

National Nuclear Security Administration, U.S. Department of Energy
Surplus Plutonium Disposition Program
Draft Environmental Impact Statement
Fact Sheet

The United States (U.S.) Department of Energy’s (DOE’s) National Nuclear Security Administration (NNSA) has prepared a draft environmental impact statement (EIS) (DOE/EIS-0549) for the Surplus Plutonium Disposition Program (SPDP) to evaluate the potential environmental impacts of the disposition of plutonium that is surplus to the defense needs of the U.S. This is consistent with the requirements of the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] 4321 et seq.). Announcements and information related to this EIS are available online at <https://www.energy.gov/nnsa/nnsa-nepa-reading-room>.

Purpose and Need for the Proposed Action. NNSA’s purpose and need for action is to safely and securely disposition 34 metric tons (MT) of plutonium that is surplus to the Nation’s defense needs so that it is not readily usable in nuclear weapons. NNSA needs to implement a disposition process and strategy that can be safely executed in a reasonable time frame at a cost consistent with fiscal realities. To meet this purpose and need, NNSA analyzed two alternatives in detail in the Draft SPDP EIS: the Preferred Alternative, consisting of four sub-alternatives, and the No Action Alternative. Both alternatives are further described below.

Key Decisions Regarding Surplus Plutonium Disposition. Over the last two and a half decades, DOE has studied many alternative technologies and locations for surplus plutonium disposition. The 34 MT of surplus plutonium, comprised of pit and non-pit plutonium, was previously intended to be dispositioned by fabricating the oxidized plutonium into mixed oxide (MOX) fuel for irradiation in domestic commercial nuclear power reactors to produce electricity. This alternative was discussed in the 1999 *Surplus Plutonium Disposition Environmental Impact Statement* (DOE/EIS-0283). However, MOX is no longer a viable alternative as the MOX project was canceled in 2018 and the former MOX Fuel Fabrication Facility (MFFF) is being repurposed for another NNSA mission.

In 2016, DOE published their decision to disposition 6 MT of non-pit surplus plutonium (not part of the 34 MT) by downblending it with an adulterant, packaging it as contact-handled transuranic (CH-TRU) defense waste and shipping it to the Waste Isolation Pilot Plant (WIPP) facility for disposal (81 FR 19588). This disposition action was based on an analysis in the 2015 *Surplus Plutonium Disposition Supplemental Environmental Impact Statement* (DOE/EIS-0283-S2) and is currently underway. The downblending process is also referred to as the dilute and dispose strategy.

In August 2020, NNSA published their decision (85 FR 53350) to disposition an additional 7.1 MT of non-pit surplus plutonium via the dilute and dispose strategy based on the analysis in the 2015 *Surplus Plutonium Disposition Supplemental Environmental Impact Statement*. This 7.1 MT of non-pit surplus plutonium designated for dilution and disposal is a part of the 34 MT surplus plutonium that is the subject of this Draft SPDP EIS.

Pit Vs. Non-Pit Plutonium
A pit is the central core of a nuclear weapon that principally contains plutonium or enriched uranium. Non-pit plutonium may be in metal or oxide form or may be associated with other materials that were used in the process of manufacturing and fabricating plutonium for use in nuclear weapons.

The Preferred Alternative for the Proposed Action. NNSA’s preferred alternative for disposition of 34 MT of surplus pit and non-pit plutonium is implementation of the dilute and dispose strategy (Figure 1) to safely and securely disposition the surplus plutonium such that it could never again be readily used in a nuclear weapon.

The Preferred Alternative includes pit disassembly and processing (PDP) of pit plutonium and non-pit metal processing (NPMP) of non-pit plutonium using a furnace in a glovebox, resulting in plutonium oxide. The plutonium oxide is blended with an adulterant in blend cans within dedicated gloveboxes. This produces a mixture that reduces the plutonium concentration and inhibits plutonium recovery. The CH-TRU defense waste would be packaged into criticality control overpack (CCO) containers and verified for compliance with the WIPP waste acceptance criteria using process knowledge, radiography, and nondestructive assay analysis. Prior to shipment, the CH-TRU defense waste is further packaged into approved TRU waste transportation containers for shipment to the WIPP facility. The Preferred Alternative would require new, modified, or existing capabilities at the Savannah River Site (SRS), Los Alamos National Laboratory (LANL), Pantex Plant (Pantex), Y-12 National Security Complex (Y-12), and WIPP. The dilute and dispose strategy can be accomplished via any of several sub-alternatives, all of which result in permanent disposal of the CH-TRU defense waste at the WIPP facility.

What is a glovebox?

A glovebox is an enclosure that separates workers from equipment used to process hazardous material, while allowing the workers to be in physical contact with the equipment; normally constructed of stainless steel, with large acrylic/lead glass windows. Workers have access to equipment through the use of heavy-duty, lead-impregnated rubber gloves, the cuffs of which are sealed in portholes in the glovebox windows.

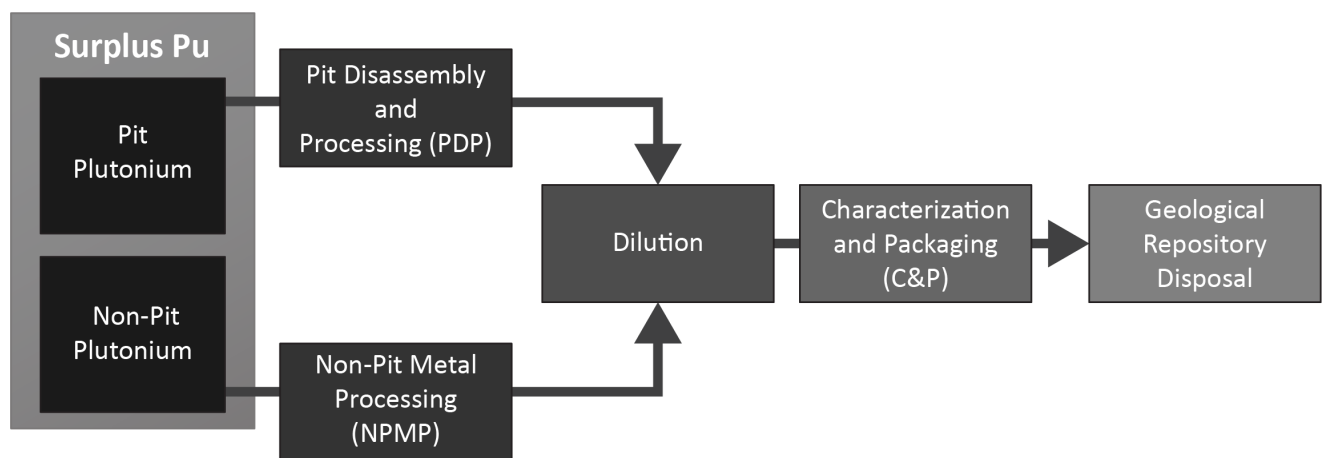


Figure 1. High-Level Overview of Dilute and Dispose Strategy Process

As shown in Table 1, using the Base Approach Sub-Alternative NNSA would complete PDP and NPMP at LANL and conduct dilution, characterization, and packaging process steps at SRS. Using the SRS NPMP Sub-Alternative NNSA would complete PDP at LANL while NPMP would occur at SRS, followed by dilution, characterization, and packaging of all the resulting plutonium oxide at SRS. Using the All LANL Sub-Alternative NNSA would complete PDP, NPMP, dilution, characterization, and packaging at LANL. Using the All SRS Sub-Alternative NNSA would complete these same steps at SRS only. The Preferred

Alternative includes disposal activities at the WIPP facility for all sub-alternatives.

The No Action Alternative. The Draft SPDP EIS includes an analysis of the No Action Alternative (Figure 2), which is the continued management of 34 MT of surplus plutonium. This includes (1) continued storage of pits at Pantex, (2) the continued plutonium mission at LANL to process up to 400 kg of actinides (including surplus plutonium) a year, and (3) disposition of up to 7.1 MT of non-pit surplus plutonium for which the disposition decision, using the dilute and dispose strategy, was announced in NNSA’s 2020 Amended Record of Decision (AROD) (85 FR 53350). NPMP could occur at an existing facility at LANL or a new facility built at SRS. If NPMP occurs at LANL, the resulting plutonium oxide would be shipped to SRS for dilution. In both cases, dilution, characterization, and packaging would occur at SRS followed by shipment to the WIPP facility in the same manner as discussed for the Preferred Alternative as shown in Table 1.

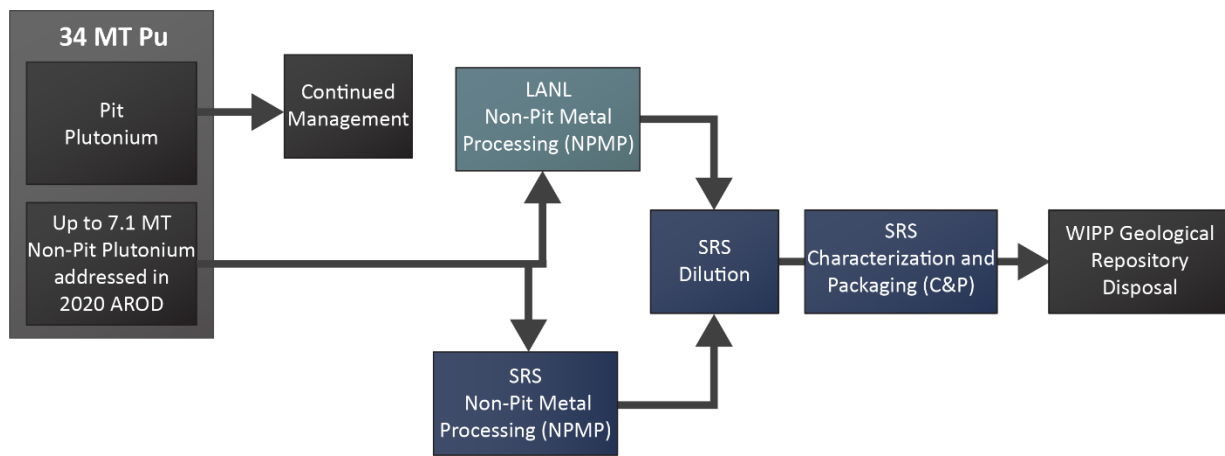


Figure 2. No Action Alternative

Table 1. Comparison of Preferred Alternative and No Action Alternative

Preferred Alternative				No Action Alternative
Summary				Summary
Use the dilute and dispose strategy to disposition 34 metric tons (MT) of surplus plutonium, including up to 7.1 MT of non-pit surplus plutonium.				Continued management of both surplus pit and non-pit plutonium. Disposition of up to 7.1 MT non-pit surplus plutonium with an existing disposition decision (e.g., dilute and dispose).
Sub-Alternatives & Process Steps				Process Steps
Base Approach Sub-Alternative	SRS Non-Pit Metal Processing (NPMP) Sub-Alternative	All LANL Sub-Alternative	All SRS Sub-Alternative	Continued pit management (Pantex & LANL) NPMP (LANL or SRS) Dilution (SRS) C&P (SRS) Disposal (WIPP)
Pit disassembly (LANL)	Pit disassembly (LANL)	Pit disassembly (LANL)	Pit disassembly (SRS)	
NPMP (LANL)	NPMP (SRS)	NPMP (LANL)	NPMP (SRS)	
Dilution (SRS)	Dilution (SRS)	Dilution (LANL)	Dilution (SRS)	
C&P (SRS)	C&P (SRS)	C&P (LANL)	C&P (SRS)	
Disposal (WIPP)	Disposal (WIPP)	Disposal (WIPP)	Disposal (WIPP)	

Project Locations. The activities necessary to disposition the surplus plutonium would occur at multiple sites across the U.S. including Pantex in Texas, LANL in New Mexico, SRS in South Carolina, Y-12 in Tennessee, Nevada National Security Site in Nevada (potential location for LANL LLW waste disposal), and the WIPP facility in New Mexico (Figure 3).

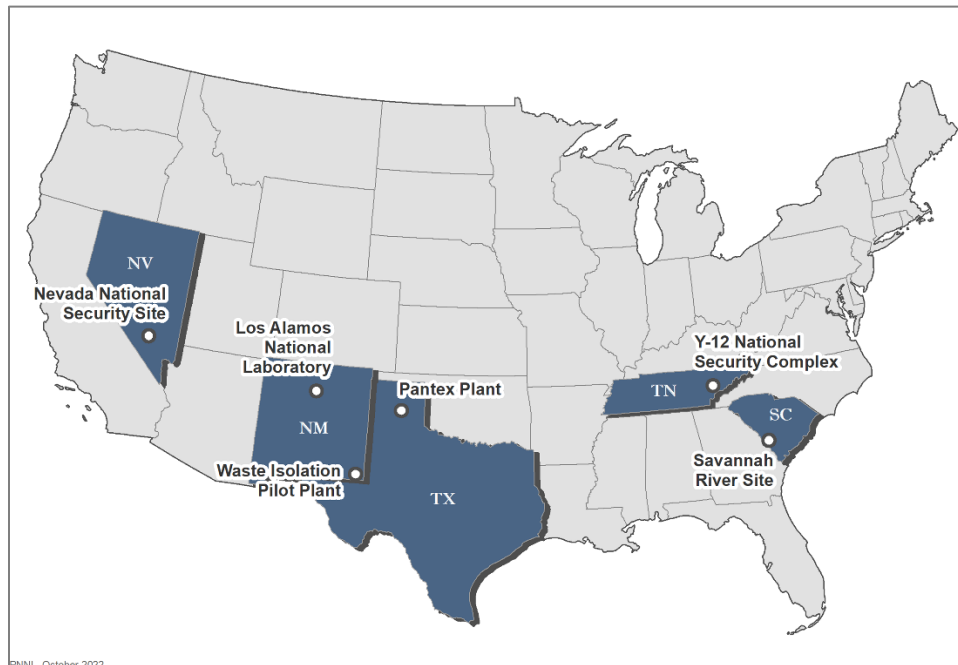


Figure 3. Proposed Locations of Project Activities

The EIS Process. In accordance with NEPA requirements, NNSA prepared the Draft SPDP EIS to evaluate potential environmental and social impacts of dispositioning 34 MT of surplus plutonium using capabilities at multiple sites across the Nation. The EIS process includes public engagement opportunities during the initial scoping process and review of the Draft EIS. The timeline for this EIS (Figure 4) was initiated with the Notice of Intent published on December 16, 2020 (85 FR 81460) and is projected to end with a Record of Decision in late 2023.

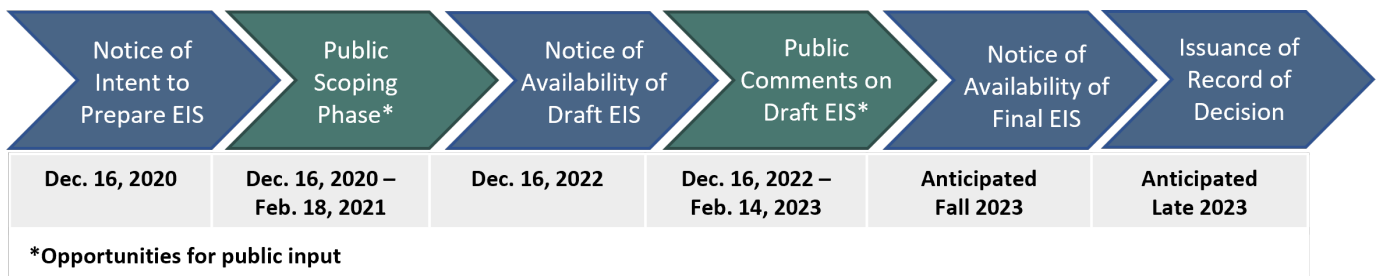


Figure 4. SPDP EIS Timeline

Commenting on the SPDP Draft EIS. In addition to providing comments orally or in writing during the four public meetings, comments and questions about the Draft SPDP EIS can be sent to Maxcine Maxted, NEPA Document Manager:

US Mail: NNSA Office of Material Management and Minimization, Savannah River Site
P.O. Box A, Bldg. 730-2B, Rm. 328
Aiken, SC 29802
Email: SPDP-EIS@nnsa.doe.gov
Phone: 803-952-7434

Requests for general information concerning the NNSA NEPA process. Requests should be directed to Lynn Alexander, NEPA Compliance Officer:

US Mail: U.S. Department of Energy/National Nuclear Security Administration
NNSA Office of General Counsel, NA-GC-10
1000 Independence Ave, SW
Washington, DC 20585
Email: SPDP-EIS@nnsa.doe.gov
Phone: 803-952-7434

Location of Public Hearings on the SPDP Draft EIS. Times and connection information for the Draft EIS public hearings are provided below. Any changes to the meeting times or locations will be posted on the NNSA NEPA reading room at <https://www.energy.gov/nnsa/nnsa-nepa-reading-room>. The first 30 minutes of the in-person meeting will be a poster session, which will be followed by a presentation by NNSA and a public comment session. Representatives will be available at the poster session to answer your questions and Spanish/English translators will be available.

Date	Time	Location/Connection
Thursday January 19, 2023	6:00 PM — 9:00 PM Eastern	Palmetto Ballroom, North Augusta Municipal Center, 100 Georgia Avenue, North Augusta, SC 29841
Tuesday January 24, 2023	6:00 PM — 9:00 PM Mountain	Carousel House at Pecos River Conference Center 711 Muscatel, Carlsbad, NM 88220
Thursday January 26, 2023	6:00 PM — 9:00 PM Mountain	Pajarito Room, Fuller Lodge 2132 Central Avenue, Los Alamos, NM 87544
Monday January 30, 2023	7:00 PM — 10:00 PM Eastern 6:00 PM — 9:00 PM Central 5:00 PM — 8:00 PM Mountain 4:00 PM — 7:00 PM Pacific	The meeting URL will be posted on the NNSA’s NEPA Reading Room - https://www.energy.gov/nnsa/nnsa-nepa-reading-room