ER Site No. 42: Acid Spill Water Treatment Facility

ADS: 1302
Operable Unit: Technical Area I

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Site History

ER Site 42 is located on the north side of L Street and east of 15th Street. This site is located immediately north of Building 870 and covers one-half acre. The site is within the Technical Area (TA)-I secured area and has limited access for workers with a security clearance or an escort.

The site consists of soil beneath several existing chemical holding tanks and open areas where documented spills flowed across the land surface. The tanks associated with the historic spills are no longer in use, and there are no future plans for continued use of the tanks. The holding tanks supplied chemicals for microelectronics operations in Building 870. Building 870 was constructed in 1960 for use as a material reclamation building. In 1975, it was converted into a microelectronics design laboratory with two clean rooms and associated support areas. Since 1975, the building has been used for semiconductor production and has had numerous expansions and modifications. The building has been a facility for various operations, including clean-room, packaging, failure-analysis laboratories, electrical test areas, chemical storage areas, semiconductor manufacturing support, and offices. A variety of chemicals have been used in manufacturing operations since 1975.

In late 1989, DOE and the operating contractor, Albuquerque Microelectronics Operations (AMO), agreed to phase out operations over a 3-year period. With the exception of office areas in the south end of the building, the building was vacant between late 1992 and 1996. The building has since been renovated and now includes support labs, production floor space and office space; it is used to manufacture neutron tubes and generators.

Three documented releases of chemicals occurred at this site. Two releases were documented during Comprehensive Environmental Assessment and Response Program (CEARP) interviews and review of SNL/NM Unusual Occurrence Reports that led to the spill area being designated as an ER site in the CEARP Phase 1 in September 1987. The third release was discovered during

the background investigation for the TA-I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan.

The first release occurred on November 21, 1983, when a valve was being changed on an above-ground 8,000-gal tank that was thought to be empty. The tank contained approximately 1,000 gal of 30 percent hydrochloric acid (HCl) that spilled onto the surrounding ground surface. As part of emergency response, the spilled acid was diluted and washed into the storm sewer system by the SNL/NM Hazmat Team and the Kirtland Air Force Base (KAFB) Fire Department. Acid neutralizer was applied to an area approximately 20 feet (ft) in diameter around the tank. All of the acid solution flowed on pavement, and the surrounding soil was not affected. Therefore, no soil was removed as a result of this incident. Soil samples collected at the spill site (presumably of soils from below the pavement) indicated pH values greater than 2.0; therefore, no soil was classified as hazardous waste by definition of characteristics criteria, and no soil was removed in response to this spill.

The second release occurred on November 4, 1984, during transfer and dilution procedures. An above-ground 7,700-gal bulk storage tank containing a 50-percent sodium hydroxide (NaOH) solution was being emptied to transfer and dilute the base to 20-percent NaOH for use in the microelectronics fabrication process. The 50-percent NaOH solution was mixed with water in a 55-gal above-ground tank to make the 20-percent NaOH solution. A float valve on the 55-gal above-ground tank failed, the tank overflowed, and approximately 200 gal of the 20-percent NaOH solution was released onto the ground surface over a two-hour period. The diluted NaOH solution flowed to the west; KAFB Fire Department responded and used water to dilute and wash the NaOH solution into the storm drain system. Immediately after the release, a water sample from the storm drain system had a pH of 8.0. Later, the SNL/NM Hazmat Team removed soil from this location, but the volume of soil removed was not reported. After the release, the extent of contaminated soil was not determined since there was soil wet with NaOH solution visible at the bottom of the excavation.

The third release occurred in the early 1980s (exact date unknown). That release involved the initial acid neutralization system that was the first process in neutralizing wastewater solutions generated by the microelectronics laboratory. The system consisted of a buried fiberglass tank that contained a layer of limestone that received an estimated 50 gal of waste acidic solution discharge daily. After several months (exact duration unknown) of use, personnel discovered that the bottom of the fiberglass tank had disintegrated. At the time, untreated or partially treated solutions containing acids (primarily hydrofluoric), bases, and dilute organic compounds (ethylene, acetone, butyl acetate, trichloroethylene, etc.) were flowing directly into the soil. Clean-up operations were initiated for the site, and the fiberglass tank and limestone were removed and replaced with a polyethylene tank with a similar limestone lining. Subsequent construction excavation in this area has revealed that soil containing contaminants of concern (COCs) may still be present, although there are no quantitative data to support such a claim.

Compilation of site information that have been collected is provided in the TA-I RFI Work Plan, submitted to the Environmental Protection Agency (EPA) in February 1995.

Constituents of Concern

The potential COCs identified for this site during evaluation of its history include:

Acids,
Bases,
Metals, and
Volatile Organic Compounds (VOCs).

As indicated below in "Current Status of Work," it was determined during site investigation that none of these COC exceeded risk-based cleanup levels.

Current Hazards

There are no current hazards at this site related to contamination of the surface or subsurface soils. There may be structures or stored materials that remain at the site that are a potential hazard.

Current Status of Work

The TA-I RFI Work Plan was delivered to the EPA for review in February 1995. Field activities outlined in the work plan began in September 1995. The surface and near-surface field investigation as outlined in the work plan was completed in September 1995. Site characterization included collection of surface (0-2 ft) and near-surface (2-30 ft) soil samples to assess the potential for contaminated soils at this site.

No contaminants of concern exceeding risk-based cleanup levels were identified at this site and a risk-based NFA proposal was submitted to the New Mexico Environment Department (NMED) in May 1997. In December 1999, NMED accepted Site 42 for No Further Action. The NFA was approved by NMED in October 2000 after completing the public review and permit modification process.

Future Work Planned

No additional work is planned at this site.

Waste Volume Estimated/Generated

A small amount of waste was generated at this site as a result of sampling.

Information for ER Site 42 was last updated Nov 19, 2001.