



**Department of Energy
National Nuclear Security Administration
Washington, DC 20585**



June 13, 2018

Progress Report

I. Introduction

This progress report is prepared and submitted in accordance with the December 20, 2017 Order of Injunctive Relief issued by the United States District Court for the District of South Carolina, (the Court) in civil action No: 1:16-cv-00391-JMC, *State of South Carolina v. United States, et al.* That order requires the Department of Energy to submit a progress report on or before June 15, 2018.

This progress report addresses the current status, including recent developments, of the Department of Energy's (DOE, or the Department) efforts to remove one metric ton of defense plutonium from the State of South Carolina, as ordered by the District Court.

As the report describes in further detail below, the Department has devoted significant resources and attention to complying with the Court's injunctive order while at the same time ensuring that the removal of defense plutonium occurs as safely as possible in compliance with all applicable laws. As a result of these efforts, the Department is reasonably confident that it will be able to meet the Court's deadline. The Department will provide additional updates to the Court on the progress of removal in its next report.

II. Actions Taken by the Department of Energy Since the Court's December 20, 2017 Order of Injunctive Relief

In support of their August 11, 2017 status report, the Federal Defendants submitted a declaration by Henry Allen Gunter, who was then the Plutonium Program Manager and Senior Technical Advisor to the Assistant Manager for Nuclear Materials Stabilization at the Savannah River Site (SRS), ECF No. 100-1. In this declaration, Mr. Gunter provided significant background information about the Department of Energy's ongoing efforts to remove defense plutonium from the State of South Carolina, and outlined the myriad of constraints and difficulties in removing such materials from the SRS facility. In particular, Mr. Gunter explained that the only viable methodology for removal for which a National Environmental Policy Act (NEPA) analysis had been completed was the "downblending" process, and estimated that at current funding levels down blending would result in the removal of one metric ton of defense plutonium from South Carolina by approximately the end of Fiscal Year 2025.

Since the Court issued its Order of Injunctive Relief on December 20, 2017, the Department of Energy has explored additional ways to expedite the removal of one metric ton of defense plutonium from South Carolina.

A. Formation of Committee to Study Methods to Expedite Removal

In response to the Court's order, the Department of Energy immediately established a senior level committee to identify ways in which the removal of one metric ton of defense plutonium could be expedited to meet the timeline established by the Court.

The committee of approximately 10 senior executives was formed in January and is comprised of leaders from across DOE, including the National Nuclear Security Administration (NNSA) Program, Functional, and Field Offices. The committee meets regularly with representation at the Deputy or Associate Administrator level from the following NNSA Offices: Defense Programs; Defense Nuclear Nonproliferation; Safety, Infrastructure, and Operations; General Counsel; External Affairs; Management and Budget; Acquisition and Project Management; and Field Offices. The NNSA Chief of Staff chairs the committee and the Principal Deputy Assistant Secretary for Environmental Management is a member.

The committee consists of senior leaders with broad areas of expertise in defense applications; surplus plutonium disposal; safety, packaging, and transportation; project management; and plutonium operations across DOE and NNSA sites. The committee established a working group at the action officer level to investigate the methods and viability of i) accelerating down blending, and, ii) shipping existing materials from SRS to other NNSA locations. In March, a staff level group of over 30 subject matter experts from throughout the DOE complex met to conduct a week-long in-depth review of options for shipping materials from Savannah River to other locations with consideration given to safety requirements, practical constraints, and other factors that might impact these approaches. This group developed a detailed analytical basis for decision making.

B. Efforts to Explore All Possible Approaches to Plutonium Removal

The committee is exploring all possible approaches to removing one metric ton of defense plutonium from South Carolina, and is working diligently to make tangible progress towards removal.

i. Ongoing Efforts to Remove Defense Plutonium Through Down Blending

Through extensive study, DOE identified down blending as the only viable methodology for long term disposal of surplus defense plutonium. Accordingly, the Department is continuing to process defense plutonium through down blending at Savannah River.

As stated in the declaration by Henry Allen Gunter (ECF No. 100-1): "SRS had down-blended approximately 61 kilograms (kgs) of plutonium material for disposal at the WIPP [Waste Isolation Pilot Plant] as of end of FY 2012 and shipped 37 kgs to WIPP, prior to the suspension of disposal activities at WIPP in February 2014. Disposal activities at WIPP were suspended in February 2014, following a salt truck fire and unrelated radiological event underground, thus delaying the ability to transfer material from SRS to WIPP."

WIPP waste emplacement activities were authorized to resume in December 2016. Since then, SRS has shipped the remaining 24 kgs of previously down blended plutonium to WIPP. SRS resumed down blending of plutonium materials in September 2016, specifically, the surplus, weapons-usable, defense plutonium covered by prior NEPA actions. No additional NEPA analysis is required for down blending and disposal of 6 MT of surplus plutonium at WIPP.

In addition to the 61 kgs of down blended plutonium already shipped out of South Carolina, SRS down blended 25.7 kgs since resuming operations in September 2016. SRS is working with the Carlsbad Field Office and WIPP regulatory authorities to complete the Generator Site Technical Review and necessary waste certification assessments that are required to certify the newly generated waste from SRS down blending operations.

Currently, down blending operations are conducted in a single glove box in K Area at SRS. The operation requires highly-skilled operators qualified in handling and processing plutonium materials, and detailed health, safety, and security procedures to protect workers, the public, and the environment. The facility has limited resources which restrict down blend processing rates. The K-Area staffing level at the beginning of FY 2018 was limited to one shift of four days per week [reference Henry Allen Gunter (ECF No. 100-1)]. At that rate, DOE estimates that it would take until the end of FY 2025 to remove one metric ton of down blended plutonium from South Carolina. In an effort to increase down blending processing rates, DOE has identified 10 security cleared operators from another facility at SRS to augment the single shift of operators in K-Area¹. Although these operators have the appropriate security clearance and are trained and qualified, they must complete additional training and qualifications to perform down blending operations in K-Area. They are currently undergoing the required training, and once this is completed, staffing will increase to two shift operations, seven days a week, within K-Area by September 2018. As described below, activities are limited to either down blending or repackaging due to the approved safety authorization in K Area. Both activities cannot occur simultaneously until additional safety analyses are developed and approved.

The Consolidated Appropriations Act, 2018, required NNSA to provide “not less than \$10,000,000...to support activities to expedite the removal of plutonium from the State of South Carolina.” To date, NNSA has made available over \$15,000,000 to SRS. These funds will be utilized to hire additional personnel to accelerate down blending and to install additional shipping capabilities dedicated to down blended materials at SRS. As stated in the Henry Allen Gunter Declaration (ECF No. 100-1) hiring, training, and qualifying new operators and engineering staff takes approximately two to three years. With the hiring, training, and qualifying of additional personnel, the previous timetable for the removal of the one metric ton of defense plutonium from South Carolina through down blending operations may be accelerated by up to two years, contingent upon adequate funding being sustained.

¹ The workers engaged in down blending are separate from workers engaged in construction of the MOX project, and down blending will be unaffected by DOE issuing a full stop work order on construction of the MOX project on June 11 or any date thereafter.

As stated in the Henry Allen Gunter Declaration (ECF No. 100-1), “to expedite the future rate of down blending, NNSA requested in their FY 2019 Presidential Budget Request, a project to design and construct additional gloveboxes in K Area.” Although NNSA began conceptual design in FY 2017, Congress did not appropriate funding in FY 2018 to allow for project completion of these three additional gloveboxes in 2027. If Congress were to appropriate funds to design and construct the three additional gloveboxes and to hire sufficient personnel, the additional gloveboxes would add sufficient capability to down blend at least one metric ton per year. In the Court’s June 7, 2018 Preliminary Injunction Order, the Court “enjoins the Federal Defendants’ . . . intent to pursue the Dilute and Dispose Approach to plutonium disposition.” Preliminary Injunction Order at 35. In compliance with this order, NNSA has ceased all ongoing work related to planning for use of the Dilute and Dispose Approach for 34 MT of plutonium. On May 10, 2018, the Secretary provided the Senate and the House congressional defense committees with the commitment and three certifications required by the National Defense Authorization Act for Fiscal Year 2018; in this document, the Secretary affirmed DOE’s commitment to pursue the use of additional resources for down blending at SRS, stating that “[W]e are planning to install additional equipment for processing plutonium for removal from South Carolina and to increase the rate at which this removal can be carried out.” In its June 7 Order, this Court found the Secretary’s commitment invalid. Preliminary Injunction Order at 26.

ii. Possible Alternative Approach to Removal in Conjunction with Down Blending

In addition to the ongoing down blending efforts, the committee re-examined a possible alternative method, which has the potential to allow for the removal of one metric ton of defense plutonium significantly sooner than the current Fiscal Year 2025 estimate for down blending alone. Indeed, the Department believes that it is possible that, if successful, this option might allow the Department to meet the current two-year timeline imposed by the District Court.

The senior committee evaluated the possibility of repurposing and shipping some of the material stored at the SRS for future defense programs use. A limited subset of the plutonium at SRS was found to be candidate material for repurposing. Approximately one metric ton was identified for possible use by the weapons production program. The amount of candidate programmatic material at SRS is limited; most of the surplus material is not suitable for weapons program use.

Analysis to date indicates that shipping and staging outside of South Carolina for repurposing of one metric ton of plutonium can likely be accomplished in a timeframe that would satisfy the Court Order. Candidate sites to receive the material have been identified. Note that defense program work eventually requires the material to be moved to Los Alamos National Laboratory (LANL) or back to Savannah River for pit production. LANL currently does not have storage capacity to accept one metric ton, so the material must be shipped elsewhere for interim staging.

The Gunter Declaration indicated that down blending was a better option to satisfy the Court Order rather than seeking to transfer one metric ton of plutonium to another DOE facility. A major effort of the senior committee was spent in re-evaluating this conclusion. In re-evaluating the alternatives to ship materials out of the State of South Carolina to other sites, a number of

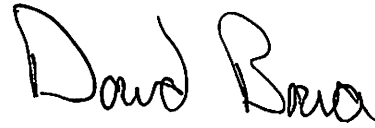
efficiencies were found to allow acceleration of shipments:

- As described in the Gunter Declaration, paragraph 25, a study was undertaken to evaluate the suitability of the potential locations to receive the material. The study began in late January 2018 and was completed in late April.
- The scope of NEPA analysis for this endeavor was preliminarily evaluated, and it was determined that the NEPA analysis for movement of material could possibly be completed by the fall of 2018. This expedited timetable is possible if DOE can rely upon previously completed NEPA analyses at the various sites and nationally. A NEPA team under the direction of NNSA's most senior NEPA Compliance Officer has been formed and this analysis is currently underway.
- As described in the Gunter Declaration, paragraph 27, the safety analysis work for the potential sites has begun and is now estimated to take 6 to 12 months. This work can be executed in parallel with the NEPA analysis.
- Through a more detailed analysis of the SRS materials available for shipment and repurposing, the number of containers needed was found to be significantly fewer than the 500 previously thought necessary. In addition, the six-to-nine months required for recertification of the containers can be completed in parallel with the NEPA analysis and the safety analysis work at the receiving sites. The work required for recertification of shipping containers has begun at SRS.

While material can be moved to comply with the Court Order, there are two drawbacks for DOE and the U.S. Government in doing so:

- The material is safe and secure in its present location. For eventual defense programs use, the material must ultimately be shipped to Los Alamos, New Mexico or back to Savannah River. Shipping the material to an interim staging location increases costs to the government; increases radiation exposure to personnel as described in the Gunter Declaration paragraphs 31, 32, and 34; and involves some additional safety and security risks.
- Down blending operations in the single glovebox in K area at the SRS cannot occur simultaneously with repackaging operations due to current safety basis restrictions and the current limited staffing available. Repackaging of one metric ton is expected to take approximately 9 to 12 months and down blending at SRS will be severely limited during that time.

Integrated schedules for repackaging at SRS and shipment to other sites are in development. Our intention is to provide the Court with more specific information about this option, including timing, in our December progress report.

A handwritten signature in black ink that reads "David Bowman". The signature is written in a cursive style with a large, prominent "D" and "B".

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