ER Site No. 101: Explosive Contaminated Sumps, Drains (Bldg 9926)

ADS: 1295
Operable Unit: Septic Tanks and Drainfields

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Site History

ER Site 101 includes an industrial wastewater seepage pit connected to Bldg. 9926A, a septic tank with two seepage pits associated with Bldg. 9926, and a small drywell connected to Bldg. 9921. Bldg. 9926, the Explosive Research Laboratory, is located in Coyote Test Field outside Technical Area III about 1.05 km (0.65 mi) east of Bldg. 6630. The original wing of Bldg. 9926 was constructed in 1958 and was expanded in 1967 with the addition of the Shock Wave Studies Laboratory and the semi-attached explosives room, designated Bldg. 9926A. The original wing of Building 9926 contained a darkroom and a chemical laboratory. The darkroom had a floor drain and sink that may have received photoprocessing solutions. The laboratory had a fume hood sink, which may have discharged organic compounds such as methanol, trichloroethylene (TCE), and toluene to the septic system. Other cleaning fluids were used in small quantities, probably less than 1.9 L (0.5 gal) per year per substance, and include hydrochloric, nitric, and sulfuric acids, acetone, and isopropyl alcohol. Bldg. 9926A was used for detonating 2.3-kilogram (5-pound) charges for shock wave studies. The explosive tests involved the use of cadmium sulfide.

Two restrooms with associated indoor floor drains and sinks, discharged to a 3,300 L (875 gal) septic tank and 2 seepage pits 1.5 m (5 ft) in diameter by 1.5 m (5 ft) deep. The tank was pumped in the past. Building 9926A has a floor drain that discharged to a separate seepage pit of the same size located next to the two Bldg. 9926 seepage pits. The floor drain system never functioned properly, and the room was dry-swept rather than hosed down. The septic system and the industrial wastewater disposal system are no longer in use. Estimated effluent volumes range from 456 L/day (120 gal/day) to 4,560 L/day (1,200 gal/day).

Bldg. 9921 is a small earth-covered explosives-storage bunker located northeast of Bldg. 9926. It contains an explosive storage room with a sink that discharged to a dry well located south of the building. Former employees at the site indicate that powdered explosive compounds, depleted

uranium, and heavy metals were handled in the building during test-device assembly and that metal filings and other residues were routinely discharged to the dry well. The dry well is no longer in use.

The site is approximately 154 meters (505 feet) above the regional water table.

Constituents of Concern

The constituents of concern released from Bldg. 9926/9926A include photo-processing chemicals (silver, cadmium, hexavalent chromium, and cyanide), organic compounds (TCE, methanol, acetone, isopropyl alcohol, and toluene), acids, cadmium, and explosives residue.

The potential contaminants released from Bldg. 9921 are explosives residues including nitroguanidine and PETN, depleted uranium, organic compounds, and heavy metals (mercury, lead, and cadmium).

Current Hazards

No known surface or subsurface hazards have been identified, based on environmental soil and soil-gas sampling that has been conducted at the site.

Current Status of Work

Samples from the septic tank at Bldg. 9926 were analyzed for waste characterization purposes in 1994.

A passive soil gas survey conducted in the spring of 1994 showed detectable concentrations of BTEX north of the seepage pits. However, soil sampling in the fall of 1994 did not detect any BTEX components in the soil adjacent to the septic system units at this site, indicating that the anomalies may be related to oil applied to the gravel road to reduce dust generation.

Soil sampling around the septic tank and the three seepage pits at Bldg. 9926 and 9926A and at the drywell next to Bldg. 9921 was completed in late 1994.

Waste was removed from the septic tank and the empty tank was inspected by New Mexico Environment Department (NMED) in late 1995. The tank was decontaminated, and concrete samples were collected from the tank to verify that no COCs remain. The tank was then backfilled with clean soil.

A confirmatory sampling No Further Action (NFA) proposal was submitted to the NMED/HRMB in July 1996. NMED issued a Request for Supplemental Information (RSI) in June 1998, and SNL/NM responded to this RSI in November 1998. NMED issued a second RSI in June 2000.

In response to the original request by and negotiations with NMED, re-sampling of soil from directly beneath the three seepage pits at this site was completed in January 1998. Soil samples had been previously collected from pairs of borings located on either side of each of the three seepage pits, but this method was considered inadequate by NMED. Analytical results for soil samples collected from directly beneath the three seepage pits were not significantly different from the analytical results for soil samples collected on either side of the seepage pits. NMED regulators agreed with this conclusion, and determined that additional soil sampling beneath the seepage pits would not be required.

Future Work Planned

Additional work may be completed at this site pursuant to the Small Septic Systems sampling and analysis plan (SAP).

Waste Volume Estimated/Generated

The waste volume generated at this site is five 55-gallon drums of mixed waste in FY96.

Information for ER Site 101 was last updated Jan 7, 2002.