proposed Subpart S of RCRA (55 FR 30798). When available, this methodology uses data from the Integrated Risk Information System and Health Effects Assessment Summary Tables to establish SALs. Pursuant to a RCRA corrective action, SALs are used to trigger media investigations. Media with hazardous constituents below the SALs would not be considered for further investigation and no remediation would be required.

The methodology in Subpart S has also been used in establishing NMED-Approved Health Based Action Levels (equivalent to SALs) for clean closure of land-based units at LANL. If media contains a constituent concentration below the Health Based Levels (i.e., SAL), NMED has allowed the media to remain in place and not be considered a hazardous waste.

The SAL for TCA is 1000 mg/kg, and the SAL for TCE is 3.2 mg/kg. Based on these levels, corrective action would not be required for the soil placed in Pit 37 and the soil would be allowed to remain in place during a clean closure of the unit.

Another indication of hazardous constituent levels that must be present for environmental media to contain a listed hazardous waste exists in EPA's Maximum Allowed Concentration (MAC) levels established for Superfund remedial responses. If waste generated during a Superfund clean-up falls below these levels, RCRA's delisting procedures are incorporated into the remedial process so the waste can be considered non-hazardous. The MAC for TCA is 222 mg/kg, and for TCE the MAC is 114 mg/kg (see "A Guide to Delisting of RCRA Wastes for Superfund Remedial Responses," September 1990, OSWER No. 9347.3-09FS.). Although these levels are established specifically for a waste generated from a Superfund remediation activity, they also provide an indication of the concentrations EPA considers appropriate for waste to be considered non-hazardous.

Because the constituent levels for soil spread over the pit and placed in the piles are well below proposed levels in HWIR, LANL's existing SALs, and Superfund's MACs, DOE and LANL believe the soil from SWMU 3-010(a) that was placed in Pit 37 does not contain a listed hazardous waste. The soil spread as cover contains no detectable levels of TCE and no levels above 1 mg/kg of TCA. The soil that was placed in the piles contains TCA at 4.5 mg/kg and TCE at 0.09 mg/kg. These levels are substantially less than the exemption levels proposed in HWIR of 1000 mg/kg TCA and 100 mg/kg TCE, LANL's SALs of 1000 mg/kg for TCA and 3.2 mg/kg for TCE, and EPA's MACs of 222 mg/kg for TCA and 114 mg/kg for TCE. It should therefore be determined that the soil placed in Pit 37 no longer contains a listed hazardous waste.

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## II. One-Time Removal of Soil

As stated before, the authorized state must make a determination whether media still contains a listed hazardous waste. The promptness of this determination is critical because Pit 37 cannot receive any additional waste in the interim, impacting LANL operations. If NMED determines that the soil does contain a listed hazardous waste, LANL will remove and contain the spread soil in Pit 37 that originated from SWMU 3-010(a). The soil that was in the piles on Pit 37 has already been removed, and future management of this material will be based on NMED's hazardous waste determination.

If removal of the remaining soil will be required, it will begin upon completion of a special workplan to address radiation exposure that will be encountered from surrounding waste. The soil will most likely be removed with a vacuum truck equipped with high efficiency particulate filters to contain radioactivity, placed in containers, and managed appropriately. Once removed, additional soil samples will be collected in Pit 37 for VOA. In the unlikely event that further TCA or TCE contamination is found in Pit 37, additional removal will be undertaken. The remaining soil removal should be completed within three to four months. By removing this soil from Pit 37 and performing a survey demonstrating effective removal, DOE and LANL believe Pit 37 will not become subject to Subtitle C of RCRA.

Another factor to consider with regard to any additional soil removal activities is the potential for increased radiation exposure to workers. Extensive worker activity will take place in the pit to remove the soil. Due to the extremely low constituent concentrations in the soil and the resulting radiation exposure that would occur with removal of the soil, a greater threat exists to human health by removing the soil than exists to the environment by leaving the soil in place.

LANL recognizes that if the TCE and TCA levels were not so low, a listed hazardous waste could have been placed in the pit. To ensure that incidents of this kind do not occur in the future, DOE and LANL will perform a root cause analysis focusing on site characterization.

If you have any questions regarding issues discussed in this correspondence, please contact Jon Mack of my staff at 665-5026.

Sincerely,



Joseph Vozella, Chief  
Environment, Safety and Health  
Branch

LESH:7JM-195

cc:  
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Benito Garcia

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cc:

B. Driscoll

RCRA Permits Branch  
EPA, Region 6  
1445 Ross Ave.  
Suite 1200  
Dallas, TX 75202-2733

J. Dougherty

EPA, Region 6  
1445 Ross Ave.  
Suite 1200  
Dallas, TX 75202-2733

B. Swanton

AIP, Environmental Management  
Oversight

LANL

P. O. Box 1663  
Los Alamos, NM 87545

A. Barr, ESH-8, LANL, MS-K498

J. Corpion, ESH-8, LANL,  
MS-K498

J. Farr, ESH-8/BEC, LANL,  
MS-K498

HSWS 94-0180 File, LANL,  
MS-K498

E. Torres, Governor

San Ildefonso Pueblo  
Route 5, Box 315-A  
Santa Fe, NM 87501



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In late April and May, prior to knowledge of the presence of hazardous constituents, soils from the excavation of SWMU 3-010(a) were placed in Pit 37. Some of the soil was placed in two piles on top of the pit and some of the soil was spread as cover. Because of the results of the sampling conducted at SWMU 3-010(a), 10 VOA samples were taken on May 19, 1994, of the soil that originated from the SWMU placed in Pit 37. Eight samples were taken from various locations within the spread soil and one sample was taken from each pile located on top of the pit. Of the eight samples taken of the spread material, no hazardous constituents were detected in two of the

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samples and trace amounts of TCA were found in six samples (no greater than 1 milligram/kilogram [mg/kg]). Of the two pile samples, TCA at 3.1 mg/kg and TCE at 0.09 mg/kg were detected in one sample, and TCA at 4.5 mg/kg was found in the other sample. The soil that was placed in the piles has been removed from Pit 37.

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A second indication of hazardous constituent levels that must be present for environmental media to contain a listed hazardous waste exists in LANL's investigation screening action levels (SAL). LANL has calculated media-specific SALs by following the methodology in the proposed Subpart S of RCRA (55 FR 38798). When available, this methodology uses data from the Integrated Risk Information System and Health Effects Assessment Summary Tables to establish SALs. Pursuant to a RCRA corrective action, SALs are used to trigger media investigations. Media with hazardous constituents below the SALs would not be considered for further investigation and no remediation would be required.

The methodology in Subpart S has also been used in establishing NEMED-Approved Health Based Action Levels (equivalent to SALs) for clean closure of land-based units at LANL. If media contains a constituent concentration below the Health Based Levels (i.e., SAL), NEMED has allowed the media to remain in place and not be considered a hazardous waste.

The SAL for TCA is 1000 mg/kg, and the SAL for TCE is 3.2 mg/kg. Based on these levels, corrective action would not be required for the soil placed in Pit 37 and the soil would be allowed to remain in place during a clean closure of the SMU.

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Another factor to consider with regard to any additional soil removal activities is the potential for increased radiation exposure to workers. Extensive worker activity will take place in the pit to remove the soil. Due to the extremely low constituent concentrations in the soil and the resulting radiation exposure that would occur with removal of the soil, a greater threat exists to human health by removing the soil than exists to the environment by leaving the soil in place.

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