

Environmental Restoration Project



ER Site No. 5: LWDS Drainfield

ADS: 1307

Operable Unit: Liquid Waste Disposal System

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

Primary Contact: [Dick Fate](#)

Office Phone: 284-2568

Site History

[The Liquid Waste Disposal System \(LWDS\) Drainfield \(Site 5\)](#) was designed to receive liquid wastes discharged from the LWDS Holding Tanks, [Site 52](#). The below-grade drainfield was operational from 1963 until it collapsed in 1967. The drainfield is buried approximately 30 ft below ground surface and located approximately 30 ft south of the LWDS holding tanks. The reported capacity of the drainfield is ~12,000 gallons.

Constituents of Concern

Radionuclides from the discharge of reactor cooling water.

Organic Compounds/Heavy Metals from various industrial process in Technical Area V.

Current Hazards

Slightly elevated values of barium, cadmium, chromium, copper, lead, nickel, and zinc were detected at the site at >30 ft below ground surface. Risk to on-site workers is very minimal to non-existent.

Current Status of Work

The investigation of the LWDS Environmental Restoration (ER) sites proceeded "at risk", before U.S. Environmental Protection Agency (EPA) approval of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Workplan. The investigation, as originally scoped, was completed in March 1994. The EPA approved the RFI Workplan in June 1994.

Although low levels of trichloroethene has been detected in the LWDS Drainfield ground-water monitoring well (LWDS-MW1), it was not detected in the soil associated with any of the LWDS ER sites. Investigation of the groundwater is on-going.

The RFI Report was completed and submitted to the EPA in September 1995. No Further Action (NFA) was recommended for all three sites of the LWDS. A Request for Supplemental Information (RSI) from the New Mexico Environment Department (NMED) was received in October 1997, and responses were subsequently returned to NMED in January 1998 and October 1998.

In 2001, the TAV-MW6 borehole was put in to a depth of 500 ft bgs within the boundaries of Site 5. The soil sampling results from this borehole were included in the October 2001 document, "Summary of Monitoring Well Drilling Activities TA-V Groundwater Investigation."

In October 2002 a document was submitted to the NMED that briefly summarized all the information available for Site 5 and pointed to the documents that contained more detailed information. It also included cross sections, a revised risk assessment, and tables of analytical results.

Concentrations of several metal and radionuclide constituents from soil samples collected from SWMU 5 exceed their respective background concentration and background activity. The comparison of the metal concentrations to the background values reveals that most of the concentrations are only slightly above the background. The distribution of metals in the soil samples do not appear to be consistently distributed throughout the soil column, although there is a zone directly beneath the drainfield that appears to contain the majority of the highest levels of metals. This zone is approximately 38 feet below ground surface and can be seen in the laboratory results for LWDS-05-BH12.

The radionuclide uranium-235 was detected above the background activity. Additional samples had a nondetect uranium-235 result, but the minimum detectable activity for these samples exceeded the background activity and, therefore are considered detections at the given minimum detectable activity. Detections of other radionuclides that exceeded background activities include cesium-137, thorium-232, and tritium. The distribution of these radionuclides in the soil samples does not appear to be consistently distributed throughout the soil column, although a zone at approximately 30 to 50 feet below ground surface does contain the highest levels of thorium-232, cobalt-60, and cesium-137. Cobalt-60 does not have a background activity but was considered a constituent of concern due to historical activities at TA-V.

VOCs and SVOCs do not have background concentrations for comparison, but any value that is above the method detection limit is evaluated. The VOCs detected are either associated with common laboratory contaminants (acetone, di-n-butyl-phthalate, methylene chloride, and toluene) or were detected at very low levels (2-butanone, 4-methyl-2-pentanone, and trichloroethene) and do not appear to be significant.

The source of TCE in groundwater in the TA-V area is assumed to be from contaminated water released from the LWDS drainfield during the 1960s. The monitoring wells TAV-MW6, TAV-

MW7, TAV-MW8, and TAV-MW9 were installed in March and April 2001 in order to further investigate vadose-zone and groundwater contamination in the TA-V area.

The monitoring wells TAV-MW6 and TAV-MW are located within the SWMU 5 boundary (soil samples were collected in the borehole for TAV-MW6). Monitoring wells TAV-MW8 and TAV-MW9 were located downgradient of the of SWMU 5.

Based on the evaluation of the results of the soil and soil-vapor samples collected during the drilling activities, the relatively low levels of all potential contaminants (metals, VOCs, tritium, and radionuclides) indicate no significant residual soil contamination exists in the vadose-zone. The suspected contamination source (waste water from the LWDS drainfield) was not readily identified in the vadose-zone by soil moisture analyses. The results do show that there is not a front of contaminated water beneath the LWDS drainfield that is moving through the vadose-zone toward the groundwater. The presence of such a front would be of concern as it may cause a future increase in the levels of contamination found in the groundwater. It is now suspected that all release water from the LWDS has moved through the vadose-zone and there is no longer an active source of contamination adding to the levels currently seen in groundwater.

Future Work Planned

Assuming Sandia National Laboratories / New Mexico (SNL/NM) recommendations on final site disposition are followed, no future work is planned at the drainfield.

Waste Volume Estimated/Generated

No waste has been generated at this site.

Information for ER Site 5 was last updated Jan 27, 2003.