



Published on *National Nuclear Security Administration* (<http://nnsa.energy.gov>)

[Home](#) > [Media Room](#) > [Fact Sheets](#) > NNSA's MOX Fuel Fabrication Facility and U.S. Plutonium Disposition Program

NNSA's MOX Fuel Fabrication Facility and U.S. Plutonium Disposition Program

Release Date:

Tue, 2010-08-03

On August 1, 2007, the National Nuclear Security Administration broke ground on the Mixed Oxide (MOX) Fuel Fabrication Facility at the Department of Energy's Savannah River Site near Aiken, South Carolina. One of the largest construction projects in the Southeastern United States, the MOX facility currently employs 1,850 construction workers, designers and engineers. In addition to its economic impact, the MOX facility will play an important role in U.S. national security and energy policy.

SUPPORTING NUCLEAR NONPROLIFERATION

During the April 2010 Nuclear Security Summit, Secretary of State Hillary Rodham Clinton and Russian Foreign Minister Sergey Lavrov signed a protocol amending the 2000 Plutonium Management and Disposition Agreement (PMDA), which commits each country to dispose of no less than 34 metric tons (MT) of excess weapon-grade plutonium and envisions disposition of more weapon-grade plutonium over time. The combined amount, 68 metric tons, represents enough material for approximately 17,000 nuclear weapons.

The Protocol reaffirms both countries' commitment to nuclear disarmament and the goal of a world free of nuclear danger by ensuring that excess weapon-grade plutonium is never again used for nuclear weapons or any other military purpose; by ensuring it is disposed of in a safe, secure, transparent and effective manner; and by strengthening barriers against accumulating newly separated weapon-grade plutonium.

To implement this agreement in the United States, the National Nuclear Security Administration (NNSA) is building a Mixed Oxide (MOX) Fuel Fabrication Facility, a capability to disassemble nuclear weapons pits and convert the resulting plutonium into a form suitable to be made into MOX fuel, and a Waste Solidification Building to handle the waste resulting from pit disassembly and MOX operations at the Savannah River Site (SRS).

HOW IT WORKS: CONVERTING SWORDS TO PLOWSHARES

The MOX facility will blend surplus weapons-grade plutonium with depleted uranium oxide

to make mixed oxide fuel for use in existing nuclear power plants. Once the MOX fuel assemblies have been irradiated in commercial power reactors, the plutonium can no longer be readily used for nuclear weapons. It will take approximately 15 years for the MOX Facility to process the 34 MT of plutonium.

The facility is an important part of the United States' efforts to make sure that plutonium can no longer be readily used for nuclear weapons purposes while simultaneously generating electricity for utility customers.

STATUS OF CONTRSRUCTION

Construction at the MOX facility began in August 2007 and significant progress has been made in the three years since construction began. Ten of the sixteen auxiliary buildings needed to support construction and operation of the MOX facility have been finished, with a new electrical substation on track to be completed in September 2010. At the MOX Process Building, more than 75,000 cubic yards of reinforced concrete, 50,000 cubic yards of unreinforced concrete, and 15,000 tons of rebar have been installed.

Operations are set to begin at the MOX facility in 2016. The MOX facility will help provide a pathway out of South Carolina for the surplus plutonium brought to SRS for disposition.

BASED ON PROVEN TECHNOLOGY

MOX fuel fabrication technology is well established and mature, and MOX fuel is used in more than 30 commercial reactors worldwide. The design of the U.S. MOX facility is based on proven French technology currently in use at the MELOX and LaHague facilities in France. The facility at SRS is being designed and built to meet U.S. conventions, codes, standards, and regulatory requirements, and will be licensed by the U.S. Nuclear Regulatory Commission (NRC). The NRC authorized construction of the facility in 2005 and is currently reviewing the contractor's application for an operating license.

BENEFITS OF MOX STRATEGY

- Disposing of excess fissile materials has been a U.S. national security & nonproliferation objective since 1994 and has been endorsed by every President and Congress since that time.
- Under the 2000 Agreement, the United States and Russia will dispose of 68 metric tons of surplus plutonium.
- The MOX facility will help to reduce security and storage costs of surplus plutonium which are estimated to be hundreds of millions of dollars annually.
- In addition to its critical nonproliferation benefits, the U.S. MOX strategy supports additional NNSA and DOE missions by:
 - Facilitating Complex Transformation efforts to reduce the size of the NNSA nuclear security enterprise by consolidating materials to SRS from Lawrence Livermore National Laboratory, Los Alamos National Laboratory, the Pantex Plant, the Hanford Site, and the Rocky Flats Site,
 - Establishing the capability to dispose of additional plutonium from future weapons dismantlements, and

- Disposing of surplus U.S. weapon-grade plutonium demonstrates that the United States is living up to its nonproliferation commitments by drawing down its nuclear arsenal in a transparent and irreversible manner.



[NNSA Policies](#) [Site Map](#)

[Site Feedback](#) [Department of Energy](#)

Source URL: <http://nnsa.energy.gov/mediaroom/factsheets/mox>