



Gasbuggy, New Mexico, Site

FACT SHEET

*This fact sheet provides information about the Gasbuggy, New Mexico, Site.
This site is managed by the U.S. Department of Energy Office of Legacy Management.*

Site Description and History

The Gasbuggy Site is located in northwestern New Mexico in Rio Arriba County approximately 55 miles east of the city of Farmington and approximately 12 miles southwest of Dulce, New Mexico, in the Carson National Forest. The Gasbuggy Site consists of one section of land totaling 640 acres.

On December 10, 1967, the U.S. Atomic Energy Commission (AEC), a predecessor agency of the U.S. Department of Energy (DOE), detonated a 29-kiloton-yield nuclear device 4,240 feet below ground surface in an attempt to stimulate production of natural gas from deeply buried, low-permeability, gas-bearing formations. This was the first natural-gas-reservoir stimulation experiment in the Plowshare Program, which was designed to develop peaceful uses for nuclear energy. AEC, U.S. Department of the Interior, and El Paso Natural Gas Company jointly sponsored Project Gasbuggy.

The blast created a cavity and a chimney of rubble above and within it. The purpose of the detonation was to stimulate flow of natural gas through the fractures created by the blast and use the chimney as a collection chamber. No radiation was released at the surface at the time of the blast. The molten rock in the cavity encapsulated most of the radionuclides from the detonation.

Project Gasbuggy stimulated gas production in greater quantities than in nearby conventional gas wells, but the natural gas was also radioactive. Test results also indicated that the gas had a significantly lower heat value. Gas production tests and project evaluation activities were conducted from 1967 until 1976. Fracturing into the gas-bearing formation outward from the chimney (above the cavity) did not penetrate as extensively as expected.

AEC decommissioned and demobilized the site in 1978. Structures and equipment used for the test were decontaminated, if necessary, and removed; liquid radioactive waste was injected into the cavity formed by the nuclear explosion; solid radioactive waste was removed to the Nevada Test Site; and test wells were decommissioned and plugged. Soil sampling was performed in 1978, 1986, 2000, and 2002. Cultural



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Location of Gasbuggy, New Mexico, Site

resources, endangered and sensitive species, and floodplain and wetlands surveys were performed in 1993. Final surface remediation was completed in 2004.

Surface Conditions

Remediation of the surface resulted in the removal of 5,562 cubic yards of contaminated soil from mud pits and was completed in September 2004. No further corrective actions are required for the surface and shallow subsurface.

A permanent monument consisting of a brass plaque mounted in a concrete base was emplaced at surface ground zero at the site. Wording on the plaque describes the historical significance of the project and restrictions on subsurface excavation.

Subsurface Conditions

DOE does not plan to remove subsurface radioactive contamination in or around the test cavity because no feasible technology exists to do so. The DOE Office

of Legacy Management will conduct monitoring to ensure that detonation-related contamination does not migrate off site.

Land Use

The site is located in the Carson National Forest. Prior to Project Gasbuggy, the land was open range and was used for grazing and recreation. The DOE National Nuclear Security Administration, Nevada Site Office, recommended to the New Mexico Environment Department that the land revert to its original use, but the recommendation has not been finalized. The Secretary of Agriculture, through the U.S. Forest Service, has jurisdiction over Carson National Forest.

Institutional Controls

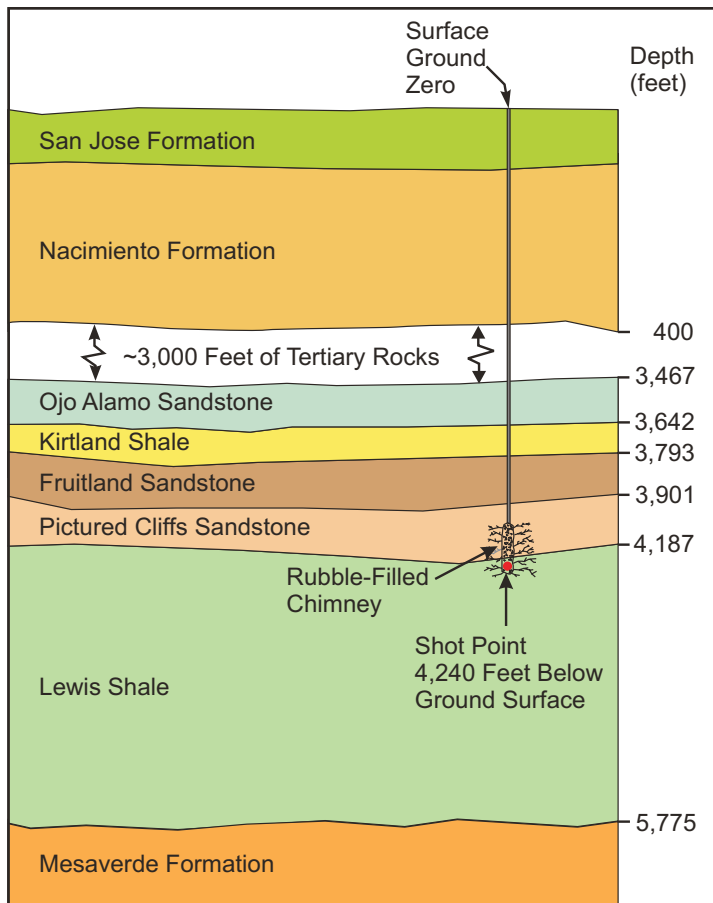
No institutional controls are required for the surface of the Gasbuggy Site. Current subsurface restrictions are stated on the monument emplaced at the site. In summary, the inscription states no subsurface intrusion within the radius of 100 feet from surface ground zero to a true vertical depth of 1,500 feet, and no subsurface intrusion within a radius of 600 feet from surface ground zero to a true vertical depth between 1,500 feet and 4,500 feet without permission of the U.S. Government.

Long-Term Hydrologic Monitoring Program

Since 1972, the U.S. Environmental Protection Agency has annually monitored ground water at and near the Gasbuggy Site as part of a long-term hydrologic monitoring program. Samples are collected from seven springs/surface water ponds and five water supply wells for ranch/livestock within the vicinity of the site.

Regulatory Setting

The federal government holds title to, and DOE is responsible for, the radioactive and other hazardous materials generated by DOE and predecessor agencies at the Gasbuggy Site. The DOE Office of Environmental Management has completed environmental restoration of the surface and has applied for clean closure status for the surface through the New Mexico Voluntary Remediation Program administered by the New Mexico Environment Department.



Cross Section of the Gasbuggy, New Mexico, Site

Legacy Management Activities

On October 1, 2006, the responsibility for the Gasbuggy Site transferred from the DOE Office of Environmental Management to the DOE Office of Legacy Management. The Office of Legacy Management is responsible for (1) developing and implementing a site-specific Long-Term Surveillance and Maintenance Plan for the site, (2) accepting the transfer of records and real property, (3) managing site records, (4) implementing and managing existing agreements and programs with regulatory agencies, and (5) responding to stakeholder inquiries.

Contacts

Documents related to the Gasbuggy Site are available on the DOE Office of Legacy Management website <http://www.LM.doe.gov/land/sites/nm/gas/gasbuggy.htm>.

For more information about DOE Office of Legacy Management activities at the Gasbuggy Site, contact

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