



ER Site No. 94: Lurance Canyon Burn Site

ADS: 1333

Operable Unit: Canyons Test Area

Site History	1
ER Site 94A - Aboveground Tanks	3
ER Site 94B - Debris/Soil Mound Area.....	3
ER Site 94C - Bomb Burner Area and Discharge Line	3
ER Site 94D - Bomb Burner Discharge Pit	3
ER Site 94E - Small Surface Impoundment	3
ER Site 94F - LAARC Discharge Pit	4
ER Site 94G - Scrap Yard.....	4
ER Site 94H - JP-8 Site.....	4
Constituents of Concern.....	4
Current Hazards	4
Current Status of Work	4
Future Work Planned	6
Waste Volume Estimated/Generated	6

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Site History

ER Site 94, identified as Lurance Canyon Burn Site (LCBS) in the HSWA Module, is located on land withdrawn from the USFS by the USAF and permitted to the DOE. The site is located on the canyon floor alluvium in the closed upper reaches of the Lurance Canyon drainage. It is surrounded by moderately steep, sloping canyon walls. The site is constructed on a large graded area, and the immediate topographic relief around the site is over 500 ft. A 25- to 50-ft wide road is cut on the hillslopes as a firebreak and encircles the site. The canyon floor at the site is isolated by the canyon walls except for the western drainage into Arroyo del Coyote. Coyote Springs Road follows this drainage and is the main access road into Lurance Canyon and the LCBS.

The location of ER Site 94 coincides with ER Site 65 Lurance Canyon Explosive Test Site, an inactive site used for HE tests and for liquid and solid propellant burn tests. The LCBS is currently used for testing fire survivability of transportation containers, weapons components, simulated weapons, and satellite components. Only a few of the permanent, engineered structures at the site are currently active. Historical aerial photographs indicate that the transition of testing activities from predominantly open detonation explosives testing and JP-4 fuel fires in excavated pits (ER Site 65) to open burning with JP-4 fuel fires in portable burn pans (ER Site 94) occurred between 1971 and 1982. Based on test reports and interviews, open burning with

JP-4 fuel fires in portable burn pans began by 1975. By 1980, the first permanent, engineered burn unit was constructed on the site of the former Primary Detonation Area (ER Site 65B) and was in operation. The scrap yard was established in the northwestern portion of the site within the boundary of the former Far Field Dispersion Area (ER Site 65F). The scrap yard has been used to store spare materials used in explosives and burn tests and is currently used for storing nonliquid materials and used equipment.

By 1983, the LCBS was constructed. It consisted of five permanent, engineered burn units, including the Large Open Burn Pit (LOBP), the Small Open Burn Pit (SOBP), the Light Airtransport Accident Resistant Container (LAARC) Unit, the Bomb Burner Unit, the Small Wind-Shielded (SWISH) Unit, and the Conical Containment (CON-CON) Unit. They were sited on the graded area that had been the Primary Detonation Area (ER Site 65B) and Near Field Dispersion Area (ER Site 65D). Two of the burn units (the SWISH Unit and later, the Smoke Emissions Reduction Facility [SMERF]) were constructed to provide testing facilities that would eliminate wind effects and provide accurate temperature control and instrumentation for test monitoring. A small surface impoundment is also visible southeast of Bunker 9830. Engineered soil berms had also been constructed by 1983 in the southeastern portion of the site for flood protection from the main arroyo in Lurance Canyon.

The CON-CON Unit was dismantled prior to 1989 and by 1992 a new burn unit (SMERF) was constructed on its site. Prior to 1992, a debris/soil mound area was created in the southern portion of the LCBS, immediately north of the main arroyo in Lurance Canyon. This debris/soil mound may be associated with on-going grading activities at the site. Northeast of the debris/soil mound area is another soil mound that was created during the remediation of a wastewater spill from a permanent engineered unit that occurred on March 20, 1992.

Burn testing at the LCBS has always been conducted with JP-4 fuel pool fires in open portable pans or contained within the permanent engineered structures. Pool fires provide the closest simulation of accidents involving flammable liquids. For the tests, the pans are filled with approximately 1 to 2 ft of water and an average 8-in. layer of JP-4 fuel. The test unit, such as a transportation container, is placed on a stand above the fuel. The fuel is ignited and the fire typically burns until the JP-4 fuel is consumed. The length of the test is controlled by the volume (thickness) of the JP-4 fuel layer. After a burn test is completed, test units are retrieved and salvageable materials are collected and stored in the scrap yard located in the northwest portion of the site. Any test object residue (e.g., metal slag) is recovered with the test unit and removed from the site by the testing group. Only small residue particulates may be left in the water following the burn test. While no testing is currently conducted on components containing radioactive materials, ER Sites 94B and C are currently classified as RMMA's because of the presence of residual DU in the soil from earlier burn tests and from former explosives testing activities associated with [ER Site 65](#) which was abolished as an RMMA following submittal of NFAs for all Site 65 sub-units. ER Site 94G is classified as an RMMA because the scrap material stored in the yard may have some radioactive contamination since some of it was used in tests conducted at Site 65 sub-units.

Due to the overlap in location and periods of testing at [ER Site 65](#) and 94, the criteria below were used to determine the types of operational tests and test structures to include in descriptions of each ER site.

[ER Site 65](#) includes all operations or testing that involved general explosives tests, early burn tests that involved the excavation of pits into soil and sediment, miscellaneous (non-petroleum fuel-fire) burn tests, cone tests, a Torch Activated Burn System (TABS) test location, and slow-heat tests. ER Site 94 includes all burn tests involving portable pans and fixed-location structures or engineered burn units. A TABS test location also exists in ER Site 94.

In order to facilitate site characterization, ER Site 94 has been subdivided into the following seven sub-units that represent areas where hazardous constituents may have been released.

ER Site 94A - Aboveground Tanks

ER Site 94A includes all of the current and historic aboveground tank storage locations at ER Site 94, including the current tank location north of the LOBP, the current tank location north of the LAARC Unit, and the former tank location north of the Bomb Burner Unit. These tank areas have been included due to documented and potential accidental releases of JP-4 fuel. ER Site 94A is comprised of three individual areas having a total surface area of 0.8 acres.

ER Site 94B - Debris/Soil Mound Area

ER Site 94B is located south of the Bomb Burner Unit and SMERF, and north of the main arroyo. The site consists of a soil mound of irregular surface area that contains some visible debris. It was established as a sub-unit because of the lack of available information about past activities that may have created the mounds and the presence of beta/gamma radiological anomalies. The area covers a total of 0.6 acres.

ER Site 94C - Bomb Burner Area and Discharge Line

ER Site 94C occupies an area of 0.2 acres surrounding the Bomb Burner Unit and the Bomb Burner Unit trench. An underground corrugated culvert extended from the Bomb Burner Unit to a discharge pit (ER Site 94D) located between the access road and the arroyo. The Bomb Burner Unit itself has been decontaminated and decommissioned and is not included as a sub-unit. Release of potential COCs outside of the Bomb Burner Unit were characterized as part of ER Site 94C. Releases of potential COCs from the TABS Test location, portable pan tests, rocket propellant tests, slow-heat tests, and uncontained pool fires that occurred in the Bomb Burner Unit trench were also characterized.

ER Site 94D - Bomb Burner Discharge Pit

ER Site 94D encompasses the area of the discharge pit at the point of entry from the discharge line. The discharge pit received all wastewater from operation of the Bomb Burner Unit. The site covers less than 0.1 acre.

ER Site 94E - Small Surface Impoundment

ER Site 94E is located approximately 250 ft southeast of Bunker 9830 and east of the camera

bunker. The impoundment was used for several fuel-fire burn tests and may have received wastewater from some portable pan burn tests. The impoundment also receives surface-water runoff from the graded area. The site occupies 0.2 acres.

ER Site 94F - LAARC Discharge Pit

The LAARC Discharge Pit consists of the southern half of the shallow, open rectangular trench located approximately 50 ft south of the LAARC Unit. The discharge pit received all wastewater from operation of the LAARC Unit. The site covers less than 0.1 acre.

ER Site 94G - Scrap Yard

The Scrap Yard is located on 3.2 acres in the northwest portion of ER Site 94. Surplus test materials and equipment to support burn testing at the LCBS are stored there.

ER Site 94H - JP-8 Site

The JP-8 site was discovered in August 2000. The JP-8 site is located immediately west of the Large Open Burn Pool and covers approximately 0.1 acres. No details exist on the date of the release of JP-8 from underground piping that connected ER Site 94A to the LOBP. The piping has since been upgraded.

Constituents of Concern

SVOCs

VOCs

Jet fuel (JP-4 and JP-8)

HE

Metals

Current Hazards

This section describes potential hazards that may be associated with Environmental Restoration activities only and does not address hazards associated with buildings and/or structures or their contents.

There are no current hazards at these sites related to contamination of the surface soils.

Current Status of Work

An RFI Work Plan was submitted to EPA for approval in January 1996. An RSI was received from the New Mexico Environmental Department (NMED) in August 1997 and a response was subsequently submitted to NMED. A Notice of Deficiency (NOD) was received from NMED in April 1998 for the RFI work plan and a response was subsequently submitted to NMED.

A passive soil vapor survey was conducted for the entire burn site in February 1998. Based on results of the SVS and comments from NMED in the RSI and NOD, RFI sampling was conducted at all subunits at the Burn site in 1998 with the exception of the active Scrap Yard Site

94G. To determine the extent of fuel contamination at Site 94F, a second phase of characterization was conducted in 1999 that consisted of an active soil gas survey and soil sampling. Additional characterization was also conducted at Sites 94B & 94C and baseline sampling was conducted at Site 94G.

The drain line at site 94C was shown to have fixed radiological contamination and was excavated and removed from the trench in 1999. Rad surveys of the Site 94C trench sidewalls revealed an area of DU contaminated soil, a small DU contaminated soil area was also found at site 94B.

Voluntary Corrective Actions were conducted at Sites 94B, C, & F in March and April of 2000. Radiologically contaminated soils were excavated at sites 94B & C and staged for disposal. Fuel contaminated soils were excavated at Site 94F. All soil with petroleum contamination were removed to bedrock at a depth of approximately 18 feet. The soils were disposed at a landfarm or landfill, as appropriate, in the summer of 2000.

After discovery in August 2000 an RFI was conducted at ER site 94H to determine the extent of contamination. A VCA to remove the petroleum-contaminated soil was conducted in July 2001, approximately 900 cubic yards of soil were removed. A risk-based No Further Action(NFA) Proposal was submitted to NMED for Site 94A in September 1998. In December 1999, following review of SNLs response to a Request for Supplemental Information (RSI), NMED indicated that the site was acceptable for NFA. The NFA for 94A was approved by NMED on July 2000 after completing the public review and permit modification process.

An NFA was submitted to NMED for Site 94D in May 1999. Site 94D was found acceptable for NFA petition in September 1999.

An NFA was submitted to NMED for Site 94E in September 1999. Site 94E was found acceptable for NFA petition in March 2000.

The NFAs for 94D and 94E were approved by NMED in October 2000 after completing the public review and permit modification process.

NFAs were submitted to NMED for Sites 94C and 94G in March 2001. On April 26, 2001 NMED indicated that Sites 94C and 94G are appropriate for NFA petition.

NFAs for sites 94B and 94F were submitted to NMED in September 2001. On January 17, 2003 NMED indicated that Sites 94B and 94F are appropriate for NFA petition.

The NFAs for Sites 94C and 94G were approved by NMED on November 19, 2001, after completing the public review and permit modification process.

An NFA for site 94H was submitted in September 2002.

Future Work Planned

No future work is planned pending NMED approval of the NFAs and the permit modification process for sites 94B, 94F, and 94H.

Waste Volume Estimated/Generated

A combined surface radiation VCM for Sites 12, 13, 65, and 94 has generated 200 drums of low level radioactive waste. The VCAs for sites 94B, 94C, and 94F generated approximately 1,200 cubic yards of fuel contaminated soil and 60 cubic yards of low level radioactive waste. The VCA at 94H generated approximately 900 cubic yards of fuel contaminated soil.

Information for ER Site 94 was last updated Feb 17, 2003.