



Savannah River Site Watch

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Contact: Tom Clements, Director, SRS Watch, tel. 803-834-3084, srswatch@gmail.com

National Academies of Sciences Review of Non-MOX Disposal of Surplus Plutonium Gets Under Way with Meeting in Washington; Public Meeting to be Held Near Savannah River Site in Early 2018

NAS Committee to Review “Dilute & Dispose” of Plutonium as Nuclear Waste, in WIPP Facility

Columbia, SC – Given that the plutonium fuel (MOX) project at the Savannah River Site remains on a termination track, a committee of the National Academies of Sciences last week began its review of disposing of surplus plutonium as nuclear waste in the Waste Isolation Pilot Plant (WIPP) in New Mexico.

The review, mandated by Congress and entitled “[Disposal of Surplus Plutonium in the Waste Isolation Pilot Plant](#),” got under way with a public meeting on November 28 & 29 in Washington. At the webcast meeting, a number of presenters went over the technical aspects of plutonium disposition, including the pros and cons of plutonium disposal in the WIPP facility via the “dilute and dispose” technique.

Public meetings of the NAS committee will take place near SRS and in Carlsbad, New Mexico in early 2018 and will apparently include public comment sessions. Tom Clements, director of Savannah River Site Watch, was invited by the NAS committee to participate in the November meeting but was unable to do so.

Utilizing the “dilute & dispose” method, plutonium oxide is mixed with an inert ingredient called “stardust” for packaging and disposal at WIPP. The material is packaged into “Criticality Control Overpacks” containing around 350 grams of plutonium, and those containers are placed into drums for initial storage at SRS and then transported to WIPP.

Such plutonium downblending is now taking place at the Savannah River Site (SRS), in a single glovebox in the K-Area, with small amounts of plutonium removed from 3013 storage containers that undergo destructive examination. Around 100 kilograms of plutonium at SRS have been processed in smaller plutonium disposal containers since 2012, with shipment of that material to WIPP. (Those containers are called Pipe Overpack Containers, which hold about 150 grams of downblended plutonium. SRS Watch’s Clements observed the drums containing the POC’s from SRS in the surface storage area at WIPP on October 1, 2015. Photo of drums stored on the surface at WIPP available on request.)

The Statement of Task of the NAS committee says “The National Academies will evaluate the general viability of the U.S. Department of Energy's (DOE's) conceptual plans for disposing of surplus plutonium in the Waste Isolation Pilot Plant (WIPP) to support U.S. commitments under the Plutonium Management and Disposition Agreement, identify gaps, and recommend actions that could be taken by DOE and others to address those gaps.”

“Though it’s clear that dilute and dispose is cheaper and simpler than the MOX approach, hurdles remains to its full-scale implementation due to concerns about capacity at WIPP and the legislation governing that facility,” said Clements. “I still believe that immobilization of plutonium in existing high-level nuclear waste at SRS has been the best option since the plutonium disposition project began in the mid-1990s and it’s unfortunate that it was terminated due to faulty political reasons.”

The NAS study will not look at deficiencies the faltering, under-funded MOX project. The committee, though, may look at use of some of the MOX facilities for the blenddown mission, including the MOX plant itself and the associated Waste Solidification Building.

The NAS study was directed by the Congress via the Energy and Water Appropriations bill of Fiscal Year 2017. The House report accompanying the legislation says “In accordance with this established statutory mandate, the NNSA shall commission the National Academy of Sciences to conduct a review of the Secretary’s conceptual plans to dispose of surplus plutonium to include considerations of transportation, operations, performance assessment, compliance with Environmental Protection Agency and other regulations, safety analyses, and any other activities required to carry out this alternative that are pertinent to the operation of WIPP.”

According to the “conference report” accompanying the National Defense Authorization Act of Fiscal Year 2018, the troubled MOX project can be halted if a viable plutonium disposition “alternative option” is chosen by the secretary of energy. The only non-MOX option now being actively pursued in the dilute & dispose method but if it and MOX fail then there is a possibility that immobilization could be revived, according to SRS Watch.

Plans exist to expand plutonium downblending at SRS by installing two additional gloveboxes in the K-Area – for a total of three - and operating with a larger crew that could work longer hours. A DOE study is now underway to expand plutonium downblending and it’s possible a new facility with larger capacity could be built at SRS. It is anticipated that the Fiscal Year 2019 budget request, likely to be presented to Congress in February 2018, will include more details about expanding plutonium downblending at SRS.

On December 8, the “continuing resolution” that has funded the federal government into Fiscal Year 2018 will expire. Though DOE and the Office of Management and Budget stand by the position that the \$17-billion MOX plant construction project isn’t viable, the project may continue to be funded at the shut-down level of \$340 million per year. The Senate Appropriations Committee and the House and Senate Armed Services Committees are now on board with termination of the MOX project, once the secretary of energy makes the termination decision, but the House Appropriations Committee is the lone hold out that has kept MOX plant construction funding dribbling along even though the project can’t be carried to completion due to a host of funding and design and construction n problems.

On another related plutonium issue, the *Sante Fe New Mexican* reported on December 1, 2017 - in an article entitled [Leaked report casts doubt on LANL pit production](#) - that a secret NNSA report includes a look at locating a new facility at SRS to make plutonium “pits” for nuclear weapons. The article states “Building a new facility at Idaho National Laboratory, the agency estimates, would not cost more than \$6.9 billion, and relocating the project to the Savannah River Site in South Carolina would not exceed \$6.7 billion — almost \$1 billion less than constructing the facility at Los Alamos.” Rumors have been around all year that the abandoned MOX building might be under consideration for the expanded pit production mission, an issue sure to cause concern with the public in South Carolina, according to SRS Watch.

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Notes:

National Academies of Sciences study “Disposal of Surplus Plutonium in the Waste Isolation Pilot Plant, with links to committee membership and agenda of Nov. 28-29 meeting:

<http://dels.nas.edu/Study-In-Progress/Disposal-Surplus-Plutonium/DELS-NRSB-17-03>

House Appropriations report language to go with FY 2017 appropriations, see pages 114-115 for language on NAS study requirement:

<https://www.gpo.gov/fdsys/pkg/CRPT-114hrpt532/pdf/CRPT-114hrpt532.pdf>

Conference report to go with National Defense Authorization Act for FY 2018, See “Sec. 3121. Use of funds for construction and project support activities relating to MOX facility.” page 1548, for conditions for secretary of energy to choose a plutonium disposition “alternative option” to MOX:

<http://docs.house.gov/billsthisweek/20171113/HRPT-115-HR2810.pdf>

Two presentations made to NAS committee on November 29, 2017 – not posted on NAS website but available on request from SRS Watch:

Dilute and Dispose: The Best Approach for Surplus Plutonium Disposition, by Dr. Ed Lyman, union of Concerned Scientists

WIPP and Surplus Plutonium, outlining challenges with the WIPP option, by Don Hancock, Southwest Research and Information center

Aerial photos of the MOX plant and SRS, September 18, 2017, ©High Flyer:

<https://drive.google.com/drive/folders/0BwkyYyn8X-ySMF9PY1V2QkJOOU>

DOE presentation on MOX project to South Carolina Nuclear Advisory Council, October 12, 2017, includes list of why the MOX project is not viable