



**Surplus Plutonium Disposition  
Supplemental Environmental Impact Statement  
(SPD Supplemental EIS)**



# **PUBLIC HEARING**

## **Draft Surplus Plutonium Disposition Supplemental Environmental Impact Statement**

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# Surplus Plutonium Disposition Supplemental Environmental Impact Statement (SPD Supplemental EIS)



## Presentation Outline

- National Environmental Policy Act (NEPA) process for the SPD Supplemental EIS
- Brief history of plutonium disposition NEPA documentation
- Description of the SPD Supplemental EIS scope, alternatives, and results
- How to submit public comments on the Draft SPD Supplemental EIS



# Purpose and Need for Action

- DOE's purpose and need remains, as stated in the Surplus Plutonium Disposition EIS (1999):
  - To reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally sound manner
- Surplus plutonium is plutonium no longer needed for defense or other programmatic purposes
- Actions are needed to ensure that surplus plutonium is converted into a form that cannot be used in a nuclear weapon



# Surplus Plutonium Disposition Supplemental Environmental Impact Statement (SPD Supplemental EIS)



## NEPA Process for the SPD Supplemental EIS

- This Supplemental EIS was prepared as required by NEPA
- An initial Notice of Intent was published in the March 28, 2007 *Federal Register*
- Amended Notice of Intent to prepare the SPD Supplemental EIS published in the July 19, 2010 *Federal Register*
- Modified by an Amended Notice of Intent published in the January 12, 2012 *Federal Register*
- Tennessee Valley Authority (TVA) is a cooperating agency

### NEPA

The National Environmental Policy Act (NEPA) establishes a process for decisionmakers to use in considering the potential environmental impacts (both beneficial and adverse) of a major Federal action before making a decision.

It requires a Federal agency to consider the potential environmental, human health, and socioeconomic effects of a proposed action and a range of reasonable alternatives for implementing the action, including the option of taking no action at all.

The resulting environmental impact statement (EIS) is a detailed environmental analysis of the proposed action.



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## About Tonight's Public Hearing

- Soliciting public comments is a required step in the NEPA process for preparing a Supplemental EIS
- The comment period began with publication of EPA's Notice of Availability of the Draft Supplemental EIS on July 27, 2012
- *Federal Register* notice published on September 6, 2012 extending comment period until October 10, 2012
- Public comments – both oral and written – received during the comment period will be considered when preparing the Final Supplemental EIS and Record of Decision
- The Final Supplemental EIS is expected in the spring of 2013
- The Record of Decision can be issued no sooner than 30 days after the EPA Notice of Availability for the Final Supplemental EIS is published in the *Federal Register*

### Steps in the EIS Process

The process is the same for an EIS or a Supplemental EIS. An amended Record of Decision generally follows completion of a Final Supplemental EIS.



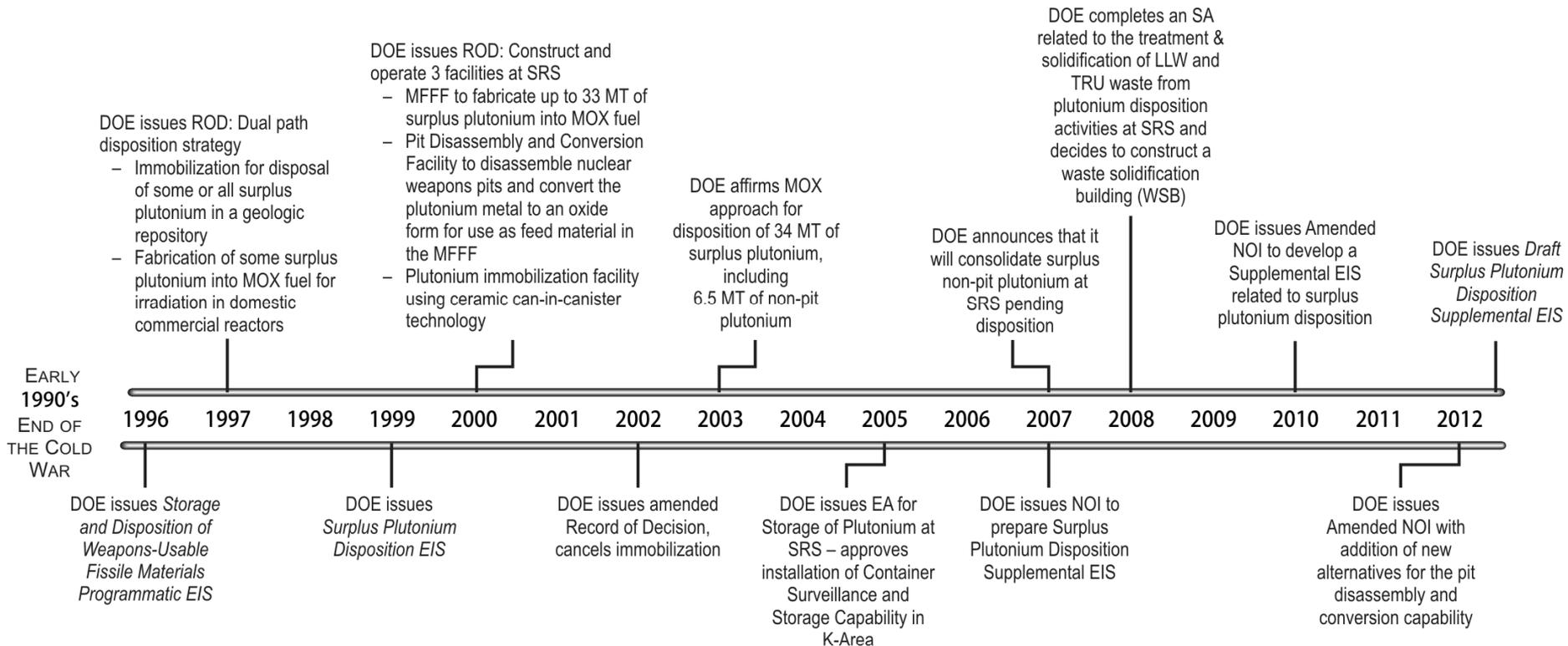
**\*Opportunities for  
Public Participation**



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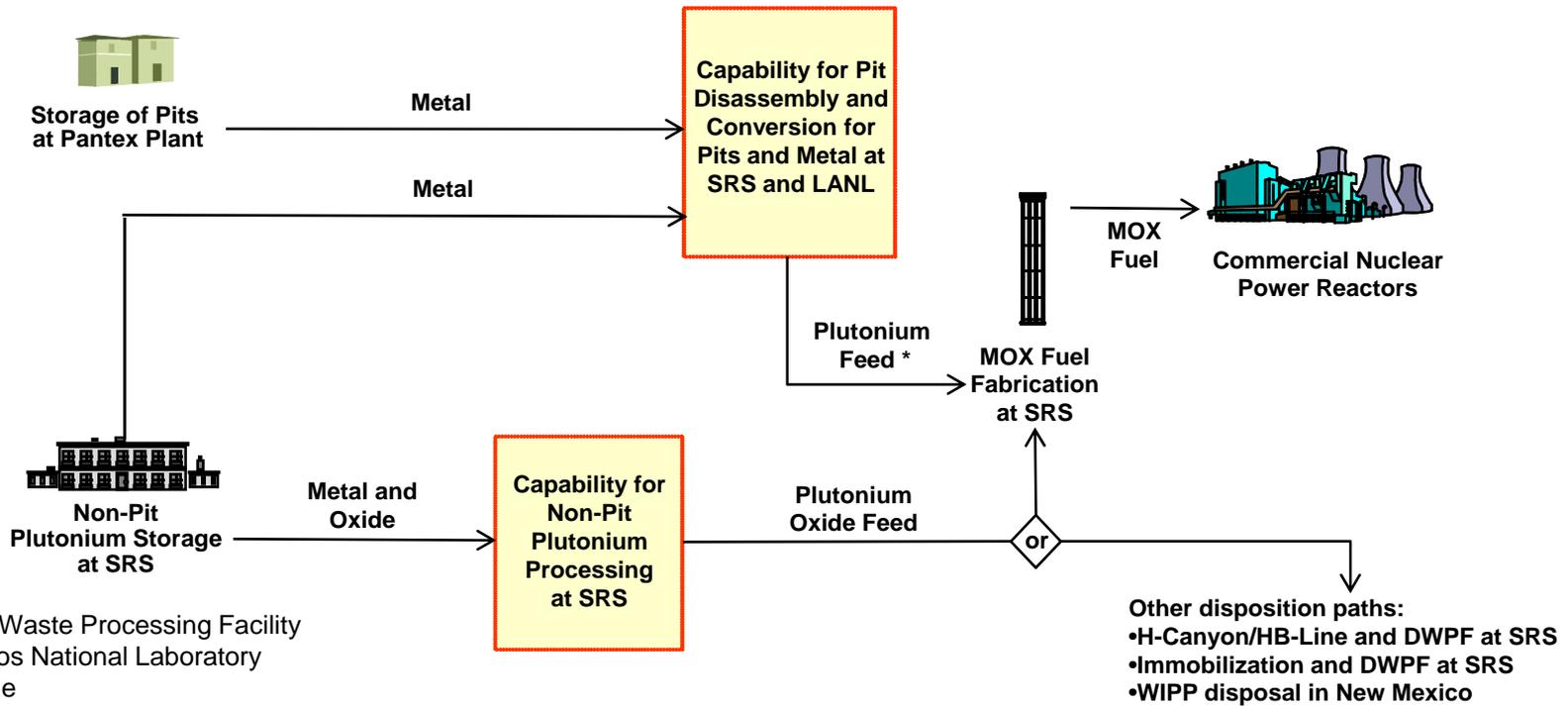
## Surplus Plutonium Disposition NEPA Documentation



Key: DOE = U.S. Department of Energy; EA = Environmental Assessment; EIS = environmental impact statement; LLW = low-level radioactive waste; MFFF = MOX Fuel Fabrication Facility; MOX = mixed oxide fuel; MT= metric ton; NOI = Notice of Intent; ROD = Record of Decision; SA = Supplement Analysis; SEIS = Supplemental Environmental Impact Statement; SRS = Savannah River Site; TRU = transuranic.



## Surplus Plutonium Disposition Program Activities



DWPF = Defense Waste Processing Facility  
 LANL = Los Alamos National Laboratory  
 MOX = mixed oxide  
 Pit = the plutonium core of a nuclear weapon  
 SRS = Savannah River Site  
 WIPP = Waste Isolation Pilot Plant

\* A portion of the plutonium metal from pit disassembly and conversion instead could be dispositioned by immobilization at SRS.



# Scope of the SPD Supplemental EIS

- Evaluates 4 action alternatives and a No Action Alternative for plutonium disposition that include:
  - Options to disassemble pits and convert plutonium metal to an oxide for disposition
  - Options to disposition 13.1 metric tons of surplus plutonium (7.1 metric tons of pit plutonium and 6 metric tons of non-pit plutonium)
  - Irradiating MOX fuel in commercial nuclear reactors

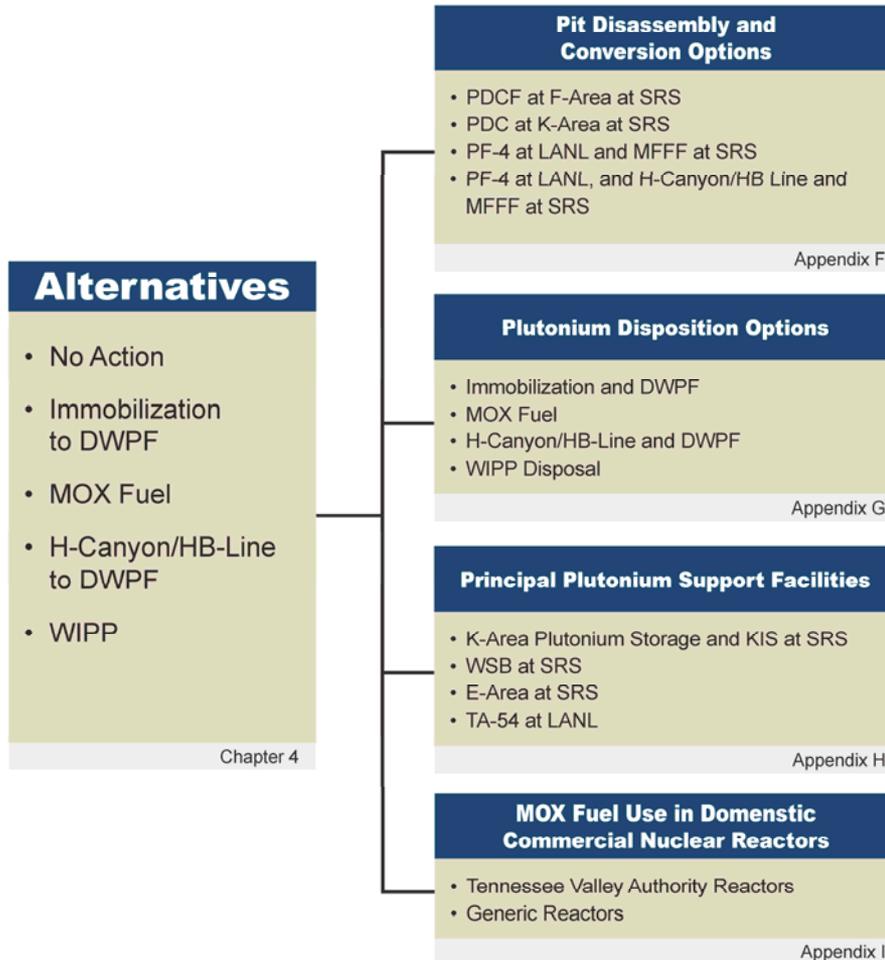


# **Scope of the SPD Supplemental EIS (continued)**

- Updates the Surplus Plutonium Disposition EIS (1999) analysis for 34 metric tons via the Pit Disassembly and Conversion Facility (PDCF), MOX Fuel Fabrication Facility (MFFF), and commercial reactors
- SPD Supplemental EIS is not reconsidering previous decisions to disposition 34 metric tons of surplus plutonium other than:
  - Decision to construct a stand-alone PDCF at SRS
  - Options for reactor irradiation of MOX fuel



# Surplus Plutonium Disposition Alternatives and Options



DWPF = Defense Waste Processing Facility  
 KIS = K-Area Interim Surveillance  
 LANL = Los Alamos National Laboratory  
 MFFF = Mixed Oxide Fuel Fabrication Facility  
 MOX = mixed oxide  
 PDC = Pit Disassembly and Conversion Project  
 PDCF = Pit Disassembly and Conversion Facility  
 PF-4 = Plutonium Facility  
 SRS = Savannah River Site  
 TA = technical area  
 WIPP = Waste Isolation Pilot Plant  
 WSB = Waste Solidification Building

Note: Appendices C and D provide details about the analyses of human health effects at DOE facilities under normal and accident conditions, respectively, while Appendix E provides details about the analysis of human health effects from transportation of materials. Appendix J provides details about the analysis of human health effects at domestic commercial nuclear power reactors from facility accidents.



# **Environmental Impacts – Pit Disassembly and Conversion Options**

- No major impacts from construction/modification under any of the pit disassembly and conversion options:
  - Impacts are largest for building PDCF or PDC at SRS
- Operational impacts are generally similar among all the pit disassembly and conversion options
- Under all pit disassembly and conversion options:
  - No public LCFs\* are expected from normal operations
  - Worker exposure could result in 1 (PDCF or PDC) to 3 (PF-4) LCFs\* over up to 22 years of exposure
  - Design-basis accidents: no LCFs\* expected in the public surrounding SRS; up to 1 LCF\* at LANL

\* Latent Cancer Fatalities (LCFs) are estimated based on 0.0006 LCFs per person-rem



# **Environmental Impacts – Surplus Plutonium Disposition Alternatives**

- No major impacts from construction/modification under any of the alternatives
  - Impacts are largest for the Immobilization Alternative including the PDCF pit disassembly and conversion option
- Operational impacts among all of the alternatives are generally similar:
  - Public radiation exposure (normal ops): No LCFs\* expected
  - Worker exposure: up to 4 LCFs\* at SRS & up to 3 LCFs\* at LANL over up to 24 years of exposure
  - Design-basis accidents: no LCFs\* expected to the public at SRS; up to 1 LCF\* at LANL
  - Transportation: no LCFs\* expected; up to 1 traffic fatality

\* Latent Cancer Fatalities (LCFs) are estimated based on 0.0006 LCFs per person-rem



## **Environmental Impacts – MOX Fuel Use in Commercial Power Reactors**

- Only minor modifications would be required at reactors using MOX fuel
- Using a partial MOX fuel core does not appreciably change the impacts from using a full uranium fuel core
- 2 to 16% more used (spent) fuel could be generated



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## Preferred Alternative

- The MOX Fuel Alternative is DOE's preferred alternative for surplus plutonium disposition. DOE's preferred alternative for disposition of surplus plutonium that is not suitable for MFFF is disposal at the Waste Isolation Pilot Plant in New Mexico
- DOE's preferred option for pit disassembly and the conversion of surplus plutonium metal, regardless of its origins, to supply feed for MFFF, is to use some combination of facilities at PF-4 at LANL, K-Area at SRS, H-Canyon/HB-Line at SRS, and MFFF at SRS, rather than to construct a new stand-alone facility. This would likely require the installation of additional equipment and other modifications to some of these facilities
- TVA does not have a preferred alternative at this time regarding whether to pursue irradiation of MOX fuel in TVA reactors and which reactors might be used for this purpose



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## Summary

- DOE must disposition U.S. surplus weapons-usable plutonium in a safe, secure and environmentally sound manner
- Plutonium must be in proliferation-resistant forms that can never again be readily used in nuclear weapons
- The SPD Supplemental EIS evaluates options for disposition of an additional 7.1 metric tons of pit plutonium and 6 metric tons of non-pit plutonium
- The impacts of the alternatives are similar and would result in minor impacts to the public
- Public involvement is an important component in the NEPA process



# Surplus Plutonium Disposition Supplemental Environmental Impact Statement (SPD Supplemental EIS)



## How to Provide Your Comments



### **Court Reporter**

If you provide oral comments tonight, a court reporter will record your comments.



### **Comment Form**

Comment forms are available in the registration area. If you would like to provide written comments on the Draft SPD Supplemental EIS, please use the comment form and drop it off at the registration table when you leave. Alternatively, you may mail, e-mail, or fax your comments to the Department of Energy at the addresses below.



### **E-Mail**

You may submit your comments electronically to [spdsupplementaleis@saic.com](mailto:spdsupplementaleis@saic.com)



### **Facsimile**

The toll-free fax number to submit your comments is **1-877-865-0277**.



### **U.S. Mail**

Written comments on the Draft SPD Supplemental EIS should be submitted to the Department of Energy at the following address:

**Sachiko McAlhany, NEPA Document Manager**  
**SPD Supplemental EIS**  
**U.S. Department of Energy**  
**P.O. Box 2324**  
**Germantown, MD 20874-2324**

All comments are due by **October 10, 2012**. Comments received by that date will be considered in preparation of the Final SPD Supplemental EIS. Comments received after that date will be considered to the extent practicable.