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Closure Strategy for a Waste Disposal Facility with Multiple Waste Types and Regulatory Drivers at the Nevada Test Site

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The U.S. Department of Energy, National Security Administration Nevada Site Office (NNSA/NSO) is planning to close the 92-Acre Area of the Area 5 Radioactive Waste Management Site (RWMS) at the Nevada Test Site (NTS), which is about 65 miles northwest of Las Vegas, Nevada. Closure planning for this facility must take into account the regulatory requirements for a diversity of waste streams, disposal and storage configurations, disposal history, and site conditions. This paper provides a brief background of the Area 5 RWMS, identifies key closure issues, and presents the closure strategy.

Disposals have been made in 25 shallow excavated pits and trenches and 13 Greater Confinement Disposal (GCD) boreholes at the 92-Acre Area since 1961. The pits and trenches have been used to dispose unclassified low-level waste (LLW), low-level mixed waste (LLMW), and asbestiform waste, and to store classified low-level and low-level mixed materials. The GCD boreholes are intermediate-depth disposal units about 10 feet (ft) in diameter and 120 ft deep. Classified and unclassified high-specific activity LLW, transuranic (TRU), and mixed TRU are disposed in the GCD boreholes. TRU waste was also disposed inadvertently in trench T-04C. Except for three disposal units that are active, all pits and trenches are operationally covered with 8-ft thick alluvium. The 92-Acre Area also includes a Mixed Waste Disposal Unit (MWDU) operating under *Resource Conservation and Recovery Act* (RCRA) Interim Status, and an asbestiform waste unit operating under a state of Nevada Solid Waste Disposal Site Permit.

A single final closure cover is envisioned over the 92-Acre Area. The cover is the evapotranspirative-type cover that has been successfully employed at the NTS. Closure, post-closure care, and monitoring must meet the requirements of the following regulations: U.S. Department of Energy Order 435.1, Title 40 Code of Federal Regulations (CFR) Part 191, Title 40 CFR Part 265, Nevada Administrative Code (NAC) 444.743, RCRA requirements as incorporated into NAC 444.8632, and the *Federal Facility Agreement and Consent Order* (FFACO). A grouping of waste disposal units according to waste type, location, and similarity in regulatory requirements identified six closure units: LLW Unit, Corrective Action Unit (CAU) 111 under FFACO, Asbestiform LLW Unit, Pit 3 MWDU, TRU GCD Borehole Unit, and TRU Trench Unit. The closure schedule of all units is tied to the closure schedule of the Pit 3 MWDU under RCRA.