MOX

FUEL FABRICATION FACILITY

Commitment to a Safer, More Secure Tomorrow!

https://moxproject.com

MOX Background

- The MOX facility is currently being constructed for the U.S. National Nuclear Security Administration (NNSA)
- When finished, it will convert surplus nuclear weapons-grade plutonium into reactor fuel for use in commercial nuclear power plants, supporting the government's nonproliferation program to eliminate surplus weapons-grade plutonium
- Under a 2000 agreement, the United States and Russia agreed to dispose of at least 68 metric tons of surplus plutonium, sufficient for approximately 17,000 nuclear weapons
- Despite lower funding levels over the past 5 years, MOX construction continues to progress
- MOX Fuel has been safely used in Europe and Japan for more than 30 years, and in over 30 reactors worldwide. The reference plant in France (MELOX) was constructed in 6 years and has been operating for over 2 decades without missing a shipment.

MELOX

La Hague

The MOX Project

Status: Despite Issues, Progress Continues

Major Construction as of 2013	Major Construction as of 2017
➢ 79 percent of concrete and 61 percent of rebar installed ➢ 325 glove boxes on contract; 111 onsite; 3 installed ➢ 13 of 28 long lead glove boxes tested ➢ 66 of 73 tanks installed ➢ 5 of 31 Active Gallery modules installed ➢ Process Systems In Advance Tests - 76 of 108 completed	➢ 92 percent of concrete and 94 percent of rebar installed ➢ 315 glove boxes on contract; 229 onsite; 148 installed ➢ 27 of 28 long lead glove boxes tested ➢ 72 of 73 tanks installed ➢ 28 of 31 Active Gallery modules installed ➢ Process Systems In Advance Tests - 102 of 108 completed ➢ 12 of 16 support buildings complete ➢ MFFF building structure over 90% complete ➢ Emergency diesel generator building started

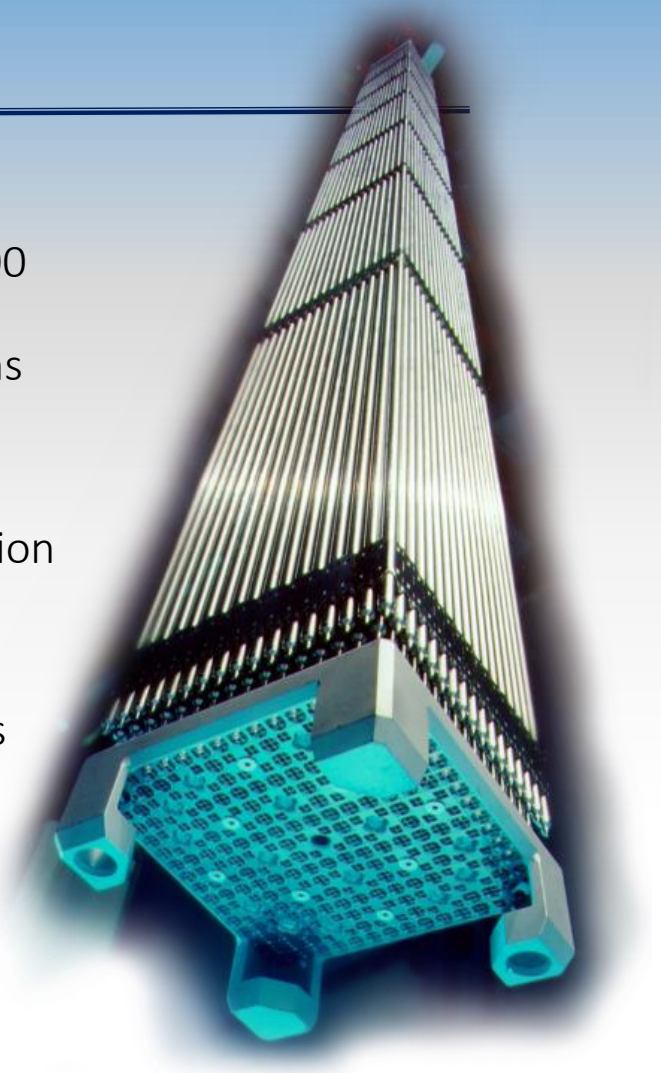
Estimate Comparisons

Category	DOE Estimate ($B)	MOX Services Estimate ($B)	Difference ($B)	Comments
Total	**$17.2**	**$9.9**	**$7.3**	
Escalation	$5.1	$0.4	$4.7	Large Difference
Obsolescence	$0.5	$0.05 (MOX Services Calculated this in risk)	$0.5	Large Difference. Also Adds to Escalation. MS dollars included in Risk.
Risk	$1.4	$0.6	$0.8	Adds to Escalation
Level Of Effort	$4.7	$3.9	$0.8	Adds to Escalation
Discrete Work Scope	$4.9	$4.6	$0.3	Same Estimate
Other	$0.5	$0.4	$0.1	Will eventually be added to Contract
Completion Date	Year - 2048	Year – 2029	19 years	

When estimates are normalized for consistent assumptions and scope, they are very close. The main difference in the two estimates is escalation.

Finishing the Job

- To date, CB&I AREVA MOX Services has completed 365,000 tons of major commodities (concrete, rebar, duct, pipe, cable) out of a total 400,000 tons, leaving only 35,000 tons to complete
- Completed work is based on a verified visual count of installed quantities, and was completed with just $1.8 billion in 10 years
- Approximately 80 percent of procurements have been completed, leaving labor costs as the primary expenses as the MOX facility gets closer to completion
- The rate of rework during MOX construction is lower than industry averages
- Risk has been mitigated by key process systems being assembled and tested in a separate facility



Importance of Continuing the MOX Project

- Current employment is more than 2,000 people (1,000 craft representing 13 building trades)
- MOX will employ over 3,000 employees through construction completion
- During operations, the plant will employ 1,000 people for 15 years, and numerous indirect jobs will add additional nuclear expertise to the region over the 15-year operating period
- MOX has $37 million in active contracts, with over $9 million of those contracts in South Carolina
- Approximately 14 million construction labor hours remain to finish the facility
- MOX has revitalized the nuclear culture for hundreds of chemists, engineers and safety and security experts throughout the United States, many within South Carolina, through subcontracts and internships, apprenticeships, and employment at the MOX facility.
- MOX employs approximately 1 percent of all employed residents in the CSRA, and 81 percent of MOX employees live in the region. MOX employees earn an average of $121,000 – more than twice as much as the regional average wage

Importance of Continuing the MOX Project

- Finishing the MOX Project will satisfy the Plutonium Management and Disposition agreement, signed between the U.S. and Russia in 2000 and re-affirmed in 2010, to dispose of 68 metric tons of weapons-grade plutonium
- Fuel produced by the MOX Facility will have an energy value of over $50 billion in the form of clean energy to power American industry and homes
- Fuel produced will generate $1 Billion for the U.S. Treasury
- Future work includes $126 million in contracts, with a total economic impact of $192 million across the country
- $5 Billion has been spent to date on the MOX facility

Accomplishments

- Safety
  - Recently surpassed 6 million safe work hours without a lost workday accident, with a historical record of more than 24.5 million consecutive safe work hours
- NRC Regulation
  - Safety Evaluation Report issued in December 2010 with no open issues
  - Seven consecutive Applicant Performance Reports indicate MFFF construction met requirements
    - No areas need improvement
- Support to Small Business (through August FY17)
  - >7,501 Small Business Subcontracts/POs awarded to date
  - Total value: >$1.118 B
- Contracts Awarded by Type (through August FY17)
  - $187.4 M - Small Disadvantaged Business
  - $203.9 M - Women-Owned Small Business
  - $ 57.2 M - HUBZone Small Business
  - $117.5 M - Veteran-owned Small Business
  - $ 12.9 M - Service-Disabled Veteran-Owned Small Business