INFORMATION SHEET: MATERIAL DISPOSAL AREA L

ER2004-

Technical Area 54 Material Disposal Area L Aerial

1940s The Laboratory was founded in 1943 as part of the Manhattan Project. Processes used to carry out the Laboratory's past and present missions involve the use of hazardous and radioactive materials.

1950s During and after World War II, materials were disposed of on the Laboratory site or otherwise released into the environment.

1960s Congress enacted basic legislation to protect the environment. The Department of Energy's predecessor, the Atomic Energy Commission, and the Laboratory began to conduct surveys and to clean up areas where spills and disposal had occurred.

1970s Congress enacted the Resource Conservation and Recovery Act (RCRA) that governs the day-to-day operations of hazardous waste generation, treatment, storage, and disposal facilities (sites).

1980s Congress amended RCRA by passing the Hazardous and Solid Waste Amendments (HSWA). HSWA prescribes a corrective action process that focuses primarily on the investigation and cleanup, if required, of inactive sites.

1989 Environmental restoration began at the Laboratory to clean up sites that were formerly involved in weapons research and production.

1990s Present The ER Project investigates and cleans up sites that have the potential to affect human health or the environment.

LOS ALAMOS NATIONAL LABORATORY

Los Alamos National Laboratory (the Laboratory) is a multidisciplinary research facility owned by the Department of Energy (DOE) and managed by the University of California. The Laboratory is located in north-central New Mexico approximately 35 miles northwest of Santa Fe. The Laboratory covers 43 square miles of the Pajarito Plateau; the Plateau consists of a series of finger-like mesas that are separated by deep canyons containing perennial and intermittent streams running from west to east.

RISK REDUCTION AND ENVIRONMENTAL STEWARDSHIP ENVIRONMENTAL RESTORATION PROJECT

The Laboratory's Remediation Services (RS) project (implemented by the Risk Reduction and Environmental Stewardship [RRES] Division) is a part of a DOE nationwide program. DOE's environmental restoration efforts began in 1989. The project investigates whether hazardous chemicals and/or radioactive wastes are present as a result of past Laboratory operations and remediates these sites as needed.

MATERIAL DISPOSAL AREAS AT THE LABORATORY

The 26 material disposal areas (MDAs) at the Laboratory generally include sites where waste material has been disposed of on or below ground surface in excavated pits, trenches, or shafts.

MATERIAL DISPOSAL AREA L DESCRIPTION

Material Disposal Area (MDA) L solid waste management unit (SWMU) 54-006 is located within an 1100-by 3000 ft (2.5-acre) fenced area (known as TA-54 Area L) and consists of one inactive subsurface disposal pit (Pit A) ; three inactive subsurface treatment and disposal impoundments (B, C, and D), and 34 inactive disposal shafts (1 through 34). An asphalt cover was placed over the site between 1989 and 1996. Impoundments B and D and shafts 1, 13-17, and 19-34 (although no longer in use) remain subject to RCRA interim status closure requirements. The entire fenced surface area of Area L is an active RCRA-permitted hazardous waste management unit.

Pit A, located in the eastern portion of MDA L beneath Dome 54-215, received liquid chemical wastes, including containerized and uncontainerized liquid wastes from 1950 until 1978. Pit A functioned as an evaporation pit where bulk quantities of treated aqueous waste from through the Laboratory were discharged, pooled, and allowed to evaporate.

Surface impoundments (B, C, and D) are located northwest of pit A. ***Impoundments B and C*** were used for evaporating batch-treated salt solutions and electroplating wastes. Impoundment B operated from 1979 to 1985 and Impoundment C operated in 1985.

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NEW PHOTO

What is a corrective action?

The RCRA corrective action process develops and implements measures to protect human health and the environment when required. The process is flexible and structured to achieve corrective action based on site-specific conditions.

Why is corrective action required?

Through the corrective action process, the Environmental Protection Agency requires RCRA-regulated facilities to investigate and manage releases of hazardous waste or constituents to the environment. Corrective action is included as a requirement in the Laboratory's facility permit through statutory authorities. Facilities may also voluntarily choose corrective action. RCRA corrective action addresses potentially contaminated sites that may present a potential future risk to humans and the environment.

What is the process?

Site Characterization

Determines if a release has occurred, identifies the nature and extent of contamination, its source, and the environmental pathways along which contaminants could affect human and environmental receptors

Corrective Measures Evaluation

Identifies and evaluates different corrective action alternatives to manage risks from a site, and results in the selection of a single corrective action option

Corrective Measures Implementation

Includes detailed design, construction, operation, maintenance, and monitoring of the selected corrective action option

What is a site conceptual model?

The site conceptual model of MDA L integrates site characterization data and scientific understanding to describe how contaminants may affect future risk to receptors in the future. The model describes the features, events, and processes that may contribute to a release of hazardous wastes or radionuclides buried at MDA L. It also evaluates the potential exposure to humans and the environment resulting from such a release and the probability and consequences of such an exposure.

Impoundment D was used from 1972 to 1984 to treat small-batch quantities of lithium hydride by reaction with water and allowing the neutralized solutions to evaporate.. Impoundment D later was used as secondary containment for used oil storage tanks (see SWMU 54-021).

The ***34 disposal shafts*** at MDA L were used from 1975 to 1985 for disposing of containerized and uncontainerized liquid chemical wastes and precipitated solids from the treatment of aqueous wastes.drilled into the subsurface tuff. Shafts 1 through 28 are located south of pit A. Shafts 29 through 34 are located northwest of impoundments B, C and D. The shafts range from 15 feet to 65 feet deep and vary in diameter from 3 feet to 8 feet.

The shafts were used to dispose of containerized and bulk liquid chemical wastes. Before 1982, containerized liquids were disposed of without adding absorbents to the containers. Space around the drums was filled with crushed tuff and a 6-in. layer of crushed tuff was placed between each layer of drums. After 1981, uncontainerized waste was no longer disposed of in the shafts. From 1982 to 1985, wastes were accumulated on the site and packaged in drums until a sufficient quantity had accumulated to place a drum in a shaft. When filled, the shafts were covered with concrete approximately 3 feet thick. Early disposal practices at MDA L resulted in a subsurface vapor plume that extends beneath the facility and beyond its boundary.

STATUS

Evaluation of site characterization data indicates that the known sources of environmental contamination at MDA L are vapor-phase tritium and VOC releases from the subsurface units and releases of metals dissolved in liquid solvents into the tuff below the subsurface units. The results of rock sample analyses detected a number of organic and inorganic chemicals at trace levels beneath the former disposal units. Radionuclides were detected either at levels equivalent to or less than media-specific background values. Subsurface samples collected to evaluate moisture properties did nto identify any perched groundwater zones to a depth of 660 ft beneath MDA L.

Site characterization activities were completed in 2005 and an Investigation Report submitted to NMED in September 2005. The results of the human health and ecological assessments indicated that MDA L poses no unacceptable present-day risk to human health and the environment. In August 2006, NMED issued a Notice of Disapproval for the Investigation Report requiring LANL to drill 3 additional boreholes and collect waste characterization samples from Impoundments B, C and D.

A Corrective Measures Evaluation (CME) Plan was submitted to NMED in March 2006. A soil vapor extraction pilot study was conducted in 2006 to evaluate extraction rates to support the CME. The CME report is required to be submitted to NMED in July 2007. The CME report will include a recommendation for the final remedy

for MDA L. NMED will made the determination of the final remedy.

Periodic sampling of the vapor phase plume at MDA L is ongoing; sampling results are reported in periodic monitoring reports to NMED.

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CORRECTIVE ACTION PROCESS

The corrective action process refers to the cleanup process or program under the Consent Order and all activities related to the investigation, characterization, and cleanup of a release of hazardous waste or hazardous waste constituents from a SWMU at a permitted or interim status facility to any environmental medium. The degree of investigation and subsequent corrective action necessary to protect human health and the environment varies significantly across facilities.

The implementation of the corrective action process began at MDA L in 1992 with the preparation of the RCRA facility investigation (RFI) work plan. Phase I of the RFI was implemented between1994 and 2002. The analysis of the Phase I RFI data was presented in a Historical Investigation Report. An Investigation Work Plan (IWP) was prepared in 2003/2004 to define data requirements necessary to complete characterization of MDA L. The results of the Phase I RFI and site characterization data collected under the Consent Order were analyzed in an Investigation Report scheduled delivered to NMED in September 2005. The Corrective Measure Evaluation Report is required to be delivered to NMED in July 2007 and the site is scheduled to be closed by 2010.

Terms and Definitions

Solid Waste Management Unit (SWMU) ~ Any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste.

Tuff ~ A compacted deposit of volcanic ash and dust that contains rock and mineral fragments accumulated during an eruption.

Analyte ~ The element, nuclide, or ion a chemical analysis seeks to identify and/or quantify; the chemical constituent of interest.

Chemical of potential concern (COPC) ~ A chemical, detected at a site, that has the potential to adversely affect human receptors due to its concentration, distribution, and mechanism of toxicity. A COPC remains a concern until exposure pathways and receptors are evaluated in a site-specific human health risk assessment.

Chemical of potential ecological concern

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

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