

THE DEPARTMENT OF ENERGY PATHWAYS TO CLEAN-UP An Instructional Video

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Nuclear waste management was not the Department of Energy's first priority during the Cold War. During the weapon production years, disposal technology lagged behind production technology. Wastes were produced faster than they could be disposed.

Many of the disposal methods used at that time would not be tolerated today. The Department of Energy, Albuquerque Operations is dealing with the environmental legacy of the Cold War, aggressively implementing permanent and more efficient clean-up programs at sites throughout the West that developed and produced nuclear weapons. Today environmental restoration and waste management programs are Department missions on an equal footing with weapons programs.

The Albuquerque Operations Office is committed to cleaning up sites at Sandia and Los Alamos National Laboratories, at the Pantex and Kansas City Plants, at Grand Junction and at scattered uranium mill sites throughout the West. It is an enormous program, with complex technical and regulatory challenges.

The Uranium Mill Tailings Remedial Action (UMTRA) Project safely moved and stabilized millions of cubic yards of mill tailings at twenty-two former uranium mills and from thousands of properties near those old millsites.

Los Alamos National Laboratory has approximately one hundred nine miles of canyons and thirty-five Material Disposal Areas in various stages of clean up.

Sandia National Laboratories has some two hundred sites in the clean up process, including the chemical waste landfills and mixed waste landfill.

The Department of Energy, Albuquerque has made significant progress in environmental clean-up at the old mill sites, at Pantex Plant, at groundwater monitoring locations and at on-going missions, where pollution prevention initiatives reduce the generation of new waste.

THE PATHWAYS TO CLEAN-UP

The Department of Energy pathways to clean-up consist of three complementary programs—environmental restoration, waste management and closure and facility transition. These programs are designed to work together to achieve the environmental stewardship goal.

ENVIRONMENTAL RESTORATION

The Environmental Restoration Program has accomplished clean-up of historical waste on a grand scale. Twenty-two Uranium Mill Tailings Remedial Action sites in nine states have been safely cleaned up and stabilized.

To accomplish this, the Department of Energy safely moved millions of tons of tailings and associated contaminated materials from abandoned uranium mills in five states into repositories and disposal cells.

Remedial action continues at the Monticello, Utah CERCLA site.

Potential health hazards associated with depleted uranium ore were not recognized at the time the mills were operational. Local contractors used tailing as a convenient source of sand for fill and concrete aggregate for new construction.

As part of the UMTRA and Monticello projects, DOE has removed mill tailings from over five thousand separate private properties—the largest clean-up effort of its kind in the world. Some of the former uranium milling sites are on Navajo tribal land.

Reducing legacy waste through the use of innovative technologies has proven effective in DOE/Albuquerque environmental restoration projects. The segmented gate system, developed by Thermo NUtech, has been deployed at Sandia and Los Alamos National Laboratories and at the Pantex Plant to identify radioactive contaminated soils on a conveyor belt. This system uses sensors to separate out soil that is above the regulatory limit from the bulk of the material that is below regulatory limit. Isolating contaminated soil reduces the volume that must be treated and disposed of.

Sandia National Laboratories' Corrective Action Management Unit, which is usually referred to by its acronym, CAMU, was approved by the Environmental Protection Agency in 1997. The CAMU is a central component of Sandia's plan for cleaning up the old chemical waste landfill, which was the most serious contamination site at the lab. The CAMU expedites clean-up time, saves the cost of transporting waste off-site, and protects the area's groundwater.

Historical waste presents many varying problems to the Environmental Restoration Program. For example, decommissioning and decontamination efforts at Los Alamos National Laboratory tear down surplus facilities contaminated with radiological or hazardous materials.

Environmental restoration also has one-of-a-kind problems to solve. Technical Area 16 is contaminated with sixty year old, unstable explosives. The area was constructed in the late 1940's to house machining and processing systems used for storage of high explosive nuclear weapons components.

Another unique Los Alamos restoration project is the building in which the final assembly of the "Trinity Device" explosive lens took place. As a legacy of the Manhattan Project, it may be eligible for landmark status and preservation as a historical resource. However, it has to be cleaned up first for safety's sake.

WASTE MANAGEMENT

The Waste Management Program also addresses legacy waste issues, using a variety of approaches.

The Transuranic Waste Inspection and Storage Project, acronym TWISP, is a project in which three soil covered asphalt pads containing drums or boxes of transuranic waste materials are being excavated, inspected, characterized, repackaged and certified for shipment to the Waste Isolation Pilot Plant near Carlsbad, New Mexico.

Los Alamos National Laboratory's accelerators, reactors and shops generate low-level radioactive liquid waste and slightly more radioactive industrial waste water. Special double-contained, monitored collection systems convey these liquid wastes to the Radioactive Liquid Waste Treatment Facility. At the facility, operators categorize the waste according to the treatment requirements. The Department of Energy, Albuquerque, is working with Los Alamos National Laboratory to achieve zero waste discharges at the Radioactive Liquid Treatment Plant in the near future.

Part of the waste management program at the Albuquerque Operations Office is to minimize new waste and manage what is being generated more efficiently.

Los Alamos, Sandia, Pantex, Kansas City and Grand Junction have on-going, long-term missions. For this reason, they will continue to generate waste.

By using new pollution prevention techniques', the sites will produce much less waste. The waste that is produced will be managed far more efficiently.

Simple innovations are effective too. The "radioactive wash 'n wear" program washes and reuses protective clothing instead of discarding it after one wearing.

At the Pantex Assembly site, both legacy waste and new waste are aggressively managed.

While accomplishing their on-going missions, Pantex now generates over 99 per cent less hazardous waste than it did prior to 1987.

Kansas City Plant now ships hazardous waste to commercial contractors for processing. By storing waste for less than ninety days, the plant has cut waste management costs and no longer maintains as many on-site storage lots.

CLOSURE AND TRANSITION

Albuquerque's long-term missions continue, although some individual facilities may close or significantly downsize. The closure and transition pathway to clean-up can significantly reduce costs at Albuquerque sites.

The first and most significant closure has been the Pinellas Plant in Largo, Florida. The Department of Energy worked closely with the community to convert the plant to a community owned high technology center. This action re-employed many Pinellas workers. The plant closed four years ahead of schedule, saving taxpayers twenty-nine million dollars. The neutron

generators once produced at Pinellas are now made at Sandia National Laboratories, which saves money by consolidation.

The Lovelace Biological Environmental Research Institute in Albuquerque, New Mexico used to be the Department of Energy's Inhalation Toxicology Research Institute. The Department continues to hold the property as its landlord—and is Lovelace's principal customer—but the facility is privately managed, serving many other clients. Now called the Inhalation Toxicology Laboratory, this site was the first Department of Energy laboratory facility in the nation to privatize.

The DOE is working to transfer the Grand Junction office site to community ownership by 2001. This will reduce the impact to the community from the reduced Grand Junction mission and will cut the Department's operating costs.

Los Alamos National Laboratory's Tech Area 21, a plutonium uranium research facility that dates back to the 1940's has been shut down and will be environmentally restored through decontamination and decommissioning. After removing contaminated buildings and soil, the site may be transferred to private or municipal ownership.

Other surplus land parcels at Los Alamos abut San Ildefonso Pueblo Reservation. This acreage is a candidate for transfer to the pueblo.

The Department of Energy will be engaged in long term surveillance and monitoring for years to come at a number of facilities. Both ground water and soil must be regularly sampled at the UMTRA repositories, at the Monticello millsite and vicinity properties, and at the Pantex and Kansas City Plants.

The Grand Junction office will manage surveillance and monitoring far into the future. It may also be assigned custody of an additional forty-five to fifty privately owned nuclear facilities—entombed reactor, nuclear explosion test locations, ground water remediation sites—by 2006.

Sandia National Laboratories and Los Alamos National Laboratory, two Department of Energy sites with long-term continuing missions, will monitor old waste landfill sites and groundwater for many years to come.

CONCLUSION

The Department of Energy, Albuquerque is addressing the clean-up mission challenges which are political and social as well as technical. DOE is restoring the environment, managing legacy and on-going waste, developing new technologies and building democratic institutions for a constructive debate of the department's future objectives. Albuquerque Operations promotes and informs broad based citizen involvement so that we can move forward together in this challenging and compelling work.