

MOX Services - Electrical Design of Nuclear Sintering Furnace

Location: Aiken, SC / Grenoble, France

Technology: Sintering Furnace with Glove Boxes

Purchaser: Furnaces Nuclear Application Grenoble (FNAG)

Purchase Value: >\$1,000,000

REFERENCE

Project Description

In 1999, the National Nuclear Security Administration (NNSA) 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 almost two decades and currently supply MOX fuel to over 30 reactors worldwide. The facility will be built at the Savannah River Site (SRS) near Aiken, South Carolina.

MOX Fuel Fabrication Facility

The facility consists of two major sections. The weapon-grade material is cleaned and purified in the seven-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. The Nuclear Regulatory Commission (NRC) will license and oversee the facility. The French design is being "Americanized" to ensure that the facility meets all federal safety and security requirements. 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 2020s.

INP Services

- Electrical Design of the complete sintering furnace with all attached glove boxes and skids according to NEC/NFPA/ASME/IEEE.