

Mixed Oxide Fuel Fabrication Facility

In 1999, the Department of Energy (DOE) signed a contract with a consortium, now called Shaw AREVA MOX Services, LLC to design, build, and operate a Mixed Oxide (MOX) Fuel Fabrication Facility. This facility will be a major component in the United States' program to dispose of surplus weapon-grade plutonium.

The facility will take surplus weapon-grade plutonium, remove impurities, and mix it with uranium oxide to form MOX fuel pellets for reactor fuel assemblies. These assemblies will be irradiated in commercial nuclear power reactors.

The design of the facility is based on AREVA's MELOX and La Hague MOX facilities in France. The French have used MOX technology for over two decades and currently supply MOX fuel to over 30 reactors world-wide.

The facility is being built at the Savannah River Site (SRS) near Aiken, South Carolina. It is located in F-Area in the center of the 310-square-mile DOE reservation.



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The facility consists of two major sections. The weapon-grade material is cleaned and purified in the five-level aqueous polishing portion of the building. The MOX area consists of three levels. This is where the fabrication of the fuel takes place, from formation of the pellets to assembly of the MOX fuel rods.

Preliminary numbers for construction of the 600,000-square-foot facility (including support facilities) indicate the use of over 170,000 cubic yards of concrete, 35,000 tons of reinforcing steel, 23,000 instruments, 1000 tons of Heating Vents and Air conditioning, 500,000 linear feet of conduit, 47,000 linear feet of cable tray, 3,000,000 linear feet of power and control cable, and 80 miles of piping.

The Nuclear Regulatory Commission (NRC) is overseeing the facility. The French design has been "Americanized" to ensure that the facility meets all federal safety and security requirements. It will also be a hardened facility, similar to a nuclear reactor. Security will be equal to the security measures currently in place at SRS. A Perimeter Intrusion Detection and Assessment System will encircle the facility for additional protection.

When operational, the facility will be capable of turning 3.5 metric tons of weapon-grade plutonium into MOX fuel assemblies annually. The facility will be licensed for 20 years, with operations expected to continue into the 2030s.