



Central Nevada Test Area, Nevada

A WEAPONS-RELATED SITE/OFFSITE

This fact sheet provides information about the **Central Nevada Test Area site**. Long-term stewardship responsibilities for this site are managed by the **U.S. Department of Energy Office of Legacy Management** under a **Weapons-Related Site/Offsite**.

Site Information and History

The Central Nevada Test Area (CNTA), Nevada, Site is in the Hot Creek Valley of south-central Nevada, approximately 70 miles northeast of Tonopah. CNTA consists of three parcels of federal land totaling 2,921 acres. The parcels (or sites) are spaced approximately 3 miles apart along a roughly north-south line. The total acreage is currently withdrawn and can not be appropriated for anything involving mining laws or leasing.

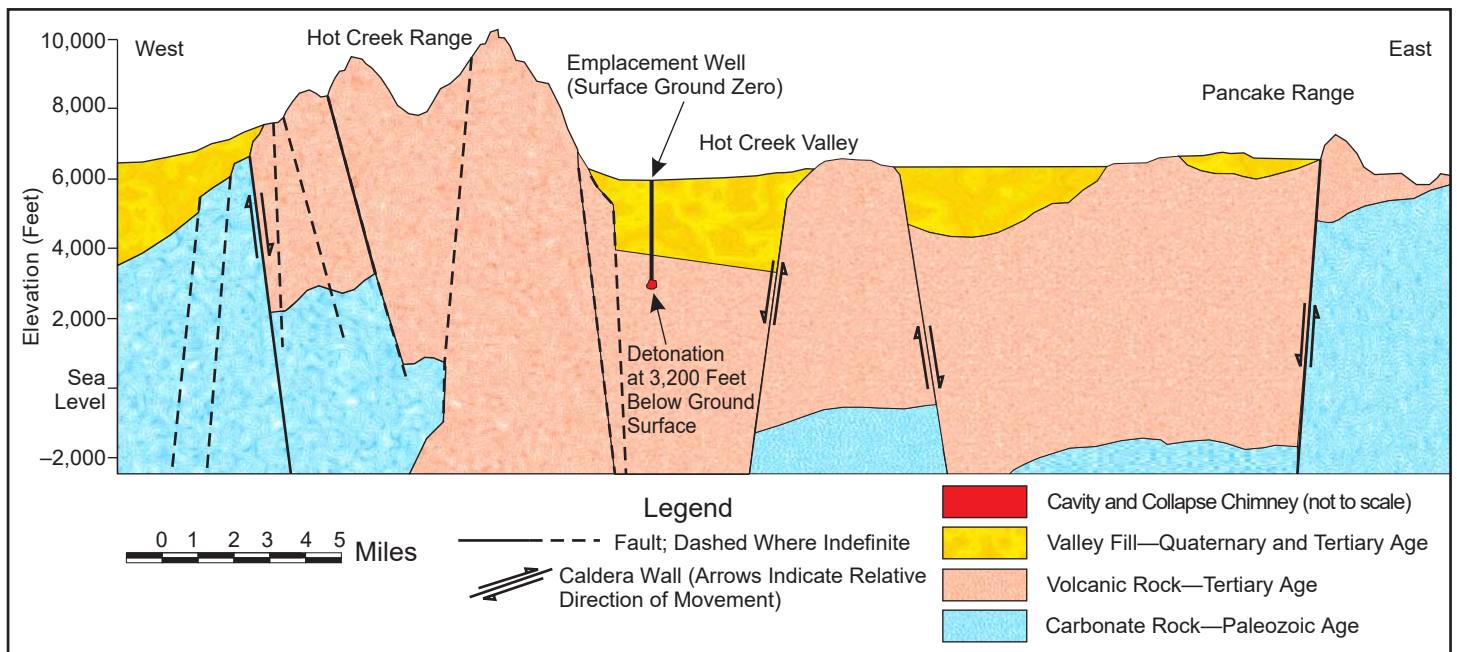
The U.S. Atomic Energy Commission (AEC), a predecessor agency of the U.S. Department of Energy (DOE), acquired CNTA in the early 1960s to develop alternative sites or "Offsites" to the Nevada National Security Site (formerly known as the Nevada Test Site) for underground nuclear testing. At CNTA, the AEC wanted to test nuclear devices intended for a specific type of weapon system and understand what would happen to the environment if it conducted higher-yield underground nuclear weapon tests in the area. Three boreholes (UC-1, UC-3, and UC-4) were drilled, one on each of the three parcels. AEC conducted the underground nuclear test, called Faultless, in the UC-1 emplacement borehole at a depth of 3,200 feet on Jan. 19,

1968. The test resulted in a down-dropped fault block (also referred to as a graben) visible at ground surface (see site photograph in banner). At the detonation depth, it created a cavity and chimney that collapsed into the cavity and extended into the valley-fill material (alluvium) above. The faulting and seismic results showed that the site was not favorable for larger detonations. AEC had planned two additional tests (in the UC-3 and UC-4 boreholes), but no additional tests were conducted at CNTA and the boreholes were backfilled and capped at the surface with concrete.

The Hot Creek Valley fill consists of poorly sorted alluvium mostly made up of volcanic rocks from the nearby ranges. The alluvium is on top of volcanic tuff and sedimentary rocks from volcanic material and welded tuff interbedded within a volcanic rock sequence (see cross section). There is groundwater in both the alluvial and volcanic sections. The depth to groundwater near the UC-1 emplacement borehole is about 400 feet below ground surface.

Surface Conditions

Drilling operations associated with the three boreholes (UC-1, UC-3, and UC-4) and post-test drilling led to areas of surface contamination identified as Corrective Action Unit



Cross section of the Central Nevada Test Area.

(CAU) 417. This CAU includes 34 corrective-action sites. DOE cleaned up these sites using a variety of methods, including removing industrial scrap, excavating and removing underground storage tanks and septic tanks, and excavating and removing contaminated soil. Mud pits that contained drilling fluids were contaminated with diesel fuel and small amounts of lead and chromium. DOE secured two corrective-action sites (UC-1 Central Mud Pit and UC-4 Mud Pit C) by capping them and nine more sites with institutional controls. The Nevada Division of Environmental Protection (NDEP) approved the closure report for CAU 417 in 2001. DOE conducts post-closure monitoring in support of the surface closure.

Subsurface Conditions

Subsurface contamination from the underground nuclear test is called CAU 443. This CAU consists of test-related radionuclides in and around the former test cavity, which is now the lower part of the collapse chimney. The original corrective-action strategy for the subsurface used a numerical model to evaluate data and help choose a corrective-action. DOE used model results to estimate a contaminant boundary, or restricted region around the nuclear detonation. The contaminant boundary is the greatest distance that groundwater contaminated with test-related radionuclides above Safe Drinking Water Act standards is estimated to migrate in 1,000 years. The

compliance boundary is based on the estimated contaminant boundary, surface effects from the detonation, and the boundaries of the fault block.

The original corrective-action strategy required DOE to install three wells to monitor groundwater and validate the numerical model. DOE compared monitoring data and modeling results, but they could not validate the model because it did not adequately predict water levels in wells drilled after the modeling. This led to a revised corrective-action strategy meant to validate the compliance boundary through monitoring and institutional controls rather than the numerical model. The revised approach included improving the monitoring-well network, updating the site's conceptual model, and monitoring over five years to confirm that data was sufficient to close the site. NDEP approved the closure report for CAU 443 in 2016, and DOE revised the report in 2022. DOE conducts post-closure monitoring in support of the subsurface closure.

Long-Term Hydrologic Monitoring Program

The U.S. Environmental Protection Agency monitored groundwater quality at and near CNTA every year from 1972 until 2008 as part of its Long-Term Hydrologic Monitoring Program (LTHMP). Through this program, groundwater samples were collected and analyzed for tritium and

gamma-emitting radionuclides. The LTHMP sampling network consisted of eight off-site sampling locations (six wells and two springs) and five on-site sampling locations (five wells). Since the program's beginning, laboratory results have not detected radionuclides above laboratory reporting levels in any of the samples collected at the off-site locations. Therefore, DOE developed a more refined monitoring network that focused on monitoring wells at the UC-1 site. DOE personnel monitored these wells annually from 2009 through 2015, and still monitor them regularly in accordance with the closure report for CAU 443.

Land Use

CNTA is on land managed by the U.S. Bureau of Land Management (BLM). DOE established three land withdrawals through Public Land Orders 4338, 4748, and 7891, keeping the land from being settled or sold. Public land around CNTA is used for livestock grazing, ranching, and seasonally for hunting. DOE does not expect any changes in land use. BLM approves all surface land uses that do not interfere with the long-term condition and monitoring of the remediated surface areas. Land in the remediated areas can not be used for anything that might expose the buried contaminated soil.

Institutional Controls

CNTA has 11 surface-restricted areas with institutional controls and notices that prohibit intrusive activities. These controls consist of warning signs, concrete monuments with attached warning signs, fences, and engineered caps on soil contaminated with diesel fuel. There is a notice of

restrictions for the subsurface on the monument at the UC-1 emplacement borehole, now known as "surface ground zero." The restrictions prohibit unauthorized drilling, excavating, and removing materials within 3,300 feet of surface ground zero.

Regulatory Setting

Environmental restoration at CNTA is regulated under the Federal Facility Agreement and Consent Order (FFACO 1996, as amended). The FFACO is a three-party agreement between DOE, the state of Nevada, and the U.S. Department of Defense. CNTA is identified as an Offsite in the FFACO, which is a category of sites that have a specific corrective-action process within the FFACO. The original Offsites consisted of sites in five states (Nevada, Alaska, Colorado, Mississippi, and New Mexico); however, only the sites in Nevada are managed by the FFACO. NDEP has regulatory authority over the corrective-action process and cleanup work. LM is responsible for complying with FFACO requirements and carrying out long-term stewardship at the CNTA CAUs.

Legacy Management Activities

LM monitors CNTA long-term to make sure conditions at the site continue to protect human health and the environment. These monitoring activities are conducted in accordance with the approved surface and subsurface closure reports for the site. Results from these activities are provided in associated monitoring reports.

Contact Information

In case of an emergency at the site, contact 911.

LM toll-free emergency hotline: (877) 695-5322

Site-specific documents related to the **Central Nevada Test Area, Nevada, Site**, are available on the LM website at www.energy.gov/lm/central-nevada-test-area-cnta-nevada-site.

For more information about LM activities at the **Central Nevada Test Area, Nevada, Site**, contact:
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