BOX 2-2 Time Line of Actions and Decisions for Disposal of Surplus Plutonium

Below is a time line for major actions and decisions relevant to the dilution and disposal of surplus plutonium. Items in italic are events relevant to the surplus plutonium disposition program but are not environmental impact statements or records of decision.

1993 *President Clinton issues policy on Nonproliferation and Export Control which states that the United States will: "Seek to eliminate where possible the accumulation of stockpiles of highly-enriched uranium or plutonium . . . [and] Initiate a comprehensive review of long-term options for plutonium disposition, taking into account technical, nonproliferation, environmental, budgetary and economic considerations. Russia and other nations with relevant interests and experience will be invited to participate in this study"* (White House, 1993).

1995 *DOE declares excess plutonium and identifies plutonium waste throughout the DOE complex: 38.2 MT weapons-grade plutonium is identified as excess and 3.4 MT of plutonium waste* (DOE, 1996a)

1996 **Storage and Disposition Final Programmatic EIS, FPEIS-0229, 1996** (DOE, 1996b)
Considered 37 alternatives for the disposition of up to 50 metric tons of plutonium that has been or in the future may be declared surplus to national security needs.[a]

1997 **Record of Decision (ROD), FPEIS-0229** (DOE, 1997)
Decision to implement immobilization and MOX for disposal of surplus plutonium. Decision to use Safe Secure Transport (now called the Office of Secure Transport, OST) to transport all plutonium-bearing materials between sites including unirradiated MOX fuel.[b]

1999 **Surplus Plutonium Disposition, SPD EIS-0283** (DOE, 1999a)
Focus on disposition of surplus plutonium.
Tiered from FPEIS-0229.

2000 **ROD SPD EIS-0283** (DOE, 2000, p. 3029, emphasis added)
"[T]o provide for the safe and secure disposition of up to 50 metric tons of surplus plutonium … the Department has decided to use a hybrid approach … [using] **immobilization** … and … **MOX fuel**. The Department has selected the Savannah River Site in South Carolina as the location for all three disposition facilities."

2000 *The United States and the Russian Federation sign the PMDA* (DOS, 2000). (See text for more details.)

2002 **Amended ROD SPD EIS-0283** (DOE, 2002)
Cancellation of the immobilization program due to budget constraints leaving 17 MT of surplus plutonium that was previously to have been immobilized without a disposition pathway.

Bob Stump National Defense Authorization Act for Fiscal Year 2003 (Pub. L. No. 107-314, 116 Stat. 2458), Section 3182, *outlined the following schedule for the MOX fuel fabrication facility to be constructed at SRS in South Carolina:*

The MOX plant would produce 1 MT of MOX fuel by December 31, 2009; and the full amount of 34 MT by January 1, 2019. If the objectives were not achieved, DOE would pay the State of South Carolina $1,000,000 per day not to exceed $100,000,000 per year until either the MOX objective is reached or DOE removes at least 1 MT of defense plutonium or plutonium materials from the state per year.[c]

2003 **Amended ROD SPD EIS-0283** (DOE, 2003, p. 20134)
"The program will dispose of 34 MT of surplus plutonium, including approximately 6.5 MT of the 17 MT of surplus plutonium originally intended for immobilization" and stored at SRS.[d]

2007 *DOE Secretary Bodman declares* ***an additional 9 MT of plutonium as surplus.***

2010 *The United States and the Russian Federation sign the PMDA as amended by the 2010 Protocol (DOS, 2010; see text for more details).*

continued

BOX 2-2 Continued

2014 *Disposition of Surplus Plutonium Working Group report (by DOE)* (DOE, 2014)
Reviewed options for plutonium disposal as the costs of the MOX plant were increased significantly. Dilute and dispose was selected as the most viable option.

2015 *AeroSpace and Red Team Reports, independent review and support of 2014 Working Group's recommendations* (Hart et al., 2015; Mason, 2015).

2015 **Supplemental EIS-0283-S2**[e] (DOE, 2015a)
Final supplemental SPD EIS considered disposal options for surplus non-pit plutonium.

2016 **ROD SPD EIS-0283** (DOE, 2016a, p. 19591)
Decision to disposition of 6 MT surplus non-pit plutonium through dilute and dispose at WIPP:

"Blending for disposal at WIPP is a proven process that is ongoing at SRS for disposition of plutonium material…."

2017 ***NDAA for FY2018***[f] ***and Consolidated Appropriations Act, 2018***[g]
Waivers allow for the Secretary of Energy to cease construction of the MOX facility if an alternative to dispositioning surplus plutonium at the cost of less than half the cost of the MOX option can be identified.

2018 ***May 10, 2018, Secretary Perry notifies Congress (Perry, 2018)***
Perry submits dilute and dispose cost estimate report to Congress indicating the that life-cycle cost estimate for the dilute and dispose program is less than half that of the MOX option (an independent life-cycle cost estimate for the dilute and dispose program for dispositioning 34 MT of surplus plutonium material was shown to be $19.9 billion compared to $49.4 billion for the remaining cost to implement the MOX option). Secretary Perry cancels construction of the MOX plant.

2018 ***October 10, 2018, DOE-NNSA cancels MOX***
Letter issued to CB&I AREVA MOX Services, LLC, cancels the MOX program.

The Notice of Intent initiating NEPA actions for the dilute and dispose plan for 34 MT of surplus plutonium material has not yet been issued.

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[a]"Discarding Plutonium to WIPP" was rejected in this analysis due to lack of capacity at WIPP (see DOE, 1996b, fig. S.3-2).
[b]Transportation of all plutonium-bearing materials under this program, including the transportation of prepared MOX fuel to reactors, will be accomplished using the DOE Transportation Safeguards Division's ''Safe Secure Transports'' (SSTs), which affords these materials the same level of transportation safety, security, and safeguards as is used for nuclear weapons" (DOE, 1997, p. 3029).
[c]See https://www.govinfo.gov/content/pkg/PLAW-107publ314/html/PLAW-107publ314.htm.
[d]This entry corrected from Interim Report, Box 3-1.
[e]DOE has issued two supplements to SPD EIS-0283: SPD EIS-0283-S1 identified a set of six reactors that would use MOX fuel, SPD EIS-0283-S2 (DOE, 2015a) assessed disposal options for surplus *non-pit* plutonium and added two more reactors that could potentially use MOX fuel.
[f]National Defense Authorization Act for Fiscal Year 2018, Pub. L. No. 115-91, 131 Stat. 1283 (2017).
[g]Consolidated Appropriations Act, 2018. Pub. L. No. 115-141, 132 Stat. 348 (2018) (https://www.congress.gov/115/plaws/publ141/PLAW-115publ141.pdf).