

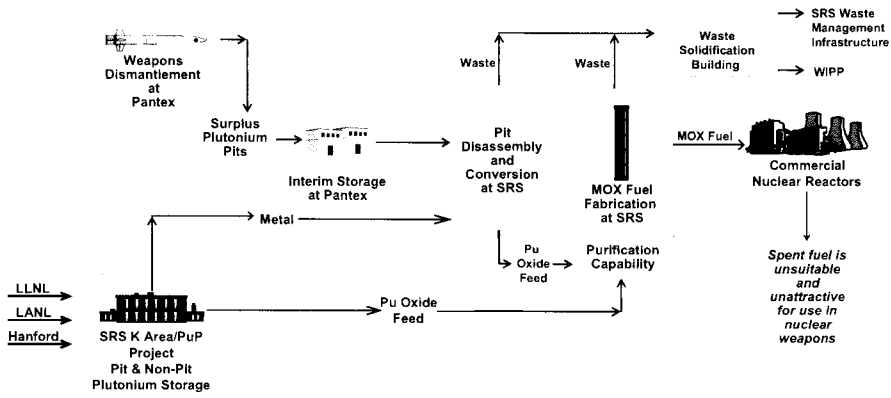


National Nuclear Security Administration  
Nuclear Nonproliferation Program  
Savannah River Site

Clay Ramsey  
Federal Project Director  
Mixed Oxide Fuel Fabrication Facility  
January 6, 2011

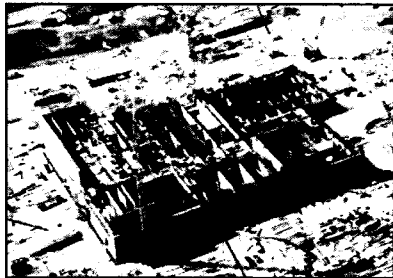
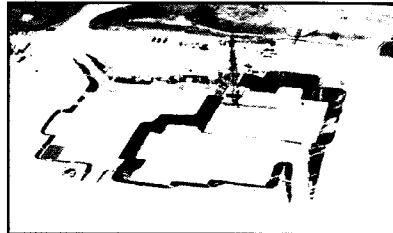
Conversion of at least 34 metric tons of weapons grade plutonium into mixed oxide fuel for use in commercial nuclear power plants

- Mixed Oxide Fuel Fabrication Facility (MFFF)
  - Produce mixed oxide fuel elements for irradiation in commercial nuclear power plants
- Pit Disassembly and Conversion (PDC)
  - Disassemble nuclear weapon pits, remove impurities, and convert the metal into oxide for MFFF
- Waste Solidification Building (WSB)
  - Receive high activity and low activity liquid waste streams from MFFF and PDC



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full production:  
1 fuel assembly/day



- Began Construction: August 2007
- Total project complete: 49%
- Construction Complete: 32%
- Current employment: 2000
- Start Operations: October 2016

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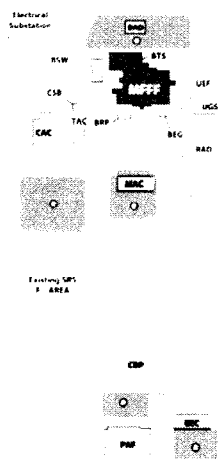
- MFFF Process Building is a 500,000 ft highly secure, seismically-resistant steel reinforced concrete structure
  - Aqueous Polishing Area will convert surplus plutonium to purified plutonium oxide powder
  - Fuel Manufacturing Area will blend the plutonium oxide with depleted uranium oxide powder and produce mixed oxide fuel assemblies
  - Shipping and Receiving Area is where plutonium shipments will be received and MOX fuel assemblies will be shipped to commercial nuclear reactors
- 16 Support Facilities complete the MFFF scope

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- MFFF Accomplishments
  - Process Building concrete structure is 62% complete
  - Installation of process gloveboxes/equipment, nuclear tanks, piping, HVAC and coatings ongoing in the Process Building
  - 225 out of 274 glovebox mechanical process systems/shells have been purchased and are in various stages of fabrication and delivery
  - 11 out of 16 support facilities constructed and in service
  - Administration Building awarded LEED Gold Certification for energy/environmental friendly design
  - Annual NRC review of MFFF construction did not identify any areas requiring improvement

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- MFFF Accomplishments
  - Construction achieved 4.7 million safe man-hours in 2010
  - Significant awards made to small businesses
    - Over 4,600 small business subcontracts awarded to date
    - Over \$500M of subcontracts to small businesses
  - Two utilities are formally evaluating the potential use of MOX fuel in their reactors
    - Tennessee Valley Authority (3 BWRs, 2 PWRs)
    - Energy Northwest (1 BWR)
  - In December 2010, NRC approved the Safety Evaluation Report of the MFFF License Application



Facility	Construction		Status
	Start	Complete	
<b>Construction Ongoing</b>			
MFFF - MOX Fuel Fabrication Facility	July 2007	2013	Construction
ISAW - Structural Reinforcement Building	July 2009	July 2009	Completed
RF3 - Radioactive Waste Building	2010	2012	Construction
RF4 - Administration	July 2008	July 2008	Completed
RF5 - Material Processing Building	2011	2013	Planning
UGS - Gas Storage Area	2011	2013	Planning
RF6 - Fuel Gas & Plant Fuel Gas Building	2011	2013	Planning
RF7 - Fueling Administration Complex	July 2007	July 2008	Completed
RF8 - Fueling & Material Storage	2011	2013	Planning
RF9 - Fueling & Material Storage	July 2008	July 2008	Completed
RF10 - Fueling & Material Storage	July 2008	July 2008	Completed
RF11 - Fueling & Material Storage	July 2008	July 2008	Completed
RF12 - Fueling & Material Storage	July 2008	July 2008	Completed
<b>MOX Fuel Fabrication Facility</b>			
RF13 - MOX Administration Complex	July 2008	July 2008	Completed
RF14 - MOX Fuel Fabrication Complex	July 2008	July 2008	Completed
RF15 - MOX Fuel Fabrication Complex	July 2008	July 2008	Completed
RF16 - MOX Fuel Fabrication Complex	July 2008	July 2008	Completed
RF17 - MOX Fuel Fabrication Complex	July 2008	July 2008	Completed
RF18 - MOX Fuel Fabrication Complex	July 2008	July 2008	Completed
RF19 - MOX Fuel Fabrication Complex	July 2008	July 2008	Completed

- Complete
- Construction Ongoing
- Planning



- Began Construction: Dec 2008
- Structural Concrete Complete: 94%
- Facility construction complete: 14.5%
- Construction completion: 2012
- Start Operations: 2013
- Current employment: 150

- The WSB will receive liquid waste streams from MFFF and PDC
  - Separate waste via evaporation
  - Low level liquid waste is transferred to the Effluent Treatment Facility (ETF) at SRS
    - ETF conducts a final treatment process and clean water is then released to streams on site
  - Higher activity waste is stabilized
    - Waste is combined with a cementitious mixture and put into 55 gallon drums
    - Stabilized waste will be disposed at an approved onsite or offsite location

- The PDC facility will convert surplus weapons grade plutonium into plutonium oxide suitable for use in the fabrication of mixed oxide fuel
  - Plutonium is converted to plutonium oxide
    - Residual classified attributes are removed
    - Then plutonium oxide is made available for conversion to MOX fuel
  - The facility will also process non-plutonium components
    - Decontaminate, convert and package uranium materials
    - Use declassification processes to disposition certain other materials as waste

*LTA  
 Hypothetical  
 - data from BWR  
 in Env. Report  
 - consider data  
 would be  
 done here  
 if needed*

- In 2009, DOE initiated an evaluation of locating PDC into the existing SRS K-Area facility in lieu of a stand-alone facility
- DOE is expected to make project management decisions and a NEPA determination regarding PDC in 2011

*Supplemental EIS*

*- show production  
 at start  
 - LTA would  
 in doing  
 startup,  
 - not really  
 looked at  
 it a lot*