



U.S. DEPARTMENT OF
ENERGY

MOX Fuel Fabrication Facility Construction and Operations

**Report to Congress
September 2014**

**United States Department of Energy
Washington, DC 20585**

Message from the Secretary

The Department is reporting pursuant to section 4306 of the Atomic Energy Defense Act (50 U.S.C. § 2566), as amended by the National Defense Authorization Act for Fiscal Year 2013, concerning the Mixed Oxide (MOX) Fuel Fabrication Facility in the State of South Carolina. This report provides information on the Department's plans concerning the MOX Fuel Fabrication Facility.

Pursuant to statutory requirements, this report is being provided to the following Members of Congress:

- **The Honorable Joseph R. Biden**
President of the Senate
- **The Honorable Barbara A. Mikulski**
Chairwoman, Senate Committee on Appropriations
- **The Honorable Richard C. Shelby**
Ranking Member, Senate Committee on Appropriations
- **The Honorable Dianne Feinstein**
Chairman, Subcommittee on Energy and Water Development
Senate Committee on Appropriations
- **The Honorable Lamar Alexander**
Ranking Member, Subcommittee on Energy and Water Development
Senate Committee on Appropriations
- **The Honorable Carl Levin**
Chairman, Senate Committee on Armed Services
- **The Honorable James M. Inhofe**
Ranking Member, Senate Committee on Armed Services
- **The Honorable John A. Boehner**
Speaker, U.S. House of Representatives
- **The Honorable Harold Rogers**
Chairman, House Committee on Appropriations
- **The Honorable Nita M. Lowey**
Ranking Member, House Committee on Appropriations
- **The Honorable Mike Simpson**
Chairman, Subcommittee on Energy and Water Development
House Committee on Appropriations
- **The Honorable Marcy Kaptur**
Ranking Member, Subcommittee on Energy and Water Development
House Committee on Appropriations

Department of Energy | September 2014

- **The Honorable Howard P. McKeon**
Chairman, House Committee on Armed Services
- **The Honorable Adam Smith**
Ranking Member, House Committee on Armed Services

If you have any questions or need additional information, please contact me or Mr. Brad Crowell, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ernest J. Moniz', with a stylized, flowing script.

Ernest J. Moniz

Executive Summary

This report satisfies the 2013 and 2014 reporting requirements, under section 4306 of the Atomic Energy Defense Act, as amended ("Act") (50 U.S.C. § 2566), on the Department's plans concerning the Mixed Oxide (MOX) Fuel Fabrication Facility (MOX facility), located in the State of South Carolina.

The Department has been conducting an ongoing analysis of plutonium disposition strategies to determine if more efficient options exist and slowed work on the MOX project and associated activities in Fiscal Year 2013. The preliminary analysis was released in April 2014 and documented that the current MOX fuel approach is significantly more expensive than anticipated, even with consideration of potential contract restructuring and other improvements that have been made to the MOX project. The Department intends to complete the analysis and have its results independently validated by an organization external to the Department and its laboratories.

The Department has suspended any further transfers of defense plutonium and defense plutonium materials to the State of South Carolina to be processed at the MOX facility. The Department will submit a report to Congress on options for removing an amount of defense plutonium or defense plutonium materials from the State of South Carolina equal to the amount of defense plutonium or defense plutonium materials transferred to the State of South Carolina after April 15, 2002.



MOX FUEL FABRICATION FACILITY CONSTRUCTION AND OPERATIONS

Table of Contents

I.	Legislative Language.....	1
II.	Status of the MOX Facility	3
III.	Conclusion.....	4

I. Legislative Language

The Department is submitting its annual report required by section 4306 (a)(3)(A) of the Act concerning the MOX facility being constructed at the Department's Savannah River Site near Aiken, South Carolina. Section 4306 (a)(3)(A) states:

"(A) Not later than February 15 each year, beginning in 2004 and continuing for as long as the MOX facility is in use, the Secretary shall submit to Congress a report on the implementation of the plan required by paragraph (1)."

Subsections 4306(a)(1) and (2) of the Act set forth the requirement for a plan for construction and operation of the MOX facility. Subsections 4306(a)(1) and (2) state:

"(a) Plan for construction and operation of MOX facility

(1) Not later than February 1, 2003, the Secretary of Energy shall submit to Congress a plan for the construction and operation of the MOX facility at the Savannah River Site, Aiken, South Carolina.

(2) The plan under paragraph (1) shall include—

(A) a schedule for construction and operations so as to achieve, as of January 1, 2012, and thereafter, the MOX production objective, and to produce 1 metric ton of mixed-oxide fuel by December 31, 2012; and

(B) a schedule of operations of the MOX facility designed so that 34 metric tons of defense plutonium and defense plutonium materials at the Savannah River Site will be processed into mixed-oxide fuel by January 1, 2019."

Subsections 4306(b)(5) and (6) require the Secretary to undertake certain actions if the MOX production objective has not been achieved under certain specified circumstances. Subsection 4306(b)(5) states:

"(5) If, after January 1, 2014, the Secretary determines that the MOX production objective has not been achieved because of a failure to achieve milestones set forth in the most recent corrective action plan under this subsection, the Secretary shall suspend further transfers of defense plutonium and defense plutonium materials to be processed by the MOX facility until the Secretary certifies that the MOX production objective can be met."

Subsection 4306(b)(6) states:

"(6)(A) Upon making a determination under paragraph (4) or (5), the Secretary shall submit to Congress a report on the options for removing from the State of South Carolina an amount of defense plutonium or defense plutonium materials equal to the amount of defense plutonium or defense plutonium materials transferred to the State of South Carolina after April 15, 2002."

(B) Each report under subparagraph (A) shall include an analysis of each option set forth in the report, including the cost and schedule for implementation of such option, and any requirements under the National Environmental Policy Act of 1969 (42 U.S.C.4321 et seq.) relating to consideration or selection of such option.

(C) Upon submittal of a report under paragraph (A), the Secretary shall commence any analysis that may be required under the National Environmental Policy Act of 1969 in order to select among the options set forth in the report."

II. Status of the MOX Facility

As stated in the President's Fiscal Year 2014 budget request, the Department received a baseline change proposal from MOX Services, the prime contractor, in Fiscal Year 2012 that would increase the total cost of the MOX project from \$4.8 billion to \$7.7 billion. As a result of the greater than anticipated cost increases and current budget environment, the Department has been conducting an analysis of plutonium disposition strategies to determine if more efficient options exist and thus slowed work on the MOX project and associated activities.

The Secretary established a special working group to undertake a detailed analysis of plutonium disposition options. The working group has been analyzing the current approach of disposing of surplus weapons-usable plutonium as MOX fuel in light water reactors, fast reactor options to dispose of such plutonium, and non-reactor based options. The preliminary analysis was released in April 2014 and will serve as the basis for identifying a potentially more efficient approach for plutonium disposition. The Department intends to complete the analysis and have its results independently validated by an organization external to the Department and its laboratories.

The analysis to date indicates that the MOX fuel approach is significantly more expensive than anticipated, even with consideration of potential contract restructuring and other improvements that have been made to the MOX project. In addition, the MOX production objective has not been achieved and progress towards construction and operation of the MOX facility is behind the current schedule.

The Department has suspended further transfers of defense plutonium and defense plutonium materials designated for processing at the MOX facility. Additionally, the Department will submit a report to Congress on options for removing from the State of South Carolina those amounts of defense plutonium and defense plutonium materials transferred to the State of South Carolina after April 15, 2002.

III. Conclusion

The Department has suspended any further transfers of defense plutonium and defense plutonium materials to the State of South Carolina designated for processing at the MOX facility and will submit a report to Congress on options for removing defense plutonium and defense plutonium materials transferred to the State of South Carolina after April 15, 2002.