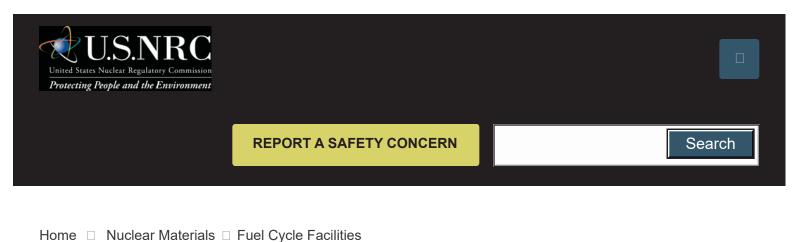
From: Giacinto, Joseph

Sent: Tuesday, May 25, 2021 2:08 PM

To: AdvancedReactors-GEISDocsPEm Resource

Subject: NRC - Fuel Fabrication **Attachments:** NRC 2020Fuel Fab.pdf



Fuel Fabrication

Fuel fabrication facilities convert enriched uranium into fuel for nuclear reactors. Fabrication also can involve mixed oxide (MOX) fuel, which is a combination of uranium and plutonium. NRC regulates several different types of nuclear fuel fabrication operations.

On this page:

- Low-Enriched Uranium Fuel Fabrication Facilities
- Category 1 Fuel Fabrication Facilities
- Mixed Oxide Fuel Fabrication
- Non-Power Reactor Fuel
- Safety Concerns at Fabrication Facilities

See Locations of Fuel Cycle Facilities for a list of fuel cycle facilities licensed by NRC.

Low-Enriched Uranium Fuel Fabrication Facilities

Fuel fabrication for light water reactors (LWR) (regular commercial power reactors) typically begins with the receipt of low-enriched uranium, in the chemical form of uranium hexafluoride (UF₆), from an enrichment plant. The UF₆, in solid form in containers, is heated to gaseous form, and then the UF₆ gas is chemically processed to form uranium dioxide (UO₂) powder. This powder is then pressed into pellets, sintered into ceramic form, loaded into Zircaloy tubes, and constructed into fuel assemblies. Depending on the type of light water reactor—whether it's a boiling-water reactor or a pressurized-water reactor—a fuel assembly may contain up to 264 fuel rods and have dimensions of 5 to 9 inches square by about 12 to 14 feet long.

Three fuel fabrication plants processing low-enriched uranium are currently licensed by the NRC: Global Nuclear Fuel-Americas in Wilmington, North Carolina; Westinghouse Columbia Fuel Fabrication Facility in Columbia, South Carolina; and Framatome, Inc., in Richland, Washington. These facilities are also called Category 3 Fuel Facilities.

AREVA Lynchburg was a fuel fabrication facility that had operated under NRC purview and was located in



