

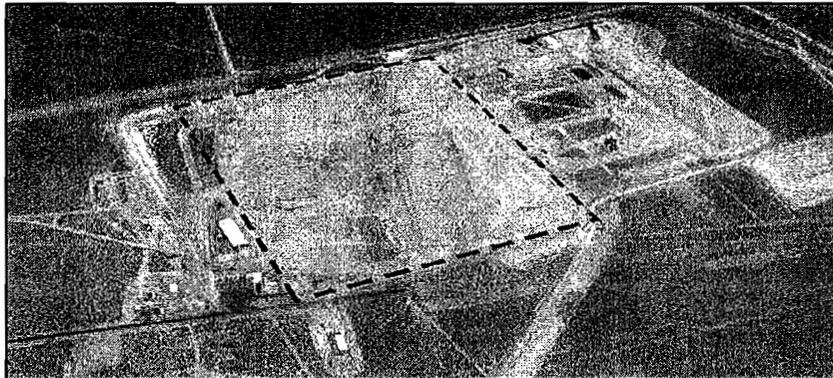
## Partial closure of disposal facility planned

Efforts have increased to close a 92-acre area at the Area 5 Radioactive Waste Management Complex (RWMC), which represents approximately 60 percent of the 160 acres currently used for the storage and permanent disposal of low-level, mixed low-level, and transuranic waste at the Nevada Test Site (NTS).

### Low-level waste operations have consumed all available space within a 92-acre area.

In 1961, low-level waste generated by the nuclear testing program at NTS was first disposed at what eventually became the Area 5 RWMC. Following the establishment of a formal Waste Management program at the NTS, the first U.S. Department of Energy (DOE) off-site generated low-level waste shipment was disposed in 1978. More than 30 generators and nearly 15 million cubic feet later, low-level waste operations have virtually consumed all available space within existing disposal cells in the 92-acre area - necessitating its closure.

Closure of the 92 acres involves placing a



Aerial view of the Area 5 Radioactive Waste Management Complex. The dashed line indicates the 92-acre area designated for closure by the year 2011.

"vegetated, monolayer evapotranspiration (ET) cover," which is soil with native plants, over the disposal cells. The monolayer soil cover is designed to meet the closure requirement of DOE Order 435.1; it will also provide the equivalent protection of a standard Resource Conservation and Recovery Act (RCRA) cover, while offering superior performance with respect to subsidence. Currently, a 13-foot thick monolayer soil cover is being proposed.

Because both low-level and mixed low-level disposal cells exist in the area, each individual cell must meet the requirements of U.S. Department of Energy Order 435.1 and associated manual M-435.1-1. Additionally, disposal cells that contain hazardous constituents (such as mixed low-level waste) are regulated by the NTS RCRA Part B Permit issued by

cells which range from 12 to 48 feet deep.

Once delivered to the pre-designated disposal cell, waste containers are carefully stacked and methodically arranged in a grid system to facilitate tracking. Typically, as each disposal cell fills with waste, an 8-foot thick layer of native soil is placed over the waste.

Depending on the specifics of the low-level waste, additional soil may be needed.

the State of Nevada Division of Environmental Protection.

### A closure plan will be prepared after a characterization report is accepted by the state.

In order to conform to these regulations, a characterization report is being prepared and will be completed by

Sept. 30, 2006. Once this report is accepted by the State of Nevada Division of Environmental Protection, a closure plan will be prepared.

This plan will detail how closure is to occur and will include engineering drawings of the final closure cover and site drainage. Other information used to develop the closure plan will be based upon the results of the Area 5 RWMC Performance Assessment. The objective of this systematic analysis, which uses computer models, is to identify any potential releases of contamination due to the facility's geo-hydrological disposal system performance over 1,000 years.

Following permanent closure of the area, maintenance and monitoring will continue to ensure the safety of the public and the environment.

### Area 5 RWMS Disposal Background

The Area 5 Radioactive Waste Management Complex is located in the southeast portion of the Nevada Test Site, within Frenchman Flat near the dry-lake bed. Categorized as an arid environment, rainfall in Area 5 is minimal, averaging between four and six inches per year, and groundwater is more than 750 feet beneath the surface.

Approximately 730 acres are designated for radioactive waste management activities in Area 5, of which approximately 160 acres are currently used for storage and disposal. Only nine of the 32 engineered disposal cells in Area 5 are active; three are within the area designated for closure by the year 2011.

In general, disposal activities in Area 5 are conducted by placing drums and boxes in shallow, excavated disposal

### What is Evapotranspiration?

Evapotranspiration is the process through which extremely dry air pulls moisture from plants as well as from the desert soil. This process effectively prevents water from migrating to the groundwater.

Evapotranspiration is critical to environmental protection in Area 5. It ensures that any surface water does not infiltrate waste containers in disposal cells and transport contaminants to groundwater.

## It's a bird ... it's a plane ... It's Super K!



*Super Kukla reactor being prepared for next test.*

**C**lean up of the Super Kukla facility is underway at the Nevada Test Site, leaving behind the legacy it played during the Cold War.

Constructed in 1964, its mission was to determine how an enemy countermeasure would affect the performance of a nuclear warhead during a weaponry exchange.

The key component to the Super Kukla facility was the reactor, which provided the environment to bombard materials (placed inside) with radiation in the form of intense bursts of neutrons and gamma waves. Following

the facility's closure in the late 1970s, the reactor core was disassembled. Decontamination and decommissioning activities were conducted on three of the four structures – the Reactor Building, Reactor High-Bay, and Mechanical Building. The entire two-acre facility was then fenced to protect workers and the environment until a more comprehensive cleanup could be accomplished.

Twenty-five years later, Environmental Management contractors representing the Stoller-Navarro Joint Venture (SNJV) with support from NSTec, began conducting extensive site research and characterization activities which led to the development of a plan to close the site to eliminate or reduce risks to human health and the environment.

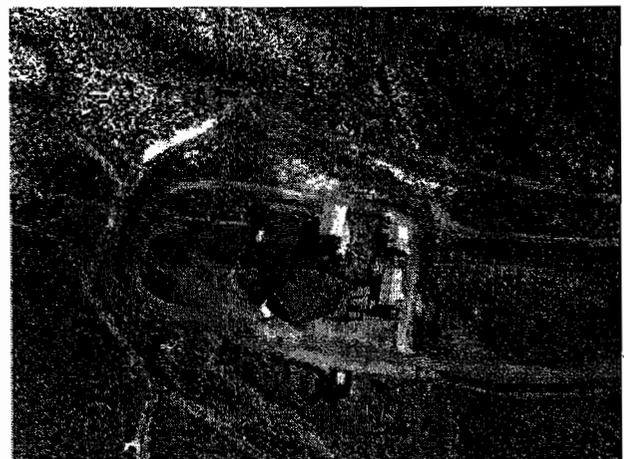
SNJV is accomplishing cleanup in the following six phases:

- Prepared the site by installing temporary power, an office trailer, lighting, and ventilation.
- Collected samples (such as concrete and paint chips) and conducted radiological surveys, health and safety swipes, and air monitoring. In addition, the material and debris in each building was inventoried.
- Established data quality objectives and developed a plan to close the facility in place.
- Removed polychlorinated biphenyls (PCB) and non-PCB oils, lead and mercury components, asbestos, and other hazardous materials as necessary. In this phase, debris from the Mechanical Building and the Wooden Shed was placed into the Reactor Building for entombment in a later phase.
- The Mechanical Building and the Reactor High Bay were demolished down to the slab, and the Wooden Shed was completely removed since there is no concrete slab. After the three buildings were demolished and disposed, samples were taken and surveys were performed on the remaining slabs.
- The Reactor Building will be entombed with grout. Super Kukla will be the first Decontamination and Decommissioning site to be entombed in place with use restrictions. All sumps, the Basement Reactor Room, and the Access Tunnel will be included in this process. In addition, the surrounding vicinity will be graded to ensure that any possible surface water will flow away from the area. The final part of this phase is to apply appropriate use restrictions to the area.

Field work at Super Kukla is scheduled to be completed in March 2007. The final closure report is due to the State of Nevada in September 2007.

### Who regulates Industrial Sites?

Super Kukla, an Industrial Sites clean-up project, is regulated by the Federal Facility Agreement and Consent Order. Documents proposing the clean-up strategy for each Industrial Site are prepared by the Nevada Site Office and submitted to the Nevada Division of Environmental Protection (NDEP) for approval. When the documents are scheduled for submittal, a public notice is posted to the Nevada Site Office Internet website at <http://www.nv.doe.gov/emprograms/environment/restoration/ffaco.htm>. Additional information on the Federal Facility Agreement and Consent Order can be obtained by visiting the NDEP Internet website at <http://ndep.nv.gov/BOFF/ffco.htm>.



*This aerial view of Super Kukla shows the Reactor High Bay, Mechanical Building, Access Tunnel Entrance and Wooden Shed.*