

# Environmental Bulletin

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*from the Savannah River Site*

## **Decommissioning of Naval Fuels Facility, Building 247-F**



During the brief increase in weapons production in the early 1980s, Admiral Hyman G. Rickover and the Department of Defense became concerned that there was only one facility in the country that could produce the fuel used in the U.S. Navy's nuclear fleet. At Rickover's request, a new facility was constructed at Savannah River to produce fuel for the nuclear navy. This plant became known as the Fuel Materials Facility. Site preparations began in 1982. The facility was completed in 1986, and began processing. The facility was qualified as the 2nd qualified vendor for the Navy in 1989. The Department of Defense closed the facility in 1989, due to the reduced need for naval fuels and an initial deactivation was completed. During initial deactivation the uranium material was removed and an analysis was completed to determine how much uranium was left as "hold-up" that is, residual material left behind in the process areas and equipment.

continued from page 1.

In 2003 final deactivation and decommissioning of the facility started. The main process building was a 109, 448 square foot building of standard steel construction with a reinforced concrete section that housed a vault for storage of special material. The main process building contained three areas:

1. A radiologically contaminated fuel manufacturing process
2. A radiologically contaminated process control laboratory
3. An administrative and storage area

The radiological contaminant of concern was uranium. The administrative area, although uncontaminated radiologically, was contaminated with mold and mildew after sitting unused for several years. Chemicals used in the facility included acids (oxalic, hydrofluoric, hydrochloric, sulfuric, phosphoric), solvents (acetone, tributyl phosphate) and corrosives (sodium hydroxide, ammonium hydroxide)

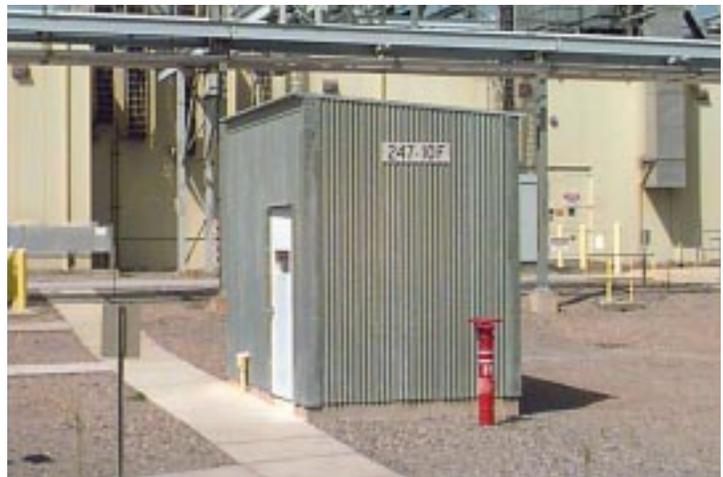
During deactivation all radiologically contaminated process and laboratory equipment was removed from the building. All components containing hazardous materials, such as lead, were also removed. Also during deactivation the remaining uranium was removed, although some surface contamination remained to be managed during decommissioning. The decommissioning process will follow the Integrated Sampling Model, which includes characterization to determine if actions are needed to remove contamination.

In addition to the main process building there were five other facilities that comprised the 247-F Complex:

**247-7F, EC Process Building**



**247-10F, Deluge Valve House**



**247-18F, Cylinder Storage Shed**



### 247-41F, Field Execution Facilities



### 247-42F, Construction Housing Facility



247-7F, the EC Process Building, constructed in 1988, is a distillation tower and associated equipment. The building had no walls. It was designed to receive a process stream from Building 247-F, purify it, and return it to Building 247-F. Initial deactivation and facility lay up were completed in 1990, after which the facility was placed in surveillance and maintenance mode. During initial deactivation, a sump within this facility was abandoned, filled, and capped with concrete according to the Waste Water Treatment and Abandonment and Outside Facilities Closure Plan, which was approved by the South Carolina Department of Health and Environmental Control. The decommissioning process will follow the Integrated Sampling Model, which includes characterization to determine if actions are needed to remove contamination.

Building 247-10F, the Deluge Valve House, is a 96 square foot fire waste deluge valve house. It was built in 1988 to provide fire water to 247-7F (EC Process Building, described above). It was a metal sided, metal roofed, and metal framed structures constructed on a concrete slab.

Building 247-18F, the Cylinder Storage Shed, is a 378 square foot compressed gas storage shed. It was built in 1988 to provide storage for compressed gases used in the main process building.

Building 247-41F, the Field Execution Facility, is a 1,229 square foot office building, constructed in 1989 to provide storage for materials and supplies used in the main process building. It was a metal walled, metal roofed, wood framed structure on a concrete slab.

During deactivation of these three facilities, all components such as lamps, brass valves, and circuit boards containing hazardous constituents were removed. No radioactive materials were used or stored in or around these buildings. The decommissioning process for these three facilities will follow the Simple Model.

The last support building that comprised the 247-F Complex is 247-42F, the Construction Housing Facility. It is a 1,229 square foot facility constructed in 1989 to provide storage for materials and supplies used in the main process building. It is a metal walled, metal roofed, wood framed structure on a concrete slab. It was previously a Radioactive Materials Area where radiologically contaminated material was stored. There were no known leaks or spills of these materials. The radiological material was removed during initial deactivation and the area was released from radiologic control requirements. During deactivation, all components such as lamps, brass valves, and circuit boards containing hazardous constituents were removed. The decommissioning process for this facility will follow the Simple Model. Decommissioning of the 247-F complex will be completed in early 2006.

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