



ER Site No. 45: Liquid Discharge (Eastern Edge of TA-IV)

ADS: 1309

Operable Unit: Tijeras Arroyo

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Site History

Environmental Restoration (ER) Site 45, the Liquid Discharge site, covers 0.78 acres near the northeast corner of Technical Area-IV (TA-IV) and the southern apex of TA-II. The site is located approximately 100 ft east of Building 965. ER Site 45 is situated along the northern rim of Tijeras Arroyo on industrial land controlled by the Department of Energy (DOE). The site is flat at an elevation of 5,400 feet, above mean sea level and lies about 50 feet in elevation above the 100-year floodplain. The active channel for Tijeras Arroyo is located approximately 1,600 ft east of ER Site 45. The western part of the site is located within the TA-IV fence and is paved with asphalt; the eastern half is unpaved and is only accessible by driving around the Explosive Components Facility.

Environmental concern about ER Site 45 is based upon the single discharge of "brownish" water from an unidentified tank truck. In February 1985, a Sandia National Laboratories / New Mexico (SNL/NM) employee observed that a tank truck was discharging about 500 to 1,000 gallons of brownish water onto the ground surface immediately east of TA-IV. The employee asked the truck driver what he was doing; he replied "discharging water." The tank truck did not have SNL/NM or military markings. The location of the discharge appeared wet during February 12 - 15, 1985. No more water-disposal details are available in the Comprehensive Environment Assessment and Response Program (CEARP) or any other documents. The precise location of the water discharge is not precisely known; however, the September 1997 No Further Action (NFA) proposal assumed that the discharge site was one of the disturbed areas defined in the aerial photography. In the mid-1980's ER Site 45 had been a "borrow area" for the temporary storage of clean-fill soil during TA-IV construction activities.

No hazardous chemicals or materials are known to have been disposed of at ER Site 45. No stained soil has been observed at the site. The SNL/NM ER Project has assumed that the

potential Constituents of Concern (COC)s in soil consist of Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), and Resource Conservation and Recovery Act (RCRA) metals.

In 1992, the ER Project began conducting groundwater studies at TA-II. These studies along with other Solid Waste Management Unit related investigations were eventually incorporated into the Tijeras Arroyo Groundwater (TAG) Investigation. TA-IV is located in the central part of the TAG study area. The hydrogeologic setting of the study area is dominated by two water-bearing zones, the perched system and the regional aquifer, both of which are present within the upper Santa Fe Group. The perched system is not used for water supply. However, the COA, Kirtland Air Force Base (KAFB), and the Veterans Administration (VA) utilize the regional aquifer for water-supply purposes. At TA-IV, the depth to the perched system is approximately 320 ft below ground surface (bgs). The perched system covers approximately 3.5 square miles in the central part of the TAG study area and may extend across the northern boundary of KAFB. The direction of groundwater flow in the perched system is to the southeast. Discontinuous, yet overlapping multiple lenses of unsaturated alluvial-fan sediments serve as a perching horizon beneath the perched system and above the regional aquifer. At TA-IV, the depth to the regional aquifer is approximately 520 ft bgs. The direction of groundwater flow in the regional aquifer is principally to the northwest towards the KAFB, COA, and VA water-supply wells. Groundwater from the perched system merges with the regional aquifer southeast of Tijeras Arroyo. The regional aquifer extends across the entire TAG study area and the Albuquerque Basin.

Several monitor wells are located in the vicinity of ER Site 45. The nearest monitor well, TA2-W-19, is located 650 feet east of the site. The nearest downgradient water-supply well is KAFB-1, which is located approximately 1.3 miles northwest of the site. Low levels of TCE and nitrate have been detected in perched-system groundwater samples collected at nearby TA-II. The regional aquifer is not contaminated. ER Site 45 has not impacted groundwater.

The vicinity of TA-IV is essentially flat, with a gentle slope to the west of approximately 4 percent. The soil is poorly developed with high alkalinity. The subsurface geology consists of unconsolidated alluvial and colluvial deposits derived from the Sandia and Manzanita Mountains. These upper Santa Fe Group deposits consist of sediments ranging from clay to gravel derived from the granitic rocks of the Sandia Mountains and greenstone, limestone, and quartzite derived from the Manzanita Mountains. The depth to Precambrian basement beneath TA-IV is approximately 3,000 ft.

ER Site 45 is situated approximately 50 ft in elevation above the floodplain of Tijeras Arroyo, which is the largest surface-water feature at KAFB. The site is located approximately 1,600 ft west of the active channel of Tijeras Arroyo. Water flows in the active channel near TA-IV several times per year.

Constituents of Concern

The COCs for ER Site 45 are VOCs, SVOCs, and RCRA metals.

Current Hazards

No chemical or radioactive hazards are present in surface or subsurface soils at ER Site 45.

Current Status of Work

Numerous field surveys were conducted at ER Site 45 in 1993 - 1995. The site was visually surveyed for Unexploded Ordnance (UXO) and High Explosive (HE) material; none was found. A surface gamma radiation survey also was conducted; no radioactive anomalies (defined as more than 30% above natural background) were detected. An archaeological survey determined that no cultural resources were present in the vicinity of the site. Two biological surveys were conducted; the vicinity of the site had been significantly disturbed by construction activities and no natural habitat remained.

An aerial photography report identified the previous locations of soil piles and shallow excavations typical of construction and borrow operations. No stains or liquids were evident in the photographs. The historic aerial photography was reviewed again in April 2001. Twenty-five years of aerial photographs for various years between 1951 and 1999 were available. No suspicious environmental problems were evident.

Soil vapor at ER Site 45 was sampled with 22 Petrex™ passive collectors; no organic contaminants such as Trichloroethene (TCE) or perchloroethylene (PCE) were detected. A geophysical (magnetic) survey was conducted across the unpaved ground surface east of the TA-IV fence. Three subsurface anomalies were identified. The anomalies were subsequently excavated; the metallic debris consisted of scrap metal, wires, and culvert pipes.

Confirmatory soil sampling was conducted at three types of locations at ER Site 45: a sewer-line trench, the liquid-discharge area, and subsurface magnetic-anomalies. One-hundred fractions of the samples from these locations were analyzed for VOCs, SVOCs, HE compounds, RCRA metals, gamma-emitting radionuclides, and tritium. No significant contamination was detected, but some detection limits were too high for the analytical results to be conclusive. The analytical results were used in the September 1997 NFA proposal.

In June 1999, NMED issued a request for supplemental information (RSI) requiring the excavation of former 'Area A' which is located within TA-IV to determine if debris had been buried there. The RSI also required additional soil sampling at the liquid-discharge area and sewer-line trench 7. SNL/NM submitted an RSI Response in 1999 that acknowledged the need for additional field work at ER Site 45.

Future Work Planned

Future work will involve the excavation of former 'Area A' and the collection of soil samples at the liquid-discharge area and sewer-line trench 7. After the field work is complete and the analytical data have been evaluated, a RSI response will be submitted to NMED.

Waste Volume Estimated/Generated

No waste was generated at ER Site 45.

Information for ER Site 45 was last updated Jan 23, 2003.