

ROCKY FLATS CLOSURE PROJECT

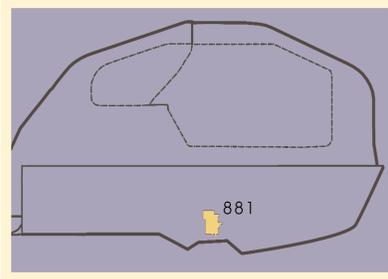
BUILDING

881

FORMER ENRICHED URANIUM AND
STAINLESS STEEL PROCESS AND
MACHINING FACILITY

Facility Facts

- Built in 1953
- 245,160 square feet
- Multi-story, reinforced concrete-basement structure built into a hillside
- 250 pieces of machining equipment removed
- Estimated closure costs – \$31 million
- Generated 7,887 tons of low-level waste



Introduction

Building 881 will be demolished in July 2004. Explosive charges will fracture exterior walls, which will collapse into the basement. Once the building is down, more than 60,000 cubic yards of soil will be added, bringing the area to the same grade as the surrounding topography.

History and Process Description

Building 881 was one of the four original manufacturing facilities at Rocky Flats. Completed in 1953, the building processed and machined enriched uranium into finished weapons components. The enriched uranium process included chemical recovery and foundry operations.

Building 881 was partially built into the hillside and constructed of heavily reinforced concrete walls, columns, and ceilings erected on spread-footings with reinforced concrete beams. The structure was designed to withstand forces above normal static loading based on defense mission design requirements.

Enriched uranium activities were phased out between 1964 and 1966. At that time, much of the decontamination work was completed and the building was converted to stainless steel fabrication. In 1984 stainless steel operations were transferred to Building 460. The building also housed a model shop and the central computing facility.

D&D Scope

Decommissioning activities in Building 881 included removing materials and equipment prior to building demolition – piping, wiring, conduit, mechanical equipment, exhaust ducts, lab hoods, suspended ceilings, interior walls, raised flooring and miscellaneous equipment found everywhere from maintenance shops to offices.

Once the components were removed, decontamination of the walls, floors and ceilings was completed to meet unrestricted release criteria. Unrestricted release means that the building has been decontaminated and surveyed to demonstrate that the residual radioactive material levels are below the standards established by DOE. Then the structure is released without

Key Milestones

- Used explosive demolition technique to remove oversized components, February 2004.
- Completed removal of other significant hazards, March 2004.
- Met unrestricted release criteria, June 2004.
- Building demolition, July 2004.

Contaminants of Concern

- Uranium
- Plutonium
- Beryllium
- Asbestos
- Chemicals

restrictions or controls, allowing the building to be demolished and rubble to be disposed of as sanitary waste.

Demolition

Building 881 was constructed with reinforced concrete. Historically, wrecking balls were used to demolish structures such as Building 881. Due to the heavy construction and placement in the hillside, Building 881 will be demolished using explosives, which is consistent with modern commercial practices for demolishing reinforced concrete structures.

Using explosives reduces the risks to workers by removing hazards associated with heavy equipment or falling debris. It also reduces project duration by at least four months.

To prepare the building for demolition, structural elements such as columns, floors and exterior walls will be drilled and/or cut. Interior floor slabs will be severed from exterior walls. The basement will be prefilled with rubble to minimize voids and explosives will be used to fracture exterior walls. The demolition process will generate a visible cloud of dust and smoke that is projected to last up to 15 to 20 minutes. Mechanical demolition would create a continual dust cloud lasting throughout the estimated four months demolition. Dust suppression equipment will be used. More than 60,000 cubic yards of soil will be added bringing the area to final grade.

Challenges

- Prepare for building demolition concurrent with component removal and decontamination.
- Thoroughly characterize building to distinguish areas of plutonium and uranium contamination.
- Develop a demolition method that eliminates the need to remove surrounding soils and handle demolition debris twice, reducing the risk to workers.

For more detailed information about the demolition of Building 881, please refer to the Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocols for decommissioning located on the Internet at www.rfets.gov.



Workers perform concrete shaving on contaminated concrete floor.



Building 881 second floor after component removal.



Make It Safe. Clean It Up. Close It Down.

*For further information
about Rocky Flats*

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