# ER Site No. 83: Long Sled Track (TA-III)

ADS: 1306
Operable Unit: Tech Area III & V

Site History ..... 1
Constituents of Concern ..... 2
Current Hazards ..... 3
Current Status of Work ..... 3
Future Work Planned ..... 3
Waste Volume Estimated/Generated ..... 4

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## Site History

The sled track was identified as an Area of Concern I during the 1987 SNL Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA). The site was designated ER Site 83 during the Comprehensive Environmental Assessment and Response Program (CEARP) Phase I Installation Assessment. The findings of the CEARP Assessment were uncertain, and further investigation was recommended.

Because ER Site 83 is an active site, its assessment will be deferred into the future. At that time, additional investigations will be conducted.

The first 5,000-ft of the Long Sled Track was built in 1966 to replace the 2,000-ft Short Sled Track. Later in 1985, another 5,000 ft of track was added on to the north end of the existing 5,000 ft for a total of 10,000-ft of sled track. The sled track consists of "railroad" type track supporting rocket-powered sleds and free-flight boosters used to accelerate test articles or targets. The track is utilized to test rocket motor performance and the high-velocity impact of mock nuclear ordnance and ordnance containers. The Long Sled Track is capable of generating velocities up to or greater than Mach 6 (6500 fps). Tests performed at the sled track use a variety of rocket motors to horizontally propel a test vehicle from the northern end of the track down toward the southern end of the track where it impacts a concrete or water-brake target, or the test vehicle is launched into a free-flight airborne trajectory to a parachute-aided impact. Some of these airborne tests have included nose cones weighted with depleted uranium (DU). For many tests, after the test unit impact or ejection occurred, the rocket sled and remaining test equipment were impacted against an earthen berm located at the south end of the track to terminate the sled's run and to contain fragmentation. For other tests, a water-braking system controls sleds to a safe stop. High-velocity impact tests that hurtled test vehicles into berms at the south end of the Long Sled Track are known to have released fragments of DU and other metals, such as beryllium and lead, to soils in this area. SNL assumes that almost all the dispersed metals,

including DU, that are released from these impact tests are contained within a 1400-ft radius of the south end of the Long Sled Track.

Prior to 1994, about 350 rocket motors were fired in a year at the Long Sled Track. However, during 1986-1987, a total of more than 600 rocket motors were fired at the Long Sled Track. Since then, testing frequency has diminished substantially. In the period 1994 to 1998, about 20 to 30 rocket motors were fired in a year, and since 1998 about 80 rocket motors per year have been fired. Most frequently used are small rockets such as Zuni and High Velocity Aircraft Rockets (HVAR). Firings can include small quantities of large rockets such as Nike, Sprint, Javelin, Simoon, and Mach 46S.

Following each test, visible debris is collected and removed by SNL Health Physics Department personnel. According to SNL Investigative Reports, hazardous constituents found during early cleanup activities after impact tests include DU, tritium, lithium (Li), niobium (Ni), lead (Pb), mercury (Hg), and high explosives. Recent tests (those within about the last 15 years) have been designed to essentially eliminate the release of hazardous materials.

Testing of transportation containers has also been conducted at the Long Sled Track. Mock ordinance has been included within the transportion container. There are two hazardous materials (other than explosives) contained inside the mock ordnance: beryllium (Be) and DU. Both of these materials are in solid form. They are hazardous when in the form of finely divided particles or dust that may be inhaled. Previous impact testing of similar transportation containers has confirmed the containment capabilities of the containers to protect the mock ordnance. According to the Coyote Canyon Test Complex (CCTC) Environmental Assessment, there is no evidence that hazardous materials were released during testing of transportation containers.

SNL's Industrial Hygiene Services performed two separate airborne exposure samplings to document personal exposure during operations conducted at Site 83. The first personal air monitoring was conducted in September 1993. Personal breathing zone samples were collected and analyzed for lead, beryllium and depleted uranium (DU). The exposure levels measured for all employees were well below established limits. Personal air monitoring was also conducted in November 2002. Air samples were collected and analyzed for lead, beryllium, lithium, mercury, niobium and uranium. The personal breathing zone exposure measurements indicated that airborne elemental levels during digging operations were less than the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) for an 8-hour time-weighted average (8-hr TWA) and less than the OSHA Action Levels.

## Constituents of Concern

Depleted uranium
Unexploded ordnance and high explosives
Tritium
Metals (Pb, Be, Li, Hg, Nb)
Perchlorate

## Current Hazards

On the surface and in the near-surface soil: Depleted uranium
Unexploded ordnance and high explosives
Tritium
Metals (Pb, Be, Li, Hg, Nb)

The Site History section above contains information regarding personal airborne exposure levels for many of these constituents during routine operations at the site.

## Current Status of Work

A radiation survey of the south end of the sled track and surrounding areas was completed in 1994. The south end is the area of impact for the tests and where DU would most likely be found. Approximately 1400 anomalies (in excess of background radiation) were located, mostly DU. Removal of all but one of the anomalies was completed as part of the ER Project-Wide Surface Radiation Removal Voluntary Corrective Measure (VCM). The one anomaly remaining is a large soil area that is posted as a radiological area. Site workers are required to have the appropriate level of radiological training to perform work in this area. Posting and training are conducted to reduce potential worker exposure.

It should be noted that the surface radiation survey was not intended to located deeply buried radioactive materials at the sites. It is possible that, because of the nature of the penetration and impact tests conducted at the sled track, other radioactive materials are located at depths greater than the 6 to 18 inches investigated during the survey.

The radiation survey results were presented in the TA-III&V RFI report. The report also included the proposal that the complete site investigation be postponed until the test site becomes inactive. This report was submitted to the Environmental Protection Agency (EPA) and the New Mexico Environment Department (NMED) in July 1996. The NMED issued two Notice of Deficiencies (NODs) for the TA-III&V RFI report, one in August 1997 and the other in March 1998, but only the first included a request for additional information about Site 83. SNL's submittal of July 1997, in response to the 1st NOD, included some additional information about Site 83.

## Future Work Planned

Upon decommissioning of the site, full sampling and analysis according to the RFI Work Plan will be performed. No schedule for decommissioning was available as of January 2003.

## Waste Volume Estimated/Generated

The surface radiation VCM removed 54 drums of radioactive waste.

**Information for ER Site 83 was last updated Mar 6, 2003.**