



South Carolina Environmental Law Project

Lawyers for the Wild Side of South Carolina

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a 501c3
non-profit organization

VIA E-MAIL

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Dear Messrs. Huizenga, Verdon & Fischer:

Re: Expansion of plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina

I am writing on behalf of Nuclear Watch New Mexico, Savannah River Site Watch and Tri-Valley Communities Against a Radioactive Environment (Tri-Valley CAREs) to provide you with important information and comments, which have previously been submitted in objection to the Department of Energy's ("DOE") and the National Nuclear Security Administration's ("NNSA") prior refusal to require a Programmatic Environmental Impact Statement ("PEIS") for the decision to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and at the Savannah River Site in South Carolina. We are providing you with a consolidated package of the previously submitted documents to ensure that this new administration is immediately

aware of the serious environmental and human health risks associated with a significant expansion in pit production, and has immediate access to these documents.

By way of background, our clients submitted formal comments during four different National Environmental Policy Act ("NEPA") processes related to NNSA's plans to expand production of plutonium pits not only at the Los Alamos National Laboratory in New Mexico, but also at the Savannah River Site in South Carolina. Those decisions include the NNSA's Supplement Analysis of the 2008 Complex Transformation Supplemental Programmatic Environmental Impact Statement ("2008 CT SPEIS"); the Supplement Analysis for the 2008 Los Alamos National Laboratory ("LANL") Site-Wide Environmental Impact Statement; scoping comments for the Savannah River Site ("SRS") EIS; and comments on the draft SRS EIS. These comments have consistently been aimed at convincing DOE and NNSA that the proposal to produce plutonium pits at not one but two nuclear facilities **mandates** the preparation of a new PEIS. This alteration is so radically different from what was analyzed in the 2008 CT SPEIS that the Department must take a programmatic look at this planned expansion of production at two facilities.

We are encouraged that federal agencies' NEPA review is returning to normal with the new administration and are hopeful that you will seek to review the former administration's failure to conduct a PEIS for this significant alteration of long-standing policy.

For your convenience, we are attaching the comment letters and exhibits that have previously been submitted, the most recent of which is dated October 23, 2020. Our clients, in seeking to reach a solution that avoids a lawsuit under NEPA, welcome the opportunity to discuss this matter further, and request that you keep us apprised of the agencies' direction on this issue.

Thank you for your review and consideration of this information.

Respectfully,

A handwritten signature in dark ink, appearing to read "Leslie S. Lenhardt", with a stylized flourish at the end.

Leslie S. Lenhardt
Staff Attorney

Attachments

Cc: Sen. Bernie Sanders, Chair, Senate Budget Committee
Sen. Dianne Feinstein, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Senate Appropriations Committee
Senator Ben Ray Lujan, New Mexico
Sen. Tim Scott, South Carolina
Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Jim Cooper, Chairman, Strategic Forces Subcommittee, House Armed Services Committee
Rep. John Garamendi, Strategic Forces Subcommittee, House Armed Services Committee
Rep. Ro Khanna, Strategic Forces Subcommittee, House Armed Services Committee
Mr. Tarak Shah, DOE, Chief of Staff
Mr. Christopher Davis, Senior Advisor to the Secretary of Energy
Mr. Todd Kim, DOE Deputy General Counsel for Litigation and Enforcement
Mr. Narayan Subramanian, DOE, Legal Advisor, Office of General Counsel
Mr. Robert Cowin, DOE Deputy Assistant Secretary for Public Engagement
Mr. Ali Nouri, DOE Principal Dep. Asst. Sec. for Congressional and Intergovernmental Affairs
Mr. Brian Costner, DOE NEPA Office
Ms. Amy Miller, NEPA Compliance Officer, NNSA Office of General Counsel
Ms. Nicole Nelson-Jean, Manager, NNSA Savannah River Field Office
Mr. Michael Weis, NNSA Los Alamos Office
Ms. Jennifer Nelson, NEPA Document Manager, NNSA Savannah River Field Office

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May 17, 2019

James Richard Perry, Secretary
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VIA ELECTRONIC MAIL

Re: The need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina.

On behalf of the public interest organizations Nuclear Watch New Mexico, Savannah River Site Watch, the Natural Resources Defense Council, and Tri-Valley Communities Against a Radioactive Environment (collectively “the Nuclear Safety Organizations”), we are writing to notify the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) of the need to prepare a Programmatic Environmental Impact Statement (“PEIS”) in connection with the agencies’ stated plan to expand the production of plutonium pits for nuclear weapons at the Los Alamos National Laboratory (“LANL”) in New Mexico and the Savannah River Site (“SRS”) in South Carolina. Because the National Environmental Policy Act (“NEPA”) mandates that “[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time* to ensure that planning and decisions reflect environmental values,” 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now.

EXECUTIVE SUMMARY

The Trump Administration’s 2018 Nuclear Posture Review called for the expanded production of nuclear weapons for the first time in many years, and specifically called for production of 80 plutonium pits (the cores of nuclear weapons) per year by 2030. To that end,



the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) plan to expand production of plutonium pits at the Los Alamos National Laboratory in New Mexico and to repurpose an incomplete facility at the Savannah River Site in South Carolina. At Los Alamos, this plan will require roughly tripling plutonium pit production in facilities with nuclear safety deficiencies so severe that DOE suspended all nuclear weapons production there for over four years, and which DOE recently found have not been adequately resolved. At the Savannah River Site, this plan will require repurposing a facility that was never designed for plutonium pit production, that is still incomplete, and that has been subject to construction-related fraud. Both aspects of DOE and NNSA’s plan to expand plutonium pit production entail serious risks for the environment and public safety. Additionally, these plans will cost at least \$9 billion over the next ten years and at least \$42 billion over the project’s duration.

The National Environmental Policy Act (“NEPA”) requires federal agencies to take a hard look at proposed actions before committing to a course of action or making any irreversible or irretrievable commitment of resources. NEPA requires agencies to publicly disclose environmental impacts, involve the public in agency decision-making, and to seriously consider all viable alternatives to a proposed action. Thus, agencies must prepare an Environmental Impact Statement (“EIS”) for any action that may have significant environmental impacts. Where agency actions are closely related, they must be considered together in a single Programmatic EIS (“PEIS”).

DOE and NNSA have stated that it is their intention to meet the Trump Administration’s goal of producing 80 plutonium pits per year by 2030 through the expansion of pit production at Los Alamos and the Savannah River Site. Because the agencies’ previous environmental analysis for activities at Los Alamos is badly outdated and does not properly consider the serious and ongoing safety issues that led to a four-year shutdown in nuclear weapons production there, NEPA requires a hard look at the proposed expansion of plutonium pit production at that site through a new or supplemental EIS. Likewise, because the agencies have not prepared any environmental analysis for the proposal to produce plutonium pits at an incomplete facility at SRS that has been subject to construction fraud, NEPA requires the production of an EIS for this activity as well. And because the proposed actions at LANL and SRS are inextricably related aspects of DOE and NNSA’s plan to meet the Trump Administration’s call for expanded nuclear weapon production, DOE and NNSA must prepare a PEIS to consider these proposed actions together. However, the agencies instead appear to be shirking NEPA’s requirements by undertaking activities at LANL and SRS without first preparing the legally required environmental analysis. To come into compliance with NEPA, DOE and NNSA must begin the required PEIS process now.

DISCUSSION

I. NEPA.

NEPA is the “basic national charter for protection of the environment.” 40 C.F.R. § 1500.1. NEPA’s “national policy” is to “encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment . . . [and] enrich the understanding of the ecological systems and natural resources

important to the nation” 42 U.S.C. § 4321. To guard against environmental damage, Congress required all federal agencies to prepare a “detailed statement” for each “major federal action significantly affecting the quality of the human environment” that includes “the environmental impact of the proposed action” as well as a thorough consideration of alternatives to the proposed action. *Id.* § 4332(c).

In light of NEPA’s mandates, the Supreme Court has reasoned that NEPA is “intended to reduce or eliminate environmental damage and to promote ‘the understanding of the ecological systems and natural resources important to’ the United States.” *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 756 (2004) (quoting 42 U.S.C. § 4321).

To achieve NEPA’s goals, federal agencies must prepare an EIS for any major federal action with significant environmental effects. 42 U.S.C. § 4332(c). NEPA’s procedures are designed to inject environmental considerations “in the agency decision making process itself,” and to “‘help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.’” *Pub. Citizen*, 541 U.S. at 768-69 (quoting 40 C.F.R. § 1500.1(c)). Therefore, “NEPA’s core focus [is] on improving agency decisionmaking,” *Pub. Citizen*, 541 U.S. at 769 n.2, and specifically on ensuring that agencies take a “hard look” at potential environmental impacts and alternatives “as part of the agency’s process of deciding whether to pursue a particular federal action,” *Balt. Gas and Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 100 (1983).

Importantly, the NEPA process “shall serve as the means of assessing the environmental impact of proposed agency actions, *rather than justifying decisions already made.*” 40 C.F.R. § 1502.2(g) (emphasis added); *see also id.* § 1502.5 (requiring that NEPA review “shall be prepared early enough *so that it can serve practically as an important contribution to the decision making process and will not be used to rationalize or justify decisions already made*”) (emphasis added).

An agency must prepare an EIS for every “major Federal action significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(c). Under NEPA’s implementing regulations, “significance” requires consideration of both context and intensity. 40 C.F.R. § 1508.27. “Context” considerations include the affected region, interests, and locality, varying with the setting of the action, and include both short and long-term effects. *Id.* § 1508.27(a). “Intensity” refers to the severity of impact, including: impacts that may be both beneficial and adverse; unique characteristics of the geographic area, such as proximity to wetlands, wild and scenic rivers, or ecologically critical areas; the degree to which the effects on the quality of the human environment are likely to be highly controversial; the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; whether the action is related to other actions with individually insignificant but cumulatively significant impacts; the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act; and whether the action threatens a violation of federal law imposed for the protection of the environment. *See* 40 C.F.R. § 1508.27(b).

Under NEPA, to determine the proper scope of an EIS an agency “shall consider 3 types of actions,” including connected actions, cumulative actions, and similar actions. *Id.* § 1508.25. Connected actions include those that “are closely related and therefore should be discussed in the same impact statement” because they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” *Id.* § 1508.25(a)(1). Cumulative actions are those that “with other proposed actions have cumulatively significant impacts.” *Id.* 1508.25(a)(2). And similar actions “when viewed with other reasonably foreseeable or proposed agency actions have similarities that provide a basis for evaluating their environmental consequences together.” *Id.* § 1508.25(a)(3). An agency should analyze similar actions together “when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.” *Id.* In such circumstances, a Programmatic Environmental Impact Statement is necessary where “actions are ‘connected,’ ‘cumulative,’ or ‘similar,’ such that their environmental effects are best considered in a single impact statement.” *American Bird Conservancy v. Federal Communication Commission*, 516 F.3d 1027, 1032 (D.C. Cir. 2008) (quoting 40 C.F.R. § 1508.25(a)).

II. DOE and NNSA’s Plans for Expanded Plutonium Pit Production

In 2018, the Trump Administration issued a Nuclear Posture Review that, for the first time in many years, called for expanding production of nuclear weapons. *See* U.S. Dep’t of Defense, *Nuclear Posture Review*, February 2018, at 1–2.¹ Despite the fact that “[f]or decades, the United States led the world in efforts to reduce the role and number of nuclear weapons,” *id.* at 1, the 2018 Nuclear Posture Review reversed this strategy by calling for “a flexible, tailored nuclear deterrent strategy,” an apparent euphemism for the development of new nuclear weapons, *id.* at 2; *see also id.* at 63 (noting that the U.S. “has not executed a new nuclear weapon program for decades” and calling for “research and development” and “technology maturation” in order “to design and develop nuclear weapons”); *id.* at 52 (depicting a proposed increase in the nuclear weapons budget to levels not seen since the Cold War).

To support the Trump Administration’s call for new nuclear weapons, the Nuclear Posture Review announced the need to “[p]rovide the enduring capability and capacity to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030.” *Id.* at 64. The Review further stated that in order to increase production of plutonium pits, which are the core of nuclear weapons, “significant and sustained investments will be required over the coming decade.” *Id.* Indeed, the Congressional Budget Office (“CBO”) has estimated that DOE’s plan to “produce at least 80 plutonium pits per year by 2030” will cost “about \$9 billion from 2019 to 2028.” CBO, *Projected Costs of U.S. Nuclear Forces*, January 2019, at 5.² Furthermore, NNSA recently estimated that repurposing the MOX Facility at SRS for plutonium pit production will have a “lifecycle cost” of \$27.8 billion, while expanding pit production at LANL will cost between \$14.3 billion and \$18.8 billion—meaning that over the next decades this plan will likely

¹ The 2018 Nuclear Posture Review is available online at <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>

² This CBO report is available at <https://www.cbo.gov/system/files/2019-01/54914-NuclearForces.pdf>

cost taxpayers at least \$42 billion. NNSA, *Plutonium Pit Production Engineering Assessment (EA) Results*, May 2018, at 10.³

Producing plutonium pits “entails extensive processing of very hazardous materials, which typically requires a specialized facility.” CBO, *Projected Costs of U.S. Nuclear Forces*, at 8 n.13. Plutonium pit production in the United States was performed on a large scale at the Rocky Flats Plant in Colorado until 1989, when an FBI raid investigating safety and environmental violations led to the closure of that facility. See Congressional Research Service, *U.S. Nuclear Weapon “Pit” Production Options for Congress*, February 2014, at 18.⁴ DOE has declined to attempt to restart operations at Rocky Flats and has instead undertaken a “Sisyphean history” of “failed efforts to construct a building to restore pit production.” *Id.* “The United States has not had the capacity to make more than about 10 [pits per year] since 1989.” *Id.*

Currently, the United States has the capacity to produce a very limited number of plutonium pits only at the Los Alamos National Laboratory in New Mexico, a facility with a history of serious safety problems. See DOE Office of Enterprise Assessments, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, April 2019, at 1.⁵ Indeed, DOE has recognized “significant weaknesses (i.e. non-compliances with significant impact)” in LANL’s management of nuclear safety issues “over the past eleven years.” *Id.* at 2. These “significant weaknesses . . . have allowed identified problems to go uncorrected, problem recurrences to be routinely accepted, and corrective actions to often be delayed for years.” *Id.* at v. These problems led to the production of plutonium pits at LANL being shut down “for over four years.” *Id.* Moreover, DOE has recognized that despite changing the contractor responsible for managing these issues, LANL has made “only limited improvement in addressing longstanding weaknesses” and that many of these safety issues “persist, which can lead to the degradation of nuclear safety.” *Id.* Nevertheless, the Trump Administration’s plan is not only to produce plutonium pits at LANL, but to do so at a rate that has not been seen for decades. See DOE, *Final Report for the Plutonium Pit Production Analysis of Alternatives*, October 2017 at 1 (noting that DOE plans to produce 30 pits per year at LANL, but that it produced only 10 pits per year “in the early 2000s” and that no pits have been produced at LANL since 2012).⁶ DOE has acknowledged that its plan to accelerate pit production at LANL has a “high risk level,” may cause “significant unmitigated off-site consequences,” and that “[r]easonable mitigation strategies” are “unavailable.” DOE, *Engineering Assessment Report, Pu Pit Production Engineering Assessment*, April 2018, at 4-9.⁷

³ This NNSA Report is available at https://nukewatch.org/newsite/wp-content/uploads/2019/03/FINAL-Pu-Pit-Production-EA-Results-05.14.18_Unclassified.pdf

⁴ This Report is available at <https://fas.org/sgp/crs/nuke/R43406.pdf>

⁵ This DOE Report is available at <https://www.energy.gov/ea/downloads/assessment-management-nuclear-safety-issues-los-alamos-national-laboratory-april-2019>

⁶ A redacted version of this DOE Report is available at http://www.lasg.org/MPF2/documents/NNSA_PuPitAoA_Oct2017_redacted.pdf

⁷ A redacted version of this DOE Report is available at https://nukewatch.org/newsite/wp-content/uploads/2019/03/Pu-Pit-Engineering-Assessment-Report-Rev-2_20-April-2018.pdf

Because DOE does not believe that it is possible for LANL to produce plutonium pits at the rate the Trump Administration has proposed, *id.*, DOE and NNSA have also proposed to produce plutonium pits at an as-yet-incomplete Mixed Oxide Fuel Fabrication Facility (“the MOX Facility”) at the Savannah River Site in South Carolina. However, the MOX Facility was never designed for that purpose, *id.*, and has proven to be a multi-billion dollar boondoggle.⁸

Since 1991, the SRS mission has revolved principally around the storage or disposal of radioactive material, in particular plutonium from dismantled nuclear weapons. *See Complaint, United States of America v. CB&I AREVA MOX Services, LLC*, No. 1:19-cv-00444, ECF No. 1, at 8. In 1999, NNSA entered into a contract for the construction of the MOX Facility at SRS “to convert surplus nuclear weapons-grade plutonium into safe, stable fuel for civilian nuclear power generation.” *Id.* Construction began on the MOX Facility in 2007. *See* Government Accountability Office, *MOX Fuel Fabrication Facility: Briefings in Response to a Mandate in the National Defense Authorization Act for Fiscal Year 2017* (“GAO MOX Report”), November 2017, at 1.⁹ However, the MOX Facility project soon ran into dramatic delays and cost overruns. *See id.* (noting that cost estimates rose from \$3.4 billion to \$17.2 billion between 2007 and 2016). After spending at least \$3.4 billion on the MOX facility, *id.*, DOE has recently abandoned any intention to complete the MOX Facility. In November 2017, the Government Accountability Office found that despite DOE spending billions of dollars on the MOX Facility, it was at that time only roughly 30 percent complete. *Id.* at 4.¹⁰

In addition to stopping work on the MOX Facility after sinking billions of dollars into it, DOE has also recently revealed that the MOX Facility’s construction was subject to extensive fraud. Indeed, the government recently brought a False Claims Act case against the MOX Facility contractor and subcontractor, alleging that the contractors defrauded NNSA out of “millions of dollars” by submitting “fraudulent claims, supported by forged and fraudulent invoices, for construction related materials that did not exist.” *See Complaint, United States of America v. CB&I AREVA MOX Services, LLC*, No. 1:19-cv-00444, ECF No. 1, at 1–2. As such, after spending billions of taxpayer dollars, DOE now has a 30-percent-complete facility plagued by fraudulent construction practices.

Now, DOE and NNSA are considering converting the incomplete MOX Facility into a site for the production of the majority of the plutonium pits that the Trump Administration has stated are necessary. Indeed, of the 80 pits per year that DOE and NNSA say they must produce

⁸ *See, e.g.*, https://www.aikenstandard.com/news/nnsa-delivered-mox-termination-notice-this-week-construction-expected-to/article_b907332c-ce40-11e8-b971-ebc9931647b9.html (noting that the MOX Facility was “initially expected to come online in 2016 at a cost of \$4.8 billion” but that “the project’s timeline and price tag have seriously bloated” and reporting the termination of the over-budget project).

⁹ This GAO Report is available at <https://www.gao.gov/assets/690/688369.pdf>

¹⁰ DOE issued a stop work order on May 14, 2018. The State of South Carolina sought to enjoin this decision, reasoning that DOE’s intention to instead pursue a dilute-and-dispose approach to plutonium disposal violated NEPA, among other defects, but the Fourth Circuit rejected the State’s arguments. *See State of South Carolina v. United States*, No. 18-1684, ECF No. 42 (4th Cir. Jan 8, 2019).

by 2030, 50 pits would be produced at the MOX Facility. See NNSA, *Engineering Assessment Report: Pu Pit Production Engineering Assessment*, April 2018, at xi.¹¹ DOE has acknowledged the significant risks of this plan. See DOE, *Analysis of Alternatives*, at 1 (noting the “qualitative risk of reconfiguring a partially completed facility for a new mission in a new location”).

Notably, DOE and NNSA are treating the 80 pits per year as a minimum figure, meaning that the agencies would require the ability to produce more than 30 pits per year at LANL and more than 50 pits per year at SRS. See NNSA, *Pu Pit Production Engineering Assessment*, at 1-2 (“Plutonium pit production capability will be able to produce a minimum of 80 [pits per year] by 2030.” (emphasis added)); see also NNSA, *Final Report for the Plutonium Pit Production Analysis of Alternatives*, October 2017, at 1 (“The pit production requirement is an annual ‘at least’ production rate”).

Troublingly, DOE and NNSA appear to be shirking their duties under NEPA. The agencies previously acknowledged in October 2017 that any approach to meeting the Trump Administration’s goal of producing at least 80 plutonium pits per year would “require an environmental impact statement.” *Id.* at 57; see also *id.* at 60 (“all alternatives are assumed to require a full EIS”); *id.* at 65 (“All alternatives will likely require an EIS”). However, in April 2018 the NNSA stated that “only a NEPA review is required” for the conversion of the MOX Facility to plutonium pit production, without acknowledging that an EIS is clearly required for such a significant action. NNSA, *Pu Pit Production Engineering Assessment*, at 4-6. And DOE and NNSA have not acknowledged the need to prepare a Programmatic EIS to consider the entirety of the agencies’ proposed approach to meeting the Trump Administration’s expanded plutonium pit production goals. This approach flouts NEPA’s purposes and explicit requirements.

III. Analysis.

A. Repurposing the MOX Facility to Produce Plutonium Pits Requires an EIS.

NEPA requires the preparation of an EIS for any “major federal action significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(c). To determine whether impacts are significant, agencies must consider a project’s “context” and “intensity,” which is evaluated according to ten factors, 40 C.F.R. § 1508.27, any one of which may necessitate an EIS. *Ocean Advocates v. U.S. Army Corps of Eng’rs*, 402 F.3d 846, 865 (9th Cir. 2005).

To begin with, DOE’s plan to repurpose the incomplete MOX facility to produce plutonium pits is a new proposed action that has never previously been analyzed in any NEPA process. Although DOE and NNSA have prepared previous PEISs for earlier plans regarding nuclear weapons fabrication (described further below), no previous NEPA analysis has considered producing nuclear weapon components using the MOX Facility.

¹¹ This NNSA Engineering Assessment is available at https://www.lasg.org/MPF2/documents/NNSA_PuPitEA_Rev2_20April2018-redacted.pdf

Moreover, DOE and NNSA's plan to repurpose the incomplete MOX facility plainly will have significant environmental impacts and thus requires an EIS. Beginning with the context, this plan will entail spending billions of taxpayer dollars over many years to conduct highly hazardous fabrication of plutonium pits at an incomplete facility that was never designed for this purpose. Because this plan, which bears directly on the nation's national security interests, entails significant risks to the surrounding environment and local communities, consideration of this project's context plainly indicates that the plan is "significant" within the meaning of NEPA. *See* 40 C.F.R. § 1508.27(a) (requiring consideration of "contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality"). Moreover, the plan to repurpose the MOX Facility to produce plutonium pits plainly implicates many of the significance criteria in NEPA's implementing regulations, any one of which may necessitate an EIS. *See Ocean Advocates*, 402 F.3d at 865.

First, this plan may affect public health or safety, 40 C.F.R. § 1508.27(b)(2), both because the processing of plutonium for nuclear weapons "entails extensive processing of very hazardous materials," CBO, *Projected Costs of U.S. Nuclear Forces*, January 2019, at 8 n.13, and because the fact that the MOX Facility was never designed for the production of nuclear weapon components raises very important questions about whether such activities may be undertaken safely at this Facility. *See, e.g., NNSA, Pu Pit Engineering Assessment*, at 2-39 ("The significant number of samples required to support a 50 ppy plutonium pit mission . . . could increase the material at risk . . . above the current safety basis limits"). Likewise, because the release of radiological or hazardous materials from the Savannah River Site could spread for many miles, the impacts on the neighboring populations could be dire. *See, e.g., DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-374 (acknowledging that members of the public within a 50-mile radius of SRS could be affected by radiation on the site).

Second, this plan may affect "[u]nique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas." 40 C.F.R. § 1508.27(b)(3). For example, DOE's own description of the Savannah River Site notes that it includes "hundreds of individual wetland areas." DOE, *Facts from the Savannah River Site*, at 2.¹² Indeed, "[s]ome SRS surface waters are classified as . . . unique and irreplaceable on a national or eco-regional basis." DOE, *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-356. Likewise, the portions of the Savannah River Site managed by the U.S. Forest Service includes "65,000 acres" of habitat for the endangered red-cockaded woodpecker, indicating that this is an ecologically critical area. U.S. Forest Service, *Savannah River Fast Facts*.¹³

Third, this plan would be "highly controversial," 40 C.F.R. § 1508.27(b)(4), and would be "highly uncertain or involve unique or unknown risks," *id.* § 1508.27(b)(5). To begin with, the extent of work that it would take to repurpose the incomplete MOX Facility remains profoundly unclear, in part because there is a dispute about the status of the construction so far.

¹² This DOE Fact Sheet is available at https://www.srs.gov/general/news/factsheets/srs_overview.pdf

¹³ This Fact Sheet is available at <https://www.srs.gov/general/news/factsheets/usfs-sr.pdf>

Thus, the GAO found that the MOX Facility is “about 30 percent complete,” while the contractor insisted that it was 74 percent complete. GAO, *MOX Report*, at 4. Meanwhile, as noted above, the United States has recently sued the MOX Facility contractor under the False Claims Act for falsifying reports on what construction activities were actually undertaken. Under these circumstances, the plan to repurpose the MOX Facility to produce nuclear weapons is both “highly controversial” and “highly uncertain” within the meaning of NEPA’s implementing regulations. As Senator Lindsay Graham stated regarding repurposing the MOX Facility, “I have no confidence you got a plan. I think you’re making this up as you go.” Senate Appropriations Committee, Energy and Water Development Subcommittee Hearing on the Proposed NNSA Budget, April 5, 2019.

Fourth, this action “may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.” 40 C.F.R. § 1508.27(b)(8). Indeed, the counties in which the Savannah River Site is located contain numerous areas listed on the National Register of Historic Places.¹⁴ Likewise, the nearby city of Augusta, Georgia also contains numerous areas listed on the National Register of Historic Places.¹⁵ Because a release of radiological or otherwise hazardous materials from the Savannah River Site could spread for many miles, the impacts to historic places within the area that could be affected by a catastrophic accident at a repurposed MOX Facility must be considered in an EIS. *See, e.g., DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-374 (acknowledging that members of the public within a 50-mile radius of SRS could be affected by radiation on the site).¹⁶

Finally, the proposed repurposing of the MOX Facility to produce plutonium pits “may adversely affect an endangered or threatened species or its habitat that has been determined to be critical.” 40 C.F.R. § 1508.27(b)(9). SRS and the surrounding area provide habitat for numerous endangered species, including the red-cockaded woodpecker, the wood stork, the shortnose sturgeon, and several species of plants. *See, DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-356–57 (listing endangered species near SRS). A release of radiological or hazardous contaminants from a repurposed MOX Facility could have severe adverse impacts on these listed species.¹⁷

Accordingly, contrary to NNSA’s statement that “only a NEPA review is required” for the conversion of the MOX Facility to plutonium pit production. NNSA, *Pu Pit Production Engineering Assessment*, at 4-6, there can be no legitimate dispute that an EIS is necessary.

¹⁴ See <http://www.nationalregister.sc.gov/aiken/nraiken.htm> (listing historic sites in Aiken County); <http://www.nationalregister.sc.gov/barnwell/nrbarnwell.htm> (listing historic sites in Barnwell County); <http://www.nationalregister.sc.gov/allendale/nrallendale.htm> (listing historic sites in Allendale County).

¹⁵ See <https://nationalregisterofhistoricplaces.com/ga/richmond/state.html> (listing historic sites in Augusta).

¹⁶ Likewise, DOE and NNSA must undertake an analysis of impacts to historic places pursuant to the National Historic Preservation Act, which agencies typically conduct in parallel with NEPA.

¹⁷ Likewise, for this reason DOE and NNSA must undertake formal consultation with the United States Fish and Wildlife Service pursuant to section 7(a)(2) of the Endangered Species Act.

B. Expansion of Plutonium Pit Production at LANL Requires a Supplemental EIS.

Where “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts,” an agency must prepare a Supplemental EIS (“SEIS”). 40 C.F.R. § 1502.9(c)(1)(ii); 10 C.F.R. § 1021.314(a). Whether new information is sufficiently significant to necessitate an SEIS “turns on the value of the new information.” *Marsh*, 490 U.S. at 374. Where “new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.” *Id.* New information that “raise[s] substantial questions regarding the project’s impact [is] enough to require further analysis.” *League of Wilderness Defenders v. Connaughton*, 752 F.3d 755, 760 (9th Cir. 2014) (quoting *Klamath Siskiyou Wildlands Ctr. v. Boody*, 468 F.3d 549, 561–62 (9th Cir. 2006)).

DOE and NNSA appear to be moving forward with a plan to produce 30 plutonium pits per year at LANL without preparing any NEPA analysis that considers new information and changed circumstances since the agencies undertook their *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement* in 2008. However, because important new information has come to light regarding the highly questionable safety of producing plutonium pits at LANL, the preparation of an SEIS is clearly necessary.

As NNSA has recognized, “LANL is currently authorized to produce only 20 pits per year.” NNSA, *Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory*, April 2018, at Appendix B-3. This is because DOE and NNSA issued a governing Record of Decision in 2009 that authorizes production of pits “to not exceed 20 pits per year.” *Id.* at 46. And although NNSA has asserted that it previously evaluated the production of 80 pits per year in 2008, *id.*, the agency’s prior analysis did not—and could not—take into account information and changed circumstances that arose after 2008.

As DOE’s own Office of Enterprise Assessments found in 2019, the management of nuclear safety issues at LANL has been sorely lacking for many years and is not significantly improving. For example, “significant weaknesses” in the management of nuclear safety issues “have allowed identified problems to go uncorrected, problem recurrences to be routinely accepted, and corrective actions to often be delayed for years.” DOE, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, at v. These “significant weaknesses” can “allow layers of defense for nuclear safety to degrade to the extent they did leading to the pause in June 2013 of key fissile material operations in the Plutonium Facility at LANL for over four years.” *Id.*

Indeed, in 2013 the director of the LANL laboratory “paused all fissile material operations in the Plutonium Facility . . . due to systemic and recurring weaknesses in the . . . criticality safety program and conduct of operations.” *Id.* at 2. Moreover, “[d]ue to the scope and significance of these weaknesses that had been allowed to develop, the mitigation . . . took over four years to be completed for some of the key fissile material operations.” *Id.*

DOE found that LANL suffers from serious and ongoing problems in management of nuclear safety issues. In particular, DOE has found that “insufficient attention is given to ensuring timely and effective correction of nuclear safety issues.” *Id.* at 15. Likewise, “84% of the high-significance . . . issues did not have an extent-of-condition review to identify potential recurring or systemic issues”; “55% of the high-significance issues that involved nuclear safety analyses” never received documentation of their causes; and “approximately 46% of 196 high-significance issues had been closed without addressing the underlying cause of the event, and 96% of those issues lacked effectiveness evaluations.” *Id.* at 2. “Numerous examples” of insufficient management of nuclear safety issues “revealed practices that allowed nuclear safety issues to be lost, closed by transfer to unrelated issues, closed with promises of future action, or *intentionally closed without taking any corrective action.*” *Id.* at 18 (emphasis added).

And critically, DOE has found that LANL has shown “only limited improvement in addressing longstanding weaknesses” in the management of nuclear safety issues. *Id.* at iv. Ongoing “deficiencies in [issues management] metrics and assessments have allowed poor [issues management] practices to persist.” *Id.* at 9. Indeed, DOE found that “significant weaknesses” in the management of nuclear safety issues “at LANL persist, which can lead to the degradation of nuclear safety.” *Id.* at iv.

The editorial board of the Albuquerque Journal recently found that this “is a huge issue considering the lab is ramping up production on the devices that act as nuclear bomb triggers.” The editorial board stated that “[f]alling short of the bare minimum in the eyes of the DOE is a far cry from where the public expects or needs LANL to be.” It further emphasized that “[t]op brass must take the audit’s criticisms seriously and demonstrate above-and-beyond efforts” and “make safety the lab’s top mission.”¹⁸

Although NNSA prepared a Supplement Analysis (“SA”) for the ongoing operation of LANL in April 2018, which concluded that no SEIS was necessary, its discussion of the pertinent nuclear safety issues is wholly inadequate. The SA asserts that “DOE has taken actions to address the criticality safety concerns,” and that “[f]ull operations, including pit manufacturing, resumed . . . in August 2016.” NNSA, *Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory*, at 96. However, since NNSA issued that Supplement Analysis, DOE’s own Office of Enterprise Assessments has found that the deficiencies in the management of nuclear safety issues that led to the four-year shutdown at LANL are, in fact, continuing. *See supra*. Indeed, by finding that improving the management of nuclear safety issues “will be key to safely supporting increased production rates of plutonium pits through 2030,” DOE, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, at v, DOE itself has revealed that the increased production of plutonium pits at LANL cannot currently be undertaken safely.

Against this backdrop of highly unreliable management of nuclear safety risks, DOE and NNSA’s counterintuitive plan to not only continue, but expand, the production of plutonium pits at LANL cannot lawfully be undertaken in the absence of an SEIS. Indeed, NNSA cannot

¹⁸ See <https://www.abqjournal.com/1316264/lanl-leaders-must-make-safety-the-labs-top-mission.html>

credibly claim to have taken any serious look under NEPA at these ongoing nuclear safety issues, because NNSA's last Supplement Analysis was issued in 2018, while DOE's findings of ongoing nuclear safety management deficiencies were issued in 2019. More critically, because NNSA's efforts to improve the management of nuclear safety issues at LANL have clearly not worked, as DOE's own analysis has found, the agencies must take the hard look that NEPA requires at these ongoing deficiencies in nuclear safety management, and at the impacts of, and alternatives to, the proposal to expand plutonium pit production. Under these circumstances, a new or supplemental EIS is clearly necessary.

C. A Programmatic EIS is Necessary to Consider These Plainly Related Activities.

As explained, NEPA requires agencies to consider multiple actions together in a single Programmatic EIS when those "actions are 'connected,' 'cumulative,' or 'similar,' such that their environmental effects are best considered in a single impact statement." *American Bird Conservancy*, 516 F.3d at 1032 (quoting 40 C.F.R. § 1508.25(a)). Here, the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS plainly fall within the ambit of "connected," "cumulative," and "similar" actions within the meaning of NEPA, meaning that they must be considered together in a single programmatic EIS.

The expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS are "connected" actions under NEPA. Connected actions "are closely related and therefore should be discussed in the same impact statement" because they "[a]re interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 1508.25(a)(1). Both the proposed expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits at SRS are interdependent parts of DOE and NNSA's plan to fulfill the Trump Administration's stated goal in its 2018 Nuclear Posture Review of producing at least 80 plutonium pits per year by 2030. *See* Dep't of Defense, *Nuclear Posture Review*, at 64. Because the Administration cannot reach the Nuclear Posture Review goal without both proposed actions at LANL and SRS, and because both actions depend on the Nuclear Posture Review for their justification, these actions are "connected" under NEPA and must be considered together in a single EIS.

Likewise, both projects are "similar" because "when viewed with other reasonably foreseeable or proposed agency actions" both "have similarities that provide a basis for evaluating their environmental consequences together." 40 C.F.R. § 1508.25(a)(3). These similarities are clear. To begin with, both projects involve producing plutonium pits for nuclear weapons. Moreover, both projects are being proposed in locations where the safety of producing plutonium pits is highly questionable at best: as described above, LANL suffers from serious and ongoing deficiencies in the management of nuclear safety issues, while the MOX Facility was never designed for fabrication of plutonium pits, is still incomplete, and was the subject of fraudulent construction practices that leave the state and safety of the building highly uncertain. Finally, because both projects entail processing highly hazardous nuclear materials in facilities

with serious safety concerns, both projects are likely to have serious and similar nuclear safety issues and environmental impacts. Accordingly, both actions are “similar” under NEPA.

Furthermore, both actions also satisfy the definition of “cumulative” actions, because they will “have cumulatively significant impacts.” 40 C.F.R. § 1508.25(a)(2). A cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Id.* § 1508.7. Here, not only will the expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits each have significant impacts in their own right, but each project will also likely have cumulative environmental impacts that should be taken into account in a single EIS. For example, because each site will be performing similar activities and working with similar materials, each site will likely generate wastes that DOE and NNSA will have to determine how to treat, store, or dispose of.

Accordingly, because the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS are clearly “connected,” “cumulative,” and “similar” actions, “their environmental effects are best considered in a single impact statement,” *American Bird Conservancy*, 516 F.3d at 1032, and a PEIS is the legally and practically appropriate way to accomplish this.

Not surprisingly, therefore, DOE’s own regulations require the production of a PEIS under these circumstances. DOE’s regulations mandate that “[w]hen required to support a DOE programmatic decision (40 CFR 1508.18(b)(3)), DOE shall prepare a programmatic EIS.” 10 C.F.R. § 1021.330(a). In turn, a “DOE programmatic decision” includes the “[a]doption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.” 40 C.F.R. § 1508.18(b)(3). Here, both proposed actions at LANL and SRS are “systematic and connected agency decisions” undertaken to implement the specific “executive directive” in the 2018 Nuclear Posture Review to produce at least 80 plutonium pits per year by 2030. Accordingly, DOE’s regulations mandate the preparation of a PEIS.

In addition to the need for a PEIS being clear under NEPA and its implementing regulations, DOE is currently subject to a court order in a case brought by two of the signatories to this letter that mandates the preparation of a PEIS under the current circumstances. That order establishes the following requirement:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), DOE shall prepare and circulate a Supplemental PEIS, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.

Natural Resources Defense Council v. Pena, 20 F.Supp.2d 45, 50 (D.D.C. 1998). Because DOE and NNSA are currently devoting resources to designing a pit production capability of *at least* 80 pits per year, including a plan to produce pits at SRS, this order clearly requires the agencies to undertake a Supplemental PEIS.

Indeed, in analogous circumstances, DOE and NNSA have undertaken PEISs in the past. For example, in 1996, DOE undertook a *Stockpile Stewardship and Management PEIS* to consider relocating pit production to LANL. Likewise, in 2003, DOE undertook (but never finalized) a *Modern Pit Facility Supplemental PEIS* to analyze a possible increase in the rate of plutonium pit production. Similarly, in 2006, DOE undertook a *Complex 2030 Supplemental PEIS* to consider the modernization of the U.S. nuclear weapons program. And most recently, in 2008, the agencies undertook a *Complex Transformation Supplemental PEIS* in order to analyze alternatives for the modernization of the U.S. nuclear weapons program. Because both the agencies' plans and circumstances at both LANL and SRS have changed significantly since that time—including the new plan to radically increase the level of plutonium pit production, the demonstrated and ongoing serious safety issues at LANL, and the dubious proposition to repurpose the incomplete MOX Facility at SRS—the agencies must undertake a new or supplemental PEIS now as well.

D. DOE and NNSA Must Begin the NEPA Process Now.

Because NEPA mandates that “[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time*,” 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now. DOE and NNSA have already begun the process for deciding how to move forward with the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS, and the agencies must begin preparing a PEIS now “to ensure that planning and decisions reflect environmental values.” *Id.*¹⁹

DOE and NNSA have undertaken significant steps toward the expansion of plutonium pit production at LANL and toward the repurposing of the MOX Facility. For example, DOE has sought and obtained the concurrence of the Nuclear Weapons Council regarding the proposed actions.²⁰ Moreover, DOE and NNSA have already used an undisclosed amount of taxpayer funds to direct its contractor to undertake design and planning for the repurposing of the incomplete MOX Facility to produce plutonium pits.²¹ Although it is not entirely clear how

¹⁹ On October 31, 2018, the Nuclear Safety Organizations sent NNSA a similar letter explaining the need for a PEIS and requesting a response within 30 days. NNSA has not responded.

²⁰ See <https://dod.defense.gov/News/News-Releases/News-Release-View/Article/1518222/joint-statement-from-ellen-m-lord-and-lisa-e-gordon-hagerty-on-recapitalization/>

²¹ See https://www.aikenstandard.com/news/srns-tasked-with-initial-work-for-savannah-river-pit-production/article_e3f15ab0-15ec-11e9-805c-d36536fe2d31.html

much money is already being spent on this effort at SRS, DOE has requested that Congress allocate \$410 million toward design and planning for the repurposing of the MOX Facility.²²

Likewise, Lisa Gordon-Hagerty, the Administrator of NNSA has testified to the House Subcommittee on Energy and Water Development that “NNSA is investing in the Savannah River Plutonium Processing Facility,” and that “LANL is actively installing pit production equipment and has begun hiring to meet future work scope.” Testimony Statement of Lisa Gordon-Hagerty before House Subcommittee on Energy and Water Development, April 2, 2019 (“Gordon-Hagerty Testimony”), at 5–6. Ms. Gordon-Hagerty also testified that “[r]epurposing the [MOX] Facility and producing plutonium pits at SRS and LANL is the preferred path,” and that “[t]he time to move forward is now.” *Id.* at 5. Similarly, Peter Fanta, a deputy assistant secretary of defense for nuclear matters, stated that “[t]here is one plan,” and that NNSA must “[s]top discussing it, stop slowing it, stop looking at it again, stop looking at seven other alternatives.” See <https://www.exchangemonitor.com/dod-still-satisfied-nnsa-pit-plan-warns-civilian-agency-margin/>.

However, taking a hard look at the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS, and considering alternatives to this proposed plan, is precisely what NEPA requires. And because NEPA mandates that agencies undertake the NEPA process as early as possible in order to promote informed decision-making, DOE and NNSA must undertake a PEIS as soon as possible.

Until DOE and NNSA fully comply with NEPA through the preparation of a PEIS, any irreversible or irretrievable commitment of resources to either the expansion of pit production at LANL or to the repurposing of the MOX Facility at SRS is unlawful. Accordingly, we request that DOE and NNSA respond to this letter within 30 days to explain when the agencies intend to undertake the required PEIS for the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility for plutonium pit production at SRS.

Sincerely,

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CC: Sen. Lamar Alexander, Chair, Senate Energy and Water Appropriations Subcommittee
Sen. Dianne Feinstein, Ranking Member, Senate Energy and Water Appropriations Subcomm.
Sen. Tom Udall, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Chair, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Ranking Member, Strategic Forces Subcommittee, SASC

²² DOE, *FY 2020 Congressional Budget Request*, March 2019, at 121–22, available at <https://www.energy.gov/sites/prod/files/2019/04/f62/doe-fy2020-budget-volume-1.pdf>

Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Mac Thornberry, Ranking Member, House Armed Services Committee
Rep. Jim Cooper, Chairman, Strategic Forces Subcommittee, House Armed Services Committee
Rep. Deb Haaland, House Armed Services Committee
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September 17, 2019

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VIA ELECTRONIC MAIL

Re: The abiding need to prepare a new or supplemental Programmatic Environmental Impact Statement for expanded plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina.

We are writing on behalf of the public interest organizations the Natural Resources Defense Council, Nuclear Watch New Mexico, Savannah River Site Watch, and Tri-Valley Communities Against a Radioactive Environment to advise the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) of the continuing need to prepare a Programmatic Environmental Impact Statement (“PEIS”) for the proposal to produce plutonium pits—the cores of nuclear weapons—at both the Los Alamos National Laboratory (“LANL”) in New Mexico and the Savannah River Site (“SRS”) in South Carolina.

We sent a letter on May 17, 2019 explaining the need for a PEIS for the new proposal to produce plutonium pits at multiple sites, and explaining that DOE’s and NNSA’s failure at that time to undertake *any* NEPA process regarding this new proposal was a violation of the National Environmental Policy Act (“NEPA”). For your convenience, a copy of that letter is attached. Although NNSA failed to respond directly in writing to that letter, DOE and NNSA did apparently respond to our letter by taking some steps toward compliance with NEPA. In particular, DOE and NNSA announced on May 31, 2019 that they would prepare a site-specific Environmental Impact Statement (“EIS”) in association with the proposal to produce plutonium pits at SRS, and that they would prepare a Supplement Analysis (“SA”) to consider whether to



prepare a new or supplemental PEIS in association with the proposal to produce plutonium pits at multiple sites.¹

Since then, DOE and NNSA have issued a scoping notice for the EIS process at SRS and a Draft SA, both of which were made available for public comment. The public interest organizations represented in this letter, as well as in our previous letter, submitted comments at each available opportunity. Those comments explain in detail certain flaws in the limited analytic process that DOE and NNSA have chosen to undertake and have provided detailed suggestions for how to improve this process. For your convenience, copies of those comments are attached. We write today to reinforce the points made in these various comments and to explain why, as an overarching matter, DOE and NNSA's apparent refusal to prepare any new or supplemental programmatic environmental analysis of its indisputably programmatic decision to produce plutonium pits at multiple locations continues to violate fundamental NEPA principles.²

The NEPA process's "core focus [is] on improving agency decisionmaking," *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 769 n.2 (2004), and specifically on ensuring that agencies take a "hard look" at potential environmental impacts and alternatives "as part of the agency's process of deciding whether to pursue a particular federal action," *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council*, 462 U.S. 87, 100 (1983). As such, the NEPA process "shall serve as the means of assessing the environmental impact of proposed agency actions, *rather than justifying decisions already made.*" 40 C.F.R. § 1502.2(g) (emphasis added); *see also id.* § 1502.5 (requiring that NEPA review "shall be prepared early enough *so that it can serve practically as an important contribution to the decision making process and will not be used to rationalize or justify decisions already made*" (emphasis added)). To ensure that agencies take a holistic view of their actions, NEPA mandates that any EIS must consider "connected," "cumulative," and "similar" actions. 40 C.F.R. § 1508.25(a). A PEIS is necessary where "actions are 'connected,' 'cumulative,' or 'similar,' such that their environmental effects are best considered in a single impact statement." *Am. Bird Conservancy v. Fed. Comm'n Comm'n*, 516 F.3d 1027, 1032 (D.C. Cir. 2008) (quoting 40 C.F.R. § 1508.25(a)).

DOE's and NNSA's refusal to prepare any new or supplemental PEIS for its new plan to produce plutonium pits at two locations is a profound violation of these fundamental NEPA principles. To begin with, the Draft SA and the proposed EIS presume that plutonium pit production will occur at two sites, and particularly at the two sites at LANL and SRS. As such, DOE and NNSA have entirely failed to consider alternatives to the proposal to produce plutonium pits at multiple locations. For example, since the Trump Administration's 2018 Nuclear Posture Review concluded that the United States must produce at least 80 pits annually,

¹ See Notice of Intent to Prepare an Environmental Impact Statement for Plutonium Pit Production at the Savannah River Site, 84 Fed. Reg. 26849 (June 10, 2019) (describing the notice as having been signed May 31, 2019).

² We respectfully request that NNSA take this letter into consideration as it decides whether to prepare a new or supplemental PEIS, and to include this letter in the administrative record for any final decision that the agency makes.

no NEPA process has considered whether plutonium pit production could be achieved more safely and with fewer environmental impacts at a single location, or even at multiple locations that are closer to one another than LANL and SRS, which are separated by over a thousand miles. Although NNSA has evidently undertaken some internal decision-making process regarding these questions, it has avoided doing so through the NEPA process that Congress specifically designed for this purpose. Likewise, because this agency decision-making has occurred largely internally, DOE and NNSA have cut the public out of the process for deciding to produce plutonium pits at multiple locations, despite the fact that informed public comment is one of NEPA's key objectives.

Instead of conducting any objective NEPA analysis for the decision to produce plutonium pits at multiple locations, or considering any alternatives to this decision in the NEPA framework, DOE and NNSA have instead decided to prepare an SA to determine whether a new or supplemental PEIS is appropriate. Moreover, the agencies' analysis in their Draft SA reveals that the agencies are not aiming to utilize the NEPA process to inform a pending decision, but instead are impermissibly using the Draft SA to justify a decision that has already been made. Thus, the Draft SA merely considers some of the impacts of producing plutonium pits at LANL and SRS, but fails to actually consider any alternatives to utilizing multiple sites to produce pits. As such, the agencies' Draft SA inappropriately turns the NEPA process on its head: rather than serving to inform the decision to produce plutonium pits at multiple sites, the agencies instead are apparently making that decision first and preparing an ostensible NEPA analysis after. This leap-before-you-look process is exactly the opposite of what NEPA requires.

Indeed, as is explained in the attached comments submitted on the Draft SA, the agencies have framed the entire inquiry of the Draft SA incorrectly, again revealing the impermissibly *post hoc* nature of the agencies' ostensible effort to comply with NEPA. NEPA's implementing regulations require agencies to prepare supplemental environmental impact statement ("SEIS") where "[t]he agency makes substantial changes in the proposed action that are relevant to environmental concerns; or [t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c)(1); *see also* 10 C.F.R. § 1021.314 (DOE regulations echoing this requirement). However, the Draft SA does not even attempt to grapple with these questions. Instead, the Draft SA focuses on a conceptually distinct inquiry: namely, whether "the potential impacts of the proposed action exceed those in the Complex Transformation SPEIS." Draft SA at 26. In other words, rather than taking a hard look at the nature of the changes in the plutonium pit production program, or at new information that bears on the risks and environmental impacts of the agencies' new proposal, DOE and NNSA are instead merely inquiring whether the impacts from producing plutonium pits at multiple sites are "bounded" by the impacts considered in a previous analysis. *See, e.g.*, Draft SA at 29–36 (asserting that various types of impacts are "bounded" by analysis in the 2008 Complex Transformation SPEIS).

DOE's and NNSA's reliance on a "bounding" analysis in this instance is entirely inappropriate—as DOE's own policies explain. Neither NEPA itself, nor its implementing

regulations, nor DOE's own NEPA policies countenance such reliance on a bounding analysis for the instant situation. As DOE itself has recognized, *"bounding analyses should not be used where more accurate and detailed assessment is possible and would better serve the purposes of NEPA."*³ Likewise, DOE's own policies recognize that *"[i]t is never appropriate to 'bound' the environmental impacts of potential future actions (not yet proposed) and argue later that additional NEPA analysis is unnecessary because the impacts have been bounded by the original analysis."*⁴

The reliance on a "bounding" analysis here is also a violation of fundamental NEPA principles because it wrongly leads NNSA to ignore or discount the significantly changed circumstances and important new information that necessitates preparation of a new or supplemental PEIS here. No previous analysis "bounds" or even remotely contemplated the major federal actions at issue here. The comments submitted on the Draft SA, and attached and incorporated by reference here, detail numerous changed circumstances and new information that, under basic NEPA principles, require a new or supplemental PEIS. For brevity's sake, this letter does not reproduce all of those changed circumstances and new information. However, as an example, the fact that DOE and NNSA have conceded that they must prepare an EIS for the plan to produce plutonium pits at the "repurposed" Mixed Oxide Fuel Fabrication Facility (MFFF) at SRS is itself a sufficient indication of a profoundly changed circumstance that warrants preparation of a new or supplemental PEIS.

By conceding that an EIS is necessary for repurposing the MFFF to produce plutonium pits—a process for which that facility was never designed, and which is especially hazardous at that facility given that it was never completed and was subject to extensive construction-related fraud—DOE and NNSA have recognized that the proposal to produce plutonium pits at that site entails significant environmental impacts that have never previously been analyzed. As such, this development constitutes a significant changed circumstance from anything NNSA previously considered in any PEIS. Indeed, NNSA leaves no room to doubt that this new circumstance is itself "significant" within the meaning of NEPA, as the Draft SA itself describes the cancellation of the MFFF as a "significant change." Accordingly, even setting aside the numerous other changed circumstances and the plethora of new information described in the attached comments, the proposal to produce plutonium pits at SRS as well as LANL by itself is sufficient to require the preparation of a new or supplemental PEIS.⁵

³ *Mini-guidance Articles from Lessons Learned Quarterly Reports, December 1994 to September 2005*, p. 2-4, USDOE Office of NEPA Policy and Compliance, October 2005, <https://www.energy.gov/sites/prod/files/miniguide-20110511.pdf> (emphasis added).

⁴ *Id.* (emphasis added).

⁵ Although the Draft SA misleadingly asserts that NNSA previously analyzed an alternative that involved producing plutonium pits using the MFFF infrastructure, in fact the agency's 2008 Complex Transformation PEIS mentioned this prospect only cursorily and in passing, failing to take the "hard look" that NEPA requires. Moreover, since NNSA issued the 2008 Complex Transformation PEIS, the MFFF has encountered highly significant obstacles that bear directly on the viability of, and environmental impacts from, using this facility for the highly hazardous process of producing plutonium pits. Indeed, these obstacles were so significant that NNSA recently cancelled the

Finally, in addition to a new or supplemental PEIS being clearly necessary under NEPA's implementing regulations and DOE's own regulations (as described in the attached comments), as a separate matter DOE and NNSA remain subject to a court order that mandates the preparation of a new PEIS under these circumstances. That order establishes that:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), *DOE shall prepare and circulate a Supplemental PEIS*, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, *analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.*

Nat. Res. Def. Council v. Pena, 20 F. Supp. 2d 45, 50 (D.D.C. 1998) (emphasis added). DOE and NNSA's proposal to produce at least 80 pits per year, and to do so at multiple sites, is plainly "in excess of the level that has been analyzed" previously. *Id.* Accordingly, the plain terms of this court order require the agencies to prepare a new or supplemental PEIS for this decision. We remind DOE and NNSA that the Natural Resources Defense Council and Tri Valley Communities Against a Radioactive Environment were parties to this court order and advise the agencies that these entities remain ready to enforce this order if necessary.

At bottom, it appears that DOE and NNSA are attempting to circumvent NEPA by impermissibly separating analysis of proposed activities at LANL and SRS into separate environmental reviews, when in fact a programmatic review is necessary for this plainly programmatic action. Moreover, it appears that the agencies are motivated mainly by haste, because they remain uncertain about their logistical ability to achieve their desired level of pit production by 2030. However, we advise the agencies that timely compliance with NEPA is the best means for the agencies to keep these projects on track, as a failure to rigorously comply with NEPA may necessitate litigation, including if necessary motions for injunctive relief, all of which would likely increase the expense of DOE's and NNSA's proposed actions and extend their timelines further. Accordingly, we strongly encourage DOE and NNSA to come into compliance with NEPA by preparing a new or supplemental PEIS for its proposals regarding plutonium pit production, and to do so immediately. If the agencies continue on their current trajectory, we will have no

completion of the MFFF altogether and brought a lawsuit against the facility's contractor to seek damages associated with construction-related fraud. These developments plainly reveal that the situation surrounding the MFFF facility has changed in significant ways since 2008. In reality, the Complex Transformation PEIS plainly did not consider any impacts associated with the profoundly changed circumstances surrounding the MFFF—namely, the fact that it was fraught with construction fraud and abandoned in a partially completed state.

choice but to evaluate all our options to enforce compliance with federal environmental laws.

Sincerely,

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CC: Sen. Lamar Alexander, Chair, Senate Energy and Water Appropriations Subcommittee
Sen. Dianne Feinstein, Ranking Member, Senate Energy and Water Appropriations Subcommittee
Sen. Tom Udall, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Chair, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Ranking Member, Strategic Forces Subcommittee, SASC
Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Mac Thornberry, Ranking Member, House Armed Services Committee
Rep. Jim Cooper, Chairman, Strategic Forces Subcommittee, House Armed Services Committee
Rep. Deb Haaland, House Armed Services Committee
Rep. Xochitl Torres Small, House Armed Services Committee
Rep. John Garamendi, House Armed Services Committee
Rep. Ben Ray Lujan, NM-3
Mr. Bruce Diamond, NNSA Office of the General Counsel
Mr. Charles Verdon, NNSA Deputy Administrator for Defense Programs
Mr. Brian Costner, DOE NEPA Office
Ms. Nicole Nelson-Jean, Manager, NNSA Savannah River Field Office
Mr. Steve Goodrun, NNSA Los Alamos Office

Attachment A

May 17, 2019 Letter Regarding Need for PEIS for Plutonium Pit Production

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May 17, 2019

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VIA ELECTRONIC MAIL

Re: The need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina.

On behalf of the public interest organizations Nuclear Watch New Mexico, Savannah River Site Watch, the Natural Resources Defense Council, and Tri-Valley Communities Against a Radioactive Environment (collectively “the Nuclear Safety Organizations”), we are writing to notify the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) of the need to prepare a Programmatic Environmental Impact Statement (“PEIS”) in connection with the agencies’ stated plan to expand the production of plutonium pits for nuclear weapons at the Los Alamos National Laboratory (“LANL”) in New Mexico and the Savannah River Site (“SRS”) in South Carolina. Because the National Environmental Policy Act (“NEPA”) mandates that “[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time* to ensure that planning and decisions reflect environmental values,” 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now.

EXECUTIVE SUMMARY

The Trump Administration’s 2018 Nuclear Posture Review called for the expanded production of nuclear weapons for the first time in many years, and specifically called for production of 80 plutonium pits (the cores of nuclear weapons) per year by 2030. To that end,



the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) plan to expand production of plutonium pits at the Los Alamos National Laboratory in New Mexico and to repurpose an incomplete facility at the Savannah River Site in South Carolina. At Los Alamos, this plan will require roughly tripling plutonium pit production in facilities with nuclear safety deficiencies so severe that DOE suspended all nuclear weapons production there for over four years, and which DOE recently found have not been adequately resolved. At the Savannah River Site, this plan will require repurposing a facility that was never designed for plutonium pit production, that is still incomplete, and that has been subject to construction-related fraud. Both aspects of DOE and NNSA’s plan to expand plutonium pit production entail serious risks for the environment and public safety. Additionally, these plans will cost at least \$9 billion over the next ten years and at least \$42 billion over the project’s duration.

The National Environmental Policy Act (“NEPA”) requires federal agencies to take a hard look at proposed actions before committing to a course of action or making any irreversible or irretrievable commitment of resources. NEPA requires agencies to publicly disclose environmental impacts, involve the public in agency decision-making, and to seriously consider all viable alternatives to a proposed action. Thus, agencies must prepare an Environmental Impact Statement (“EIS”) for any action that may have significant environmental impacts. Where agency actions are closely related, they must be considered together in a single Programmatic EIS (“PEIS”).

DOE and NNSA have stated that it is their intention to meet the Trump Administration’s goal of producing 80 plutonium pits per year by 2030 through the expansion of pit production at Los Alamos and the Savannah River Site. Because the agencies’ previous environmental analysis for activities at Los Alamos is badly outdated and does not properly consider the serious and ongoing safety issues that led to a four-year shutdown in nuclear weapons production there, NEPA requires a hard look at the proposed expansion of plutonium pit production at that site through a new or supplemental EIS. Likewise, because the agencies have not prepared any environmental analysis for the proposal to produce plutonium pits at an incomplete facility at SRS that has been subject to construction fraud, NEPA requires the production of an EIS for this activity as well. And because the proposed actions at LANL and SRS are inextricably related aspects of DOE and NNSA’s plan to meet the Trump Administration’s call for expanded nuclear weapon production, DOE and NNSA must prepare a PEIS to consider these proposed actions together. However, the agencies instead appear to be shirking NEPA’s requirements by undertaking activities at LANL and SRS without first preparing the legally required environmental analysis. To come into compliance with NEPA, DOE and NNSA must begin the required PEIS process now.

DISCUSSION

I. NEPA.

NEPA is the “basic national charter for protection of the environment.” 40 C.F.R. § 1500.1. NEPA’s “national policy” is to “encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment . . . [and] enrich the understanding of the ecological systems and natural resources

important to the nation” 42 U.S.C. § 4321. To guard against environmental damage, Congress required all federal agencies to prepare a “detailed statement” for each “major federal action significantly affecting the quality of the human environment” that includes “the environmental impact of the proposed action” as well as a thorough consideration of alternatives to the proposed action. *Id.* § 4332(c).

In light of NEPA’s mandates, the Supreme Court has reasoned that NEPA is “intended to reduce or eliminate environmental damage and to promote ‘the understanding of the ecological systems and natural resources important to’ the United States.” *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 756 (2004) (quoting 42 U.S.C. § 4321).

To achieve NEPA’s goals, federal agencies must prepare an EIS for any major federal action with significant environmental effects. 42 U.S.C. § 4332(c). NEPA’s procedures are designed to inject environmental considerations “in the agency decision making process itself,” and to “‘help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.’” *Pub. Citizen*, 541 U.S. at 768-69 (quoting 40 C.F.R. § 1500.1(c)). Therefore, “NEPA’s core focus [is] on improving agency decisionmaking,” *Pub. Citizen*, 541 U.S. at 769 n.2, and specifically on ensuring that agencies take a “hard look” at potential environmental impacts and alternatives “as part of the agency’s process of deciding whether to pursue a particular federal action,” *Balt. Gas and Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 100 (1983).

Importantly, the NEPA process “shall serve as the means of assessing the environmental impact of proposed agency actions, *rather than justifying decisions already made.*” 40 C.F.R. § 1502.2(g) (emphasis added); *see also id.* § 1502.5 (requiring that NEPA review “shall be prepared early enough *so that it can serve practically as an important contribution to the decision making process and will not be used to rationalize or justify decisions already made*”) (emphasis added).

An agency must prepare an EIS for every “major Federal action significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(c). Under NEPA’s implementing regulations, “significance” requires consideration of both context and intensity. 40 C.F.R. § 1508.27. “Context” considerations include the affected region, interests, and locality, varying with the setting of the action, and include both short and long-term effects. *Id.* § 1508.27(a). “Intensity” refers to the severity of impact, including: impacts that may be both beneficial and adverse; unique characteristics of the geographic area, such as proximity to wetlands, wild and scenic rivers, or ecologically critical areas; the degree to which the effects on the quality of the human environment are likely to be highly controversial; the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; whether the action is related to other actions with individually insignificant but cumulatively significant impacts; the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act; and whether the action threatens a violation of federal law imposed for the protection of the environment. *See* 40 C.F.R. § 1508.27(b).

Under NEPA, to determine the proper scope of an EIS an agency “shall consider 3 types of actions,” including connected actions, cumulative actions, and similar actions. *Id.* § 1508.25. Connected actions include those that “are closely related and therefore should be discussed in the same impact statement” because they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” *Id.* § 1508.25(a)(1). Cumulative actions are those that “with other proposed actions have cumulatively significant impacts.” *Id.* 1508.25(a)(2). And similar actions “when viewed with other reasonably foreseeable or proposed agency actions have similarities that provide a basis for evaluating their environmental consequences together.” *Id.* § 1508.25(a)(3). An agency should analyze similar actions together “when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.” *Id.* In such circumstances, a Programmatic Environmental Impact Statement is necessary where “actions are ‘connected,’ ‘cumulative,’ or ‘similar,’ such that their environmental effects are best considered in a single impact statement.” *American Bird Conservancy v. Federal Communication Commission*, 516 F.3d 1027, 1032 (D.C. Cir. 2008) (quoting 40 C.F.R. § 1508.25(a)).

II. DOE and NNSA’s Plans for Expanded Plutonium Pit Production

In 2018, the Trump Administration issued a Nuclear Posture Review that, for the first time in many years, called for expanding production of nuclear weapons. *See* U.S. Dep’t of Defense, *Nuclear Posture Review*, February 2018, at 1–2.¹ Despite the fact that “[f]or decades, the United States led the world in efforts to reduce the role and number of nuclear weapons,” *id.* at 1, the 2018 Nuclear Posture Review reversed this strategy by calling for “a flexible, tailored nuclear deterrent strategy,” an apparent euphemism for the development of new nuclear weapons, *id.* at 2; *see also id.* at 63 (noting that the U.S. “has not executed a new nuclear weapon program for decades” and calling for “research and development” and “technology maturation” in order “to design and develop nuclear weapons”); *id.* at 52 (depicting a proposed increase in the nuclear weapons budget to levels not seen since the Cold War).

To support the Trump Administration’s call for new nuclear weapons, the Nuclear Posture Review announced the need to “[p]rovide the enduring capability and capacity to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030.” *Id.* at 64. The Review further stated that in order to increase production of plutonium pits, which are the core of nuclear weapons, “significant and sustained investments will be required over the coming decade.” *Id.* Indeed, the Congressional Budget Office (“CBO”) has estimated that DOE’s plan to “produce at least 80 plutonium pits per year by 2030” will cost “about \$9 billion from 2019 to 2028.” CBO, *Projected Costs of U.S. Nuclear Forces*, January 2019, at 5.² Furthermore, NNSA recently estimated that repurposing the MOX Facility at SRS for plutonium pit production will have a “lifecycle cost” of \$27.8 billion, while expanding pit production at LANL will cost between \$14.3 billion and \$18.8 billion—meaning that over the next decades this plan will likely

¹ The 2018 Nuclear Posture Review is available online at <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>

² This CBO report is available at <https://www.cbo.gov/system/files/2019-01/54914-NuclearForces.pdf>

cost taxpayers at least \$42 billion. NNSA, *Plutonium Pit Production Engineering Assessment (EA) Results*, May 2018, at 10.³

Producing plutonium pits “entails extensive processing of very hazardous materials, which typically requires a specialized facility.” CBO, *Projected Costs of U.S. Nuclear Forces*, at 8 n.13. Plutonium pit production in the United States was performed on a large scale at the Rocky Flats Plant in Colorado until 1989, when an FBI raid investigating safety and environmental violations led to the closure of that facility. See Congressional Research Service, *U.S. Nuclear Weapon “Pit” Production Options for Congress*, February 2014, at 18.⁴ DOE has declined to attempt to restart operations at Rocky Flats and has instead undertaken a “Sisyphean history” of “failed efforts to construct a building to restore pit production.” *Id.* “The United States has not had the capacity to make more than about 10 [pits per year] since 1989.” *Id.*

Currently, the United States has the capacity to produce a very limited number of plutonium pits only at the Los Alamos National Laboratory in New Mexico, a facility with a history of serious safety problems. See DOE Office of Enterprise Assessments, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, April 2019, at 1.⁵ Indeed, DOE has recognized “significant weaknesses (i.e. non-compliances with significant impact)” in LANL’s management of nuclear safety issues “over the past eleven years.” *Id.* at 2. These “significant weaknesses . . . have allowed identified problems to go uncorrected, problem recurrences to be routinely accepted, and corrective actions to often be delayed for years.” *Id.* at v. These problems led to the production of plutonium pits at LANL being shut down “for over four years.” *Id.* Moreover, DOE has recognized that despite changing the contractor responsible for managing these issues, LANL has made “only limited improvement in addressing longstanding weaknesses” and that many of these safety issues “persist, which can lead to the degradation of nuclear safety.” *Id.* Nevertheless, the Trump Administration’s plan is not only to produce plutonium pits at LANL, but to do so at a rate that has not been seen for decades. See DOE, *Final Report for the Plutonium Pit Production Analysis of Alternatives*, October 2017 at 1 (noting that DOE plans to produce 30 pits per year at LANL, but that it produced only 10 pits per year “in the early 2000s” and that no pits have been produced at LANL since 2012).⁶ DOE has acknowledged that its plan to accelerate pit production at LANL has a “high risk level,” may cause “significant unmitigated off-site consequences,” and that “[r]easonable mitigation strategies” are “unavailable.” DOE, *Engineering Assessment Report, Pu Pit Production Engineering Assessment*, April 2018, at 4-9.⁷

³ This NNSA Report is available at https://nukewatch.org/newsite/wp-content/uploads/2019/03/FINAL-Pu-Pit-Production-EA-Results-05.14.18_Unclassified.pdf

⁴ This Report is available at <https://fas.org/sgp/crs/nuke/R43406.pdf>

⁵ This DOE Report is available at <https://www.energy.gov/ea/downloads/assessment-management-nuclear-safety-issues-los-alamos-national-laboratory-april-2019>

⁶ A redacted version of this DOE Report is available at http://www.lasg.org/MPF2/documents/NNSA_PuPitAoA_Oct2017_redacted.pdf

⁷ A redacted version of this DOE Report is available at https://nukewatch.org/newsite/wp-content/uploads/2019/03/Pu-Pit-Engineering-Assessment-Report-Rev-2_20-April-2018.pdf

Because DOE does not believe that it is possible for LANL to produce plutonium pits at the rate the Trump Administration has proposed, *id.*, DOE and NNSA have also proposed to produce plutonium pits at an as-yet-incomplete Mixed Oxide Fuel Fabrication Facility (“the MOX Facility”) at the Savannah River Site in South Carolina. However, the MOX Facility was never designed for that purpose, *id.*, and has proven to be a multi-billion dollar boondoggle.⁸

Since 1991, the SRS mission has revolved principally around the storage or disposal of radioactive material, in particular plutonium from dismantled nuclear weapons. *See Complaint, United States of America v. CB&I AREVA MOX Services, LLC*, No. 1:19-cv-00444, ECF No. 1, at 8. In 1999, NNSA entered into a contract for the construction of the MOX Facility at SRS “to convert surplus nuclear weapons-grade plutonium into safe, stable fuel for civilian nuclear power generation.” *Id.* Construction began on the MOX Facility in 2007. *See* Government Accountability Office, *MOX Fuel Fabrication Facility: Briefings in Response to a Mandate in the National Defense Authorization Act for Fiscal Year 2017* (“GAO MOX Report”), November 2017, at 1.⁹ However, the MOX Facility project soon ran into dramatic delays and cost overruns. *See id.* (noting that cost estimates rose from \$3.4 billion to \$17.2 billion between 2007 and 2016). After spending at least \$3.4 billion on the MOX facility, *id.*, DOE has recently abandoned any intention to complete the MOX Facility. In November 2017, the Government Accountability Office found that despite DOE spending billions of dollars on the MOX Facility, it was at that time only roughly 30 percent complete. *Id.* at 4.¹⁰

In addition to stopping work on the MOX Facility after sinking billions of dollars into it, DOE has also recently revealed that the MOX Facility’s construction was subject to extensive fraud. Indeed, the government recently brought a False Claims Act case against the MOX Facility contractor and subcontractor, alleging that the contractors defrauded NNSA out of “millions of dollars” by submitting “fraudulent claims, supported by forged and fraudulent invoices, for construction related materials that did not exist.” *See Complaint, United States of America v. CB&I AREVA MOX Services, LLC*, No. 1:19-cv-00444, ECF No. 1, at 1–2. As such, after spending billions of taxpayer dollars, DOE now has a 30-percent-complete facility plagued by fraudulent construction practices.

Now, DOE and NNSA are considering converting the incomplete MOX Facility into a site for the production of the majority of the plutonium pits that the Trump Administration has stated are necessary. Indeed, of the 80 pits per year that DOE and NNSA say they must produce

⁸ *See, e.g.*, https://www.aikenstandard.com/news/nnsa-delivered-mox-termination-notice-this-week-construction-expected-to/article_b907332c-ce40-11e8-b971-ebc9931647b9.html (noting that the MOX Facility was “initially expected to come online in 2016 at a cost of \$4.8 billion” but that “the project’s timeline and price tag have seriously bloated” and reporting the termination of the over-budget project).

⁹ This GAO Report is available at <https://www.gao.gov/assets/690/688369.pdf>

¹⁰ DOE issued a stop work order on May 14, 2018. The State of South Carolina sought to enjoin this decision, reasoning that DOE’s intention to instead pursue a dilute-and-dispose approach to plutonium disposal violated NEPA, among other defects, but the Fourth Circuit rejected the State’s arguments. *See State of South Carolina v. United States*, No. 18-1684, ECF No. 42 (4th Cir. Jan 8, 2019).

by 2030, 50 pits would be produced at the MOX Facility. See NNSA, *Engineering Assessment Report: Pu Pit Production Engineering Assessment*, April 2018, at xi.¹¹ DOE has acknowledged the significant risks of this plan. See DOE, *Analysis of Alternatives*, at 1 (noting the “qualitative risk of reconfiguring a partially completed facility for a new mission in a new location”).

Notably, DOE and NNSA are treating the 80 pits per year as a minimum figure, meaning that the agencies would require the ability to produce more than 30 pits per year at LANL and more than 50 pits per year at SRS. See NNSA, *Pu Pit Production Engineering Assessment*, at 1-2 (“Plutonium pit production capability will be able to produce a minimum of 80 [pits per year] by 2030.” (emphasis added)); see also NNSA, *Final Report for the Plutonium Pit Production Analysis of Alternatives*, October 2017, at 1 (“The pit production requirement is an annual ‘at least’ production rate”).

Troublingly, DOE and NNSA appear to be shirking their duties under NEPA. The agencies previously acknowledged in October 2017 that any approach to meeting the Trump Administration’s goal of producing at least 80 plutonium pits per year would “require an environmental impact statement.” *Id.* at 57; see also *id.* at 60 (“all alternatives are assumed to require a full EIS”); *id.* at 65 (“All alternatives will likely require an EIS”). However, in April 2018 the NNSA stated that “only a NEPA review is required” for the conversion of the MOX Facility to plutonium pit production, without acknowledging that an EIS is clearly required for such a significant action. NNSA, *Pu Pit Production Engineering Assessment*, at 4-6. And DOE and NNSA have not acknowledged the need to prepare a Programmatic EIS to consider the entirety of the agencies’ proposed approach to meeting the Trump Administration’s expanded plutonium pit production goals. This approach flouts NEPA’s purposes and explicit requirements.

III. Analysis.

A. Repurposing the MOX Facility to Produce Plutonium Pits Requires an EIS.

NEPA requires the preparation of an EIS for any “major federal action significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(c). To determine whether impacts are significant, agencies must consider a project’s “context” and “intensity,” which is evaluated according to ten factors, 40 C.F.R. § 1508.27, any one of which may necessitate an EIS. *Ocean Advocates v. U.S. Army Corps of Eng’rs*, 402 F.3d 846, 865 (9th Cir. 2005).

To begin with, DOE’s plan to repurpose the incomplete MOX facility to produce plutonium pits is a new proposed action that has never previously been analyzed in any NEPA process. Although DOE and NNSA have prepared previous PEISs for earlier plans regarding nuclear weapons fabrication (described further below), no previous NEPA analysis has considered producing nuclear weapon components using the MOX Facility.

¹¹ This NNSA Engineering Assessment is available at https://www.lasg.org/MPF2/documents/NNSA_PuPitEA_Rev2_20April2018-redacted.pdf

Moreover, DOE and NNSA's plan to repurpose the incomplete MOX facility plainly will have significant environmental impacts and thus requires an EIS. Beginning with the context, this plan will entail spending billions of taxpayer dollars over many years to conduct highly hazardous fabrication of plutonium pits at an incomplete facility that was never designed for this purpose. Because this plan, which bears directly on the nation's national security interests, entails significant risks to the surrounding environment and local communities, consideration of this project's context plainly indicates that the plan is "significant" within the meaning of NEPA. *See* 40 C.F.R. § 1508.27(a) (requiring consideration of "contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality"). Moreover, the plan to repurpose the MOX Facility to produce plutonium pits plainly implicates many of the significance criteria in NEPA's implementing regulations, any one of which may necessitate an EIS. *See Ocean Advocates*, 402 F.3d at 865.

First, this plan may affect public health or safety, 40 C.F.R. § 1508.27(b)(2), both because the processing of plutonium for nuclear weapons "entails extensive processing of very hazardous materials," CBO, *Projected Costs of U.S. Nuclear Forces*, January 2019, at 8 n.13, and because the fact that the MOX Facility was never designed for the production of nuclear weapon components raises very important questions about whether such activities may be undertaken safely at this Facility. *See, e.g., NNSA, Pu Pit Engineering Assessment*, at 2-39 ("The significant number of samples required to support a 50 ppy plutonium pit mission . . . could increase the material at risk . . . above the current safety basis limits"). Likewise, because the release of radiological or hazardous materials from the Savannah River Site could spread for many miles, the impacts on the neighboring populations could be dire. *See, e.g., DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-374 (acknowledging that members of the public within a 50-mile radius of SRS could be affected by radiation on the site).

Second, this plan may affect "[u]nique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas." 40 C.F.R. § 1508.27(b)(3). For example, DOE's own description of the Savannah River Site notes that it includes "hundreds of individual wetland areas." DOE, *Facts from the Savannah River Site*, at 2.¹² Indeed, "[s]ome SRS surface waters are classified as . . . unique and irreplaceable on a national or eco-regional basis." DOE, *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-356. Likewise, the portions of the Savannah River Site managed by the U.S. Forest Service includes "65,000 acres" of habitat for the endangered red-cockaded woodpecker, indicating that this is an ecologically critical area. U.S. Forest Service, *Savannah River Fast Facts*.¹³

Third, this plan would be "highly controversial," 40 C.F.R. § 1508.27(b)(4), and would be "highly uncertain or involve unique or unknown risks," *id.* § 1508.27(b)(5). To begin with, the extent of work that it would take to repurpose the incomplete MOX Facility remains profoundly unclear, in part because there is a dispute about the status of the construction so far.

¹² This DOE Fact Sheet is available at https://www.srs.gov/general/news/factsheets/srs_overview.pdf

¹³ This Fact Sheet is available at <https://www.srs.gov/general/news/factsheets/usfs-sr.pdf>

Thus, the GAO found that the MOX Facility is “about 30 percent complete,” while the contractor insisted that it was 74 percent complete. GAO, *MOX Report*, at 4. Meanwhile, as noted above, the United States has recently sued the MOX Facility contractor under the False Claims Act for falsifying reports on what construction activities were actually undertaken. Under these circumstances, the plan to repurpose the MOX Facility to produce nuclear weapons is both “highly controversial” and “highly uncertain” within the meaning of NEPA’s implementing regulations. As Senator Lindsay Graham stated regarding repurposing the MOX Facility, “I have no confidence you got a plan. I think you’re making this up as you go.” Senate Appropriations Committee, Energy and Water Development Subcommittee Hearing on the Proposed NNSA Budget, April 5, 2019.

Fourth, this action “may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.” 40 C.F.R. § 1508.27(b)(8). Indeed, the counties in which the Savannah River Site is located contain numerous areas listed on the National Register of Historic Places.¹⁴ Likewise, the nearby city of Augusta, Georgia also contains numerous areas listed on the National Register of Historic Places.¹⁵ Because a release of radiological or otherwise hazardous materials from the Savannah River Site could spread for many miles, the impacts to historic places within the area that could be affected by a catastrophic accident at a repurposed MOX Facility must be considered in an EIS. *See, e.g., DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-374 (acknowledging that members of the public within a 50-mile radius of SRS could be affected by radiation on the site).¹⁶

Finally, the proposed repurposing of the MOX Facility to produce plutonium pits “may adversely affect an endangered or threatened species or its habitat that has been determined to be critical.” 40 C.F.R. § 1508.27(b)(9). SRS and the surrounding area provide habitat for numerous endangered species, including the red-cockaded woodpecker, the wood stork, the shortnose sturgeon, and several species of plants. *See, DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-356–57 (listing endangered species near SRS). A release of radiological or hazardous contaminants from a repurposed MOX Facility could have severe adverse impacts on these listed species.¹⁷

Accordingly, contrary to NNSA’s statement that “only a NEPA review is required” for the conversion of the MOX Facility to plutonium pit production. NNSA, *Pu Pit Production Engineering Assessment*, at 4-6, there can be no legitimate dispute that an EIS is necessary.

¹⁴ See <http://www.nationalregister.sc.gov/aiken/nraiken.htm> (listing historic sites in Aiken County); <http://www.nationalregister.sc.gov/barnwell/nrbarnwell.htm> (listing historic sites in Barnwell County); <http://www.nationalregister.sc.gov/allendale/nrallendale.htm> (listing historic sites in Allendale County).

¹⁵ See <https://nationalregisterofhistoricplaces.com/ga/richmond/state.html> (listing historic sites in Augusta).

¹⁶ Likewise, DOE and NNSA must undertake an analysis of impacts to historic places pursuant to the National Historic Preservation Act, which agencies typically conduct in parallel with NEPA.

¹⁷ Likewise, for this reason DOE and NNSA must undertake formal consultation with the United States Fish and Wildlife Service pursuant to section 7(a)(2) of the Endangered Species Act.

B. Expansion of Plutonium Pit Production at LANL Requires a Supplemental EIS.

Where “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts,” an agency must prepare a Supplemental EIS (“SEIS”). 40 C.F.R. § 1502.9(c)(1)(ii); 10 C.F.R. § 1021.314(a). Whether new information is sufficiently significant to necessitate an SEIS “turns on the value of the new information.” *Marsh*, 490 U.S. at 374. Where “new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.” *Id.* New information that “raise[s] substantial questions regarding the project’s impact [is] enough to require further analysis.” *League of Wilderness Defenders v. Connaughton*, 752 F.3d 755, 760 (9th Cir. 2014) (quoting *Klamath Siskiyou Wildlands Ctr. v. Boody*, 468 F.3d 549, 561–62 (9th Cir. 2006)).

DOE and NNSA appear to be moving forward with a plan to produce 30 plutonium pits per year at LANL without preparing any NEPA analysis that considers new information and changed circumstances since the agencies undertook their *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement* in 2008. However, because important new information has come to light regarding the highly questionable safety of producing plutonium pits at LANL, the preparation of an SEIS is clearly necessary.

As NNSA has recognized, “LANL is currently authorized to produce only 20 pits per year.” NNSA, *Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory*, April 2018, at Appendix B-3. This is because DOE and NNSA issued a governing Record of Decision in 2009 that authorizes production of pits “to not exceed 20 pits per year.” *Id.* at 46. And although NNSA has asserted that it previously evaluated the production of 80 pits per year in 2008, *id.*, the agency’s prior analysis did not—and could not—take into account information and changed circumstances that arose after 2008.

As DOE’s own Office of Enterprise Assessments found in 2019, the management of nuclear safety issues at LANL has been sorely lacking for many years and is not significantly improving. For example, “significant weaknesses” in the management of nuclear safety issues “have allowed identified problems to go uncorrected, problem recurrences to be routinely accepted, and corrective actions to often be delayed for years.” DOE, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, at v. These “significant weaknesses” can “allow layers of defense for nuclear safety to degrade to the extent they did leading to the pause in June 2013 of key fissile material operations in the Plutonium Facility at LANL for over four years.” *Id.*

Indeed, in 2013 the director of the LANL laboratory “paused all fissile material operations in the Plutonium Facility . . . due to systemic and recurring weaknesses in the . . . criticality safety program and conduct of operations.” *Id.* at 2. Moreover, “[d]ue to the scope and significance of these weaknesses that had been allowed to develop, the mitigation . . . took over four years to be completed for some of the key fissile material operations.” *Id.*

DOE found that LANL suffers from serious and ongoing problems in management of nuclear safety issues. In particular, DOE has found that “insufficient attention is given to ensuring timely and effective correction of nuclear safety issues.” *Id.* at 15. Likewise, “84% of the high-significance . . . issues did not have an extent-of-condition review to identify potential recurring or systemic issues”; “55% of the high-significance issues that involved nuclear safety analyses” never received documentation of their causes; and “approximately 46% of 196 high-significance issues had been closed without addressing the underlying cause of the event, and 96% of those issues lacked effectiveness evaluations.” *Id.* at 2. “Numerous examples” of insufficient management of nuclear safety issues “revealed practices that allowed nuclear safety issues to be lost, closed by transfer to unrelated issues, closed with promises of future action, or *intentionally closed without taking any corrective action.*” *Id.* at 18 (emphasis added).

And critically, DOE has found that LANL has shown “only limited improvement in addressing longstanding weaknesses” in the management of nuclear safety issues. *Id.* at iv. Ongoing “deficiencies in [issues management] metrics and assessments have allowed poor [issues management] practices to persist.” *Id.* at 9. Indeed, DOE found that “significant weaknesses” in the management of nuclear safety issues “at LANL persist, which can lead to the degradation of nuclear safety.” *Id.* at iv.

The editorial board of the Albuquerque Journal recently found that this “is a huge issue considering the lab is ramping up production on the devices that act as nuclear bomb triggers.” The editorial board stated that “[f]alling short of the bare minimum in the eyes of the DOE is a far cry from where the public expects or needs LANL to be.” It further emphasized that “[t]op brass must take the audit’s criticisms seriously and demonstrate above-and-beyond efforts” and “make safety the lab’s top mission.”¹⁸

Although NNSA prepared a Supplement Analysis (“SA”) for the ongoing operation of LANL in April 2018, which concluded that no SEIS was necessary, its discussion of the pertinent nuclear safety issues is wholly inadequate. The SA asserts that “DOE has taken actions to address the criticality safety concerns,” and that “[f]ull operations, including pit manufacturing, resumed . . . in August 2016.” NNSA, *Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory*, at 96. However, since NNSA issued that Supplement Analysis, DOE’s own Office of Enterprise Assessments has found that the deficiencies in the management of nuclear safety issues that led to the four-year shutdown at LANL are, in fact, continuing. *See supra*. Indeed, by finding that improving the management of nuclear safety issues “will be key to safely supporting increased production rates of plutonium pits through 2030,” DOE, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, at v, DOE itself has revealed that the increased production of plutonium pits at LANL cannot currently be undertaken safely.

Against this backdrop of highly unreliable management of nuclear safety risks, DOE and NNSA’s counterintuitive plan to not only continue, but expand, the production of plutonium pits at LANL cannot lawfully be undertaken in the absence of an SEIS. Indeed, NNSA cannot

¹⁸ See <https://www.abqjournal.com/1316264/lanl-leaders-must-make-safety-the-labs-top-mission.html>

credibly claim to have taken any serious look under NEPA at these ongoing nuclear safety issues, because NNSA's last Supplement Analysis was issued in 2018, while DOE's findings of ongoing nuclear safety management deficiencies were issued in 2019. More critically, because NNSA's efforts to improve the management of nuclear safety issues at LANL have clearly not worked, as DOE's own analysis has found, the agencies must take the hard look that NEPA requires at these ongoing deficiencies in nuclear safety management, and at the impacts of, and alternatives to, the proposal to expand plutonium pit production. Under these circumstances, a new or supplemental EIS is clearly necessary.

C. A Programmatic EIS is Necessary to Consider These Plainly Related Activities.

As explained, NEPA requires agencies to consider multiple actions together in a single Programmatic EIS when those "actions are 'connected,' 'cumulative,' or 'similar,' such that their environmental effects are best considered in a single impact statement." *American Bird Conservancy*, 516 F.3d at 1032 (quoting 40 C.F.R. § 1508.25(a)). Here, the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS plainly fall within the ambit of "connected," "cumulative," and "similar" actions within the meaning of NEPA, meaning that they must be considered together in a single programmatic EIS.

The expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS are "connected" actions under NEPA. Connected actions "are closely related and therefore should be discussed in the same impact statement" because they "[a]re interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 1508.25(a)(1). Both the proposed expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits at SRS are interdependent parts of DOE and NNSA's plan to fulfill the Trump Administration's stated goal in its 2018 Nuclear Posture Review of producing at least 80 plutonium pits per year by 2030. *See* Dep't of Defense, *Nuclear Posture Review*, at 64. Because the Administration cannot reach the Nuclear Posture Review goal without both proposed actions at LANL and SRS, and because both actions depend on the Nuclear Posture Review for their justification, these actions are "connected" under NEPA and must be considered together in a single EIS.

Likewise, both projects are "similar" because "when viewed with other reasonably foreseeable or proposed agency actions" both "have similarities that provide a basis for evaluating their environmental consequences together." 40 C.F.R. § 1508.25(a)(3). These similarities are clear. To begin with, both projects involve producing plutonium pits for nuclear weapons. Moreover, both projects are being proposed in locations where the safety of producing plutonium pits is highly questionable at best: as described above, LANL suffers from serious and ongoing deficiencies in the management of nuclear safety issues, while the MOX Facility was never designed for fabrication of plutonium pits, is still incomplete, and was the subject of fraudulent construction practices that leave the state and safety of the building highly uncertain. Finally, because both projects entail processing highly hazardous nuclear materials in facilities

with serious safety concerns, both projects are likely to have serious and similar nuclear safety issues and environmental impacts. Accordingly, both actions are “similar” under NEPA.

Furthermore, both actions also satisfy the definition of “cumulative” actions, because they will “have cumulatively significant impacts.” 40 C.F.R. § 1508.25(a)(2). A cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Id.* § 1508.7. Here, not only will the expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits each have significant impacts in their own right, but each project will also likely have cumulative environmental impacts that should be taken into account in a single EIS. For example, because each site will be performing similar activities and working with similar materials, each site will likely generate wastes that DOE and NNSA will have to determine how to treat, store, or dispose of.

Accordingly, because the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS are clearly “connected,” “cumulative,” and “similar” actions, “their environmental effects are best considered in a single impact statement,” *American Bird Conservancy*, 516 F.3d at 1032, and a PEIS is the legally and practically appropriate way to accomplish this.

Not surprisingly, therefore, DOE’s own regulations require the production of a PEIS under these circumstances. DOE’s regulations mandate that “[w]hen required to support a DOE programmatic decision (40 CFR 1508.18(b)(3)), DOE shall prepare a programmatic EIS.” 10 C.F.R. § 1021.330(a). In turn, a “DOE programmatic decision” includes the “[a]doption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.” 40 C.F.R. § 1508.18(b)(3). Here, both proposed actions at LANL and SRS are “systematic and connected agency decisions” undertaken to implement the specific “executive directive” in the 2018 Nuclear Posture Review to produce at least 80 plutonium pits per year by 2030. Accordingly, DOE’s regulations mandate the preparation of a PEIS.

In addition to the need for a PEIS being clear under NEPA and its implementing regulations, DOE is currently subject to a court order in a case brought by two of the signatories to this letter that mandates the preparation of a PEIS under the current circumstances. That order establishes the following requirement:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), DOE shall prepare and circulate a Supplemental PEIS, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.

Natural Resources Defense Council v. Pena, 20 F.Supp.2d 45, 50 (D.D.C. 1998). Because DOE and NNSA are currently devoting resources to designing a pit production capability of *at least* 80 pits per year, including a plan to produce pits at SRS, this order clearly requires the agencies to undertake a Supplemental PEIS.

Indeed, in analogous circumstances, DOE and NNSA have undertaken PEISs in the past. For example, in 1996, DOE undertook a *Stockpile Stewardship and Management PEIS* to consider relocating pit production to LANL. Likewise, in 2003, DOE undertook (but never finalized) a *Modern Pit Facility Supplemental PEIS* to analyze a possible increase in the rate of plutonium pit production. Similarly, in 2006, DOE undertook a *Complex 2030 Supplemental PEIS* to consider the modernization of the U.S. nuclear weapons program. And most recently, in 2008, the agencies undertook a *Complex Transformation Supplemental PEIS* in order to analyze alternatives for the modernization of the U.S. nuclear weapons program. Because both the agencies' plans and circumstances at both LANL and SRS have changed significantly since that time—including the new plan to radically increase the level of plutonium pit production, the demonstrated and ongoing serious safety issues at LANL, and the dubious proposition to repurpose the incomplete MOX Facility at SRS—the agencies must undertake a new or supplemental PEIS now as well.

D. DOE and NNSA Must Begin the NEPA Process Now.

Because NEPA mandates that “[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time*,” 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now. DOE and NNSA have already begun the process for deciding how to move forward with the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS, and the agencies must begin preparing a PEIS now “to ensure that planning and decisions reflect environmental values.” *Id.*¹⁹

DOE and NNSA have undertaken significant steps toward the expansion of plutonium pit production at LANL and toward the repurposing of the MOX Facility. For example, DOE has sought and obtained the concurrence of the Nuclear Weapons Council regarding the proposed actions.²⁰ Moreover, DOE and NNSA have already used an undisclosed amount of taxpayer funds to direct its contractor to undertake design and planning for the repurposing of the incomplete MOX Facility to produce plutonium pits.²¹ Although it is not entirely clear how

¹⁹ On October 31, 2018, the Nuclear Safety Organizations sent NNSA a similar letter explaining the need for a PEIS and requesting a response within 30 days. NNSA has not responded.

²⁰ See <https://dod.defense.gov/News/News-Releases/News-Release-View/Article/1518222/joint-statement-from-ellen-m-lord-and-lisa-e-gordon-hagerty-on-recapitalization/>

²¹ See https://www.aikenstandard.com/news/srns-tasked-with-initial-work-for-savannah-river-pit-production/article_e3f15ab0-15ec-11e9-805c-d36536fe2d31.html

much money is already being spent on this effort at SRS, DOE has requested that Congress allocate \$410 million toward design and planning for the repurposing of the MOX Facility.²²

Likewise, Lisa Gordon-Hagerty, the Administrator of NNSA has testified to the House Subcommittee on Energy and Water Development that “NNSA is investing in the Savannah River Plutonium Processing Facility,” and that “LANL is actively installing pit production equipment and has begun hiring to meet future work scope.” Testimony Statement of Lisa Gordon-Hagerty before House Subcommittee on Energy and Water Development, April 2, 2019 (“Gordon-Hagerty Testimony”), at 5–6. Ms. Gordon-Hagerty also testified that “[r]epurposing the [MOX] Facility and producing plutonium pits at SRS and LANL is the preferred path,” and that “[t]he time to move forward is now.” *Id.* at 5. Similarly, Peter Fanta, a deputy assistant secretary of defense for nuclear matters, stated that “[t]here is one plan,” and that NNSA must “[s]top discussing it, stop slowing it, stop looking at it again, stop looking at seven other alternatives.” See <https://www.exchangemonitor.com/dod-still-satisfied-nnsa-pit-plan-warns-civilian-agency-margin/>.

However, taking a hard look at the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS, and considering alternatives to this proposed plan, is precisely what NEPA requires. And because NEPA mandates that agencies undertake the NEPA process as early as possible in order to promote informed decision-making, DOE and NNSA must undertake a PEIS as soon as possible.

Until DOE and NNSA fully comply with NEPA through the preparation of a PEIS, any irreversible or irretrievable commitment of resources to either the expansion of pit production at LANL or to the repurposing of the MOX Facility at SRS is unlawful. Accordingly, we request that DOE and NNSA respond to this letter within 30 days to explain when the agencies intend to undertake the required PEIS for the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility for plutonium pit production at SRS.

Sincerely,

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CC: Sen. Lamar Alexander, Chair, Senate Energy and Water Appropriations Subcommittee
Sen. Dianne Feinstein, Ranking Member, Senate Energy and Water Appropriations Subcomm.
Sen. Tom Udall, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Chair, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Ranking Member, Strategic Forces Subcommittee, SASC

²² DOE, *FY 2020 Congressional Budget Request*, March 2019, at 121–22, available at <https://www.energy.gov/sites/prod/files/2019/04/f62/doe-fy2020-budget-volume-1.pdf>

Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Mac Thornberry, Ranking Member, House Armed Services Committee
Rep. Jim Cooper, Chairman, Strategic Forces Subcommittee, House Armed Services Committee
Rep. Deb Haaland, House Armed Services Committee
Rep. Xochitl Torres Small, House Armed Services Committee
Rep. John Garamendi, House Armed Services Committee
Rep. Ben Ray Lujan, NM-3
Mr. Bruce Diamond, NNSA Office of the General Counsel
Mr. Charles Verdon, NNSA Deputy Administrator for Defense Programs
Mr. Brian Costner, DOE NEPA Office
Ms. Nicole Nelson-Jean, Manager, NNSA Savannah River Field Office
Mr. Steve Goodrun, NNSA Los Alamos Office

Attachment B

Comments from Natural Resources Defense Council, Nuclear Watch New Mexico, Savannah River Site Watch, and Tri-Valley Communities Against a Radioactive Environment regarding DOE and NNSA's Draft Supplement Analysis



August 9, 2019

Ms. Jennifer Nelson
NEPA Document Manager
NNSA SRS Field Office
P.O. Box A, Aiken, SC 29802

By email to NEPA-SRS@srs.gov

Re: Comments on NNSA's Draft Supplement Analysis of the 2008 Complex Transformation PEIS

Dear NEPA Document Manager:

These comments by the Natural Resources Defense Council (NRDC) reiterate two fundamental points I have already made with co-counsel William N. Lawton of Meyer Glitzenstein & Eubanks, LLP in our May 17, 2019 letter to Department of Energy (DOE) Secretary James Richard Perry and National Nuclear Security Administration (NNSA) Administrator Lisa Gorden-Hagerty:¹

- 1) Given NNSA's May 10, 2018 decision to expand plutonium pit production, the National Environmental Policy Act (NEPA) clearly requires the agency to prepare a new programmatic environmental impact statement (PEIS) to supplement the 2008 Complex Transformation PEIS; and
- 2) Even if NNSA does not agree with the above, there is a 1998 court order that requires DOE to prepare a supplemental PEIS in the event NNSA's proposed plans for future plutonium pit production extend beyond fabrication at LANL of 50 pits per year under "routine conditions," or 80 pits per year under "multiple shift operations."

We intend to enforce that court order, if necessary.

A. NEPA Requires a New PEIS to Supplement the 2008 Complex Transformation PEIS

The stated purpose of the NNSA's *Supplement Analysis of the 2008 Complex Transformation Programmatic Environmental Impact Statement* is:

"... to allow NNSA to determine whether, prior to proceeding with the effort to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030, the existing Complex Transformation SPEIS should be supplemented, a new environmental impact statement should be prepared, or no further *National Environmental Policy Act* (NEPA) analysis is required. The Draft SA preliminarily concludes that further NEPA documentation at a programmatic level is not required; however, NNSA will consider comments on this Draft SA and publish a Final SA."²

¹ See, *The need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina*; Nickolas Lawton, MGE, LLP and Geoffrey Fettus, NRDC; May 17, 2019; <https://nukewatch.org/newsite/wp-content/uploads/2019/05/Summary-Pit-Production.pdf>

² *Supplement Analysis of its 2008 Complex Transformation Programmatic Environmental Impact Statement*, NNSA, June 2019, Executive Summary, <https://www.energy.gov/nepa/downloads/eis-0236-s4-sa-02-draft-supplement-analysis>

NNSA has reached the wrong preliminary conclusion. In our view, NNSA must complete a new programmatic environmental impact statement (PEIS) on its radically revised plan for expanded production of plutonium pits, the radioactive core of nuclear weapons. Simply amending the Record of Decision for the 2008 Complex Transformation (CT) PEIS will not suffice to support a decision to exceed the currently authorized level of 20 pits per year at the Los Alamos National Laboratory (LANL), which was sanctioned by the original 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement. The need for a new PEIS is the product of numerous changed circumstances, much new information, and NNSA's new plan for simultaneous pit production at two disparate sites, separated by some 1,388 miles, a programmatic alternative that the Complex Transformation PEIS never considered.

NNSA's new proposal is sufficient justification by itself for a new PEIS. This is so for a host of reasons that should be evident. The new decision shifts the preponderance of NNSA's pit production capacity to a new site that has never hosted this activity before. Such a program entails new patterns for long-distance transportation for intrinsically hazardous plutonium in various forms, including fabricated nuclear weapons pits and plutonium-contaminated wastes. All of this could pose a hazard to the public from a security standpoint if the plutonium were to fall into the wrong hands or was dispersed into the environment by fire, a chemical explosion, or some other such unforeseen accident. Countenancing such situations is precisely what NEPA is for – prior to making the decision to proceed with such major federal programmatic actions.

To use the Department of Energy's own NEPA regulatory language, a new PEIS is required because the expansion of pit production at LANL and the repurposing of the MOX Facility at SRS are "systematic and connected agency decisions" that are clearly "connected," "cumulative," and "similar" actions, and therefore "their environmental effects must be considered in a single impact statement." Accordingly, DOE's own NEPA regulations require the preparation of a PEIS.

NNSA's Supplement Analysis erroneously claims that the drivers and requirements for expanded plutonium pit production have remained the same. To the contrary, they have substantially changed; NNSA's past rationales for expanded pit production have involved speculative new-design nuclear weapons that end-up being canceled, such as the prior "Reliable Replacement" and "Interoperable" warheads. NNSA's latest rationale is for a newly proposed W87-1 warhead. In this instance, the Department attempts to inoculate itself against future objections on these matters by asserting that if it does not use newly manufactured pits in this latest iteration, it will use them for the as yet unnamed next warhead "Life Extension Program."³ NNSA has yet to offer a concrete, consistent rationale for an expensive and substantially expanded plutonium pit production.

NEPA requires that a federal agency clearly state the national purpose and need to be met by any programmatic proposal with significant environmental impacts. Such a clear statement of DOE's purpose and need for proposing expanded plutonium pit production at a new site, and an analysis of all reasonable alternatives that might satisfy this purpose and need with fewer environmental impacts, seems especially indicated in this case given that up to 20,000 existing pits are already stored at the Pantex Plant near Amarillo, TX. Moreover, independent experts have found that existing pits have reliable lifetimes of more than a century and can, if necessary, be refurbished.⁴ All of this points to the fact that in order to fulfill its NEPA obligations, NNSA must consider the extensive reuse of existing plutonium pits as a credible alternative to expanded plutonium pit production, and that the only appropriate and legally compliant

³ See *W78 Replacement Program (W87-1): Cost Estimates and Use of Insensitive High Explosives*, NNSA, December 2018, page 6, <https://nukewatch.org/newsite/wp-content/uploads/2019/03/W78-Replacement-Program-Cost-Estimates-IHE-1.pdf>.

⁴ *Pit Lifetime Study*, JSR-06-035, November 20, 2006, the Mitre Corporation (also known as the "JASONS"), https://www.nukewatch.org/facts/nwd/JASON_ReportPuAging.pdf.

vehicle for that is a new programmatic environmental impact statement on expanded plutonium pit production.

A new PEIS is also needed to analyze the occupational and public risks of repeated, chronic nuclear criticality safety infractions at LANL and how to resolve them. By extension, the need for a more effective nuclear criticality regimen applies to any future pit production at SRS as well. A genuine, comprehensive nuclear safety regime needs to be instituted at a programmatic level, and its putative beneficial impact on hazard reduction to workers and the public analyzed in a new PEIS. This document must also review potential risks to the public from apparent systemic attempts by DOE to degrade institutional safety, such as relaxing internal nuclear safety rules and restricting access of the independent Defense Nuclear Facilities Safety Board.

Additionally, but not last, the risks of increased transport of plutonium and plutonium-contaminated wastes between NNSA sites must be analyzed in a new PEIS. The only repository for transuranic radioactive wastes from plutonium pit production is the Waste Isolation Pilot Plant (WIPP). New programmatic review is required to analyze all (if any) of the increasing radioactive waste disposal demands on WIPP, which include future expanded pit production, 34 tons or more of existing “excess” plutonium and potential attempts by DOE to “reinterpret” or downgrade some high-level radioactive wastes, likely another topic of legal dispute in another forum. A new PEIS must guarantee that all future transuranic waste packaging and shipping will be safe, given that LANL sent an improperly prepared waste drum to WIPP that ruptured, exploded, and closed that facility for nearly 3 years, costing the American taxpayer some \$3 billion.

B. The 1998 Court Order

While a new or Supplemental PEIS in the present circumstance is indicated under any good faith interpretation of NEPA and its implementing regulations, the DOE apparently does not yet perceive its obligations in this light. Therefore, we respectfully remind the Department that it remains subject to a court order that *mandates* the preparation of a PEIS in the current circumstances. That Order established the following requirement:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), *DOE shall prepare and circulate a Supplemental PEIS*, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, *analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.*⁵

DOE now proposes pit fabrication of “*at least*” 50 pits per year at SRS and “*at least*” 30 pits per year at LANL. So not only has DOE introduced an entirely new production site in a radically different climate and geography into its programmatic proposal, but the previously analyzed *limit* of 80 pits per year under “multiple shift operations” has become an open-ended capacity for “no fewer than” 80 pits per year at multiple sites. Absent further NEPA programmatic review, NNSA is limited to *no more than* 80 pits per year *at LANL*, and only through utilizing a lesser “routine” production capability for 50 pits per year in “multiple shift operations.” Since it is clear that the new proposed production rate of “no fewer than” 80 pits per year will *not* be achieved via multiple shift operation of a smaller “routine” capability *at LANL*, this too becomes another factor triggering the Court’s requirement for a Supplemental PEIS. As the principle plaintiffs’ counsel on the case, NRDC intends to defend this hard-won decision.

⁵ *Natural Resources Defense Council v. Pena*, 20 F.Supp.2d 45, 50 (D.D.C. 1998), <https://law.justia.com/cases/federal/district-courts/FSupp2/20/45/2423390/>

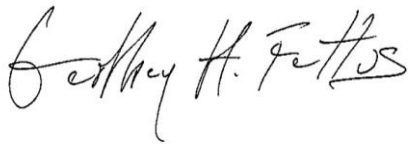
C. Conclusion

To close, in analogous circumstances, DOE and NNSA have undertaken PEISs in the past, providing ample legal precedent for why NNSA must prepare a new PEIS now. For example, in 1996, DOE undertook a *Stockpile Stewardship and Management PEIS* to consider, *inter alia*, relocating pit production to LANL. Likewise, in 2003, DOE prepared (but never finalized) a *Modern Pit Facility Supplemental PEIS* to analyze a possible increase in the rate of plutonium pit production and evaluate potential alternative sites. Similarly, in 2006, DOE undertook a *Complex 2030 Supplemental PEIS* to consider the modernization of the U.S. nuclear weapons program. And most recently, in 2008, the agencies undertook a *Complex Transformation Supplemental PEIS* in order to analyze alternatives for the modernization of the U.S. nuclear weapons program, including expanded plutonium pit production.

Because NNSA's plans and circumstances at both LANL and SRS have changed significantly in the 11 years since it last undertook NEPA programmatic analysis of this issue—and these now clearly exceed the boundaries established by Court order in 1998—the agency *must* prepare a timely Supplemental PEIS “prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability” that goes beyond “fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations.”

Indeed, by undertaking or preparing to undertake “detailed” engineering design for pit production in a “repurposed” MOX plutonium fuel facility at SRS—before completing the required Supplemental PEIS—NNSA flirts with actual or anticipatory breach of the 1998 Court Order. We would be happy to meet with relevant DOE staff and decisionmakers in order to assist the Department in its efforts to find a lawful course that complies with its NEPA obligations.

Respectfully submitted,



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August 12, 2019

By email to: NEPA-SRS@srs.gov

Re: Comments on NNSA's Draft Supplement Analysis of the 2008 Complex Transformation PEIS

Dear NEPA Document Manager,

Nuclear Watch New Mexico is pleased to submit our comments on *NNSA's Draft Supplement Analysis of the 2008 Complex Transformation PEIS*. Due to the highly related nature of the proposed actions for expanded plutonium pit production at the Los Alamos National Laboratory and Savannah River Site, these comments also incorporate by reference the attached comments submitted by Nuclear Watch and others regarding both this draft Supplement Analysis and the proposed environmental impact statement for the repurposing of the MOX Fuel Fabrication Facility.

Introduction

For the record, we enclose our previous remarks and outline of National Environmental Policy Act (NEPA) requirements from our May 17, 2019 letter addressed to the DOE Secretary and National Nuclear Security Administration (NNSA) Administrator, signed by Attorneys Nick Lawton of Meyer Glitzenstein & Eubanks LLP and Geoff Fettus of the Natural Resources Defense Council, representing the public interest groups NRDC, Nuclear Watch New Mexico, Tri-Valley CAREs and SRS Watch. See Attachment A.¹

Nuclear Watch is pleased that NNSA has correctly decided to prepare the relevant environmental impact statement for repurposing the MOX Fuel Fabrication Facility (MFFF) for plutonium pit production at the Savannah River Site (SRS). However, we believe that action is backwards, as NNSA must first prepare a PEIS from which the SRS-specific EIS is tiered. To further add to our argument, that PEIS is required under NEPA because:

1) It is needed to raise the plutonium pit production level from the 20 pits per year sanctioned by the 1996 Stockpile Stewardship and Management PEIS to 80 or more; and

¹ *The need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina*; Nickolas Lawton, MGE, LLP and Geoffrey Fettus, NRDC; May 17, 2019; <https://nukewatch.org/newsite/wp-content/uploads/2019/05/Summary-Pit-Production.pdf>

2) A second site (SRS) is now proposed for simultaneous production, which is inherently a “programmatic” decision.

Outside of the National Environmental Policy Act process, a PEIS is also required by a 1998 court order requiring a PEIS when DOE begins to plan for the production of more than 80 plutonium pits per year.² Because as discussed below, the NNSA’s current approach is to produce “no fewer than 80 pits per year,” the agency has clearly triggered the need for a new or supplemental PEIS under the terms of this court order. The Natural Resources Defense Council (NRDC) was lead counsel for the plaintiffs that secured that court order and will enforce it if necessary. Please see Attachment C for NRDC’s comments.

The Need for a Programmatic Environmental Impact Statement under NEPA

The stated purpose of NNSA’s *Supplement Analysis of the 2008 Complex Transformation Programmatic Environmental Impact Statement* is:

“... to allow NNSA to determine whether, prior to proceeding with the effort to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030, the existing Complex Transformation SPEIS should be supplemented, a new environmental impact statement should be prepared, or no further *National Environmental Policy Act* (NEPA) analysis is required. The Draft SA [Supplement Analysis] preliminarily concludes that further NEPA documentation at a programmatic level is not required; however, NNSA will consider comments on this Draft SA and publish a Final SA.”³

However, to meet legal NEPA requirements NNSA must complete a new programmatic environmental impact statement (PEIS) on its nation-wide plans for expanded production of plutonium pits, the radioactive cores of nuclear weapons. Simply amending the Record of Decision for the 2008 Complex Transformation (CT) PEIS will not be sufficient to formally raise the level of production from the level of 20 pits per year at LANL sanctioned by the original 1996 Stockpile Stewardship and Management PEIS. This is because of numerous changed circumstances and much new information.

Further, a new PEIS is required because NNSA proposes simultaneous pit production at two sites, which the Complex Transformation PEIS never considered. NNSA’s new plan involves the production of at least 30 pits per year at the Los Alamos Lab and at least fifty pits per year at the Savannah River Site (SRS), which would be a completely new mission there. As previously explained to NNSA, this is inherently a “programmatic” decision, sufficient justification by itself for a new PEIS. *See* Attachment A (describing how the decision to produce plutonium pits at these two locations requires a programmatic analysis).

NNSA plans to establish pit production at SRS by “repurposing” the failed MOX Fuel Fabrication Facility (MFFF). To use the Department of Energy’s own NEPA regulatory

² *Natural Resources Defense Council v. Pena*, 20 F.Supp.2d 45, 50 (D.D.C. 1998), <https://law.justia.com/cases/federal/district-courts/FSupp2/20/45/2423390/>

³ *Supplement Analysis of its 2008 Complex Transformation Programmatic Environmental Impact Statement*, NNSA, June 2019, Executive Summary, <https://www.energy.gov/nepa/downloads/eis-0236-s4-sa-02-draft-supplement-analysis>

language, a new PEIS is required because the expansion of pit production at LANL and the repurposing of the MOX Facility at SRS are “systematic and connected agency decisions” that are clearly “connected,” “cumulative,” and “similar” actions, therefore “their environmental effects must be considered in a single impact statement.” See Attachment A. Accordingly, DOE’s own NEPA regulations require the preparation of a PEIS, as further explained below in an excerpt from Attachment A.

The draft SA misleadingly suggests that NNSA previously analyzed “a pit production facility that would use the Mixed-Oxide Fuel Fabrication Facility (MFFF) and Pit Disassembly and Conversion Facility (PDCF) infrastructure” in the Complex Transformation PEIS. This suggestion that no further programmatic analysis of producing plutonium pits at SRS using a repurposed MFFF is highly misleading and fundamentally misrepresents what the Complex Transformation PEIS actually considered.

In reality, the Complex Transformation PEIS only cursorily mentioned the prospect of using the MFFF infrastructure, and plainly did not consider any impacts associated with the profoundly changed circumstances surrounding the MFFF—namely, the fact that it was fraught with construction fraud and abandoned in a partially completed state. Moreover, this alternative considered only producing plutonium pits at *one* facility. The passing reference to the prospect of using some MFFF infrastructure in the Complex Transformation PEIS is in no way a substitute for the rigorous analysis that is now required for the fundamentally distinct proposal to produce plutonium pits at multiple locations and in facilities that have been fraught with safety problems or were never designed for these activities.

Excerpt from our May 17, 2019 Letter on the Need for a PEIS

As our May 17, 2019 letter explained, NEPA requires agencies to consider multiple actions together in a single Programmatic EIS when those “actions are ‘connected,’ ‘cumulative,’ or ‘similar,’ such that their environmental effects are best considered in a single impact statement.” *American Bird Conservancy*, 516 F.3d at 1032 (quoting 40 C.F.R. § 1508.25(a)). Here, the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS plainly fall within the ambit of “connected,” “cumulative,” and “similar” actions within the meaning of NEPA, meaning that they must be considered together in a single programmatic EIS.

The expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS are “connected” actions under NEPA. Connected actions “are closely related and therefore should be discussed in the same impact statement” because they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” 40 C.F.R. § 1508.25(a)(1). Both the proposed expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits at SRS are interdependent parts of DOE and NNSA’s plan to fulfill the Trump Administration’s stated goal in its 2018 Nuclear Posture Review of producing at least 80 plutonium pits per year by 2030. See Dep’t of Defense, *Nuclear Posture Review*, at 64. Because the Administration cannot reach the Nuclear Posture Review goal without both proposed actions at LANL and SRS, and because both actions depend on the Nuclear Posture Review for their justification, these actions are “connected” under NEPA and must be considered together in a single EIS.

Likewise, both projects are “similar” because “when viewed with other reasonably foreseeable or proposed agency actions” both “have similarities that provide a basis for evaluating their environmental consequences together.” 40 C.F.R. § 1508.25(a)(3). These similarities are clear. To begin with, both projects involve producing plutonium pits for nuclear weapons. Moreover, both projects are being proposed in locations where the safety of producing plutonium pits is highly questionable at best as LANL suffers from serious and ongoing deficiencies in the management of nuclear safety issues, while the MOX Facility was never designed for fabrication of plutonium pits, is still incomplete, and was the subject of fraudulent construction practices that leave the state and safety of the building highly uncertain. Finally, because both projects entail processing highly hazardous nuclear materials in facilities with serious safety concerns, both projects are likely to have serious and similar nuclear safety issues and environmental impacts. Accordingly, both actions are “similar” under NEPA.

Furthermore, both actions also satisfy the definition of “cumulative” actions, because they will “have cumulatively significant impacts.” 40 C.F.R. § 1508.25(a)(2). A cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Id.* § 1508.7. Here, not only will the expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits each have significant impacts in their own right, but each project will also likely have cumulative environmental impacts that should be taken into account in a single EIS. For example, because each site will be performing similar activities and working with similar materials, each site will likely generate wastes that DOE and NNSA will have to determine how to treat, store, or dispose of.

Accordingly, because the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS are clearly “connected,” “cumulative,” and “similar” actions, “their environmental effects are best considered in a single impact statement,” *American Bird Conservancy*, 516 F.3d at 1032, and a PEIS is the legally and practically appropriate way to accomplish this.

Not surprisingly, therefore, DOE’s own regulations require the production of a PEIS under these circumstances. DOE’s regulations mandate that “[w]hen required to support a DOE programmatic decision (40 CFR 1508.18(b)(3)), DOE shall prepare a programmatic EIS.” 10 C.F.R. § 1021.330(a). In turn, a “DOE programmatic decision” includes the “[a]doption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.” 40 C.F.R. § 1508.18(b)(3). Here, both proposed actions at LANL and SRS are “systematic and connected agency decisions” undertaken to implement the specific “executive directive” in the 2018 Nuclear Posture Review to produce at least 80 plutonium pits per year by 2030. Accordingly, DOE’s regulations mandate the preparation of a PEIS.

– End of Excerpt –

Important New Information and Changed Circumstances Since the 2008 Complex Transformation Programmatic Environmental Impact Statement

While the following list is by no means all inclusive, Nuclear Watch asserts that the following issues must be considered in a new programmatic environmental impact statement on expanded plutonium pit production.

First, while the CT PEIS considered various levels of expanded plutonium pit production at five specific NNSA candidate sites, **it did not consider simultaneous production at two sites**. This changed circumstance alone requires a new programmatic environmental impact statement on expanded plutonium pit production because it radically changes the area and environmental impacts associated with plutonium pit production. For example, it logically increases the need for transportation of components or finished products and by creating two supply chains and waste streams instead of one.

The Institute for Defense Analysis Report: in May 2019 we obtained an unclassified executive summary of the Institute for Defense Analysis' critique on NNSA's plans for expanded plutonium pit production.⁴ It concluded:

"Summary of Main Findings

1. Eventually achieving a production rate of 80 ppy [pits per year] is possible for all options considered by the EA [expanded pit production Engineering Assessment], but will be extremely challenging.
2. *No available option can be expected to provide 80 ppy by 2030*. DoD should evaluate how to best respond to this requirement shortfall.
3. Trying to increase production at PF-4 [at LANL] by installing additional equipment and operating a second shift is *very high risk*.
4. *Effort to identify and address risks is underway, but is far from complete*.
5. Strategies identified by NNSA to shorten schedules will increase the risks of schedule slip, cost growth, and cancellation." (Italicized emphasis added.)

In addition, the report stated:

"IDA examined past NNSA programs and could find no historical precedent to support starting initial operations (Critical Decision-4, or CD-4) by 2030, much less full rate production. Many similar projects (e.g., the Modern Pit Facility, Chemistry Metallurgy Research Replacement-Nuclear Facility, and Pit Disassembly and Conversion Facility) were eventually cancelled. Of the few major projects that were successfully completed, all experienced substantial cost growth and schedule slippage; we could find no successful historical major project that both cost more than \$700 million and achieved CD-4 in less than 16 years..."⁵

These damning conclusions by independent experts buttress the need for full programmatic review of NNSA's plans for expanded plutonium pit production. NNSA is planning to throw bad

⁴ Institute for Defense Analysis, March 2019, available at <https://nukewatch.org/newsite/wp-content/uploads/2019/07/IDA-ExecSum-UNC-March2019.pdf>

⁵ Ibid., p. vi.

money after bad money, wasting taxpayers' funds trying to achieve pit production goals at which it will most likely fail, at the MOX Fuel Fabrication Facility (MFFF), a facility that has already failed in its previous mission while wasting billions of taxpayer dollars.

Indeed, several findings from the IDA report strongly indicate why additional NEPA review is necessary in a new or supplemental PEIS—and, relatedly, why the draft SA is entirely insufficient. For example, the IDA report reveals that efforts to identify and address risks associated with the proposal to produce plutonium pits at LANL and SRS are underway, but far from complete. These risks include risks to the environment, as risks associated with the failure of any aspect of this mission will entail environmental impacts, such as the production of hazardous waste. The assessment of risks to the environment, and the evaluation of alternatives that may mitigate such risks, is precisely the purpose of NEPA. Because NNSA is still evaluating such risks and determining how to address them, it is premature and reckless for the draft SA to conclude that no further NEPA review is necessary for the expansion of pit production at LANL.

In fact, the IDA report provides a clear example of why this is the case: the IDA report shows that the expansion of production at PF-4 is extremely high risk. The draft SA is not candid about this point, despite the fact that one of NEPA's aims includes providing information about environmental hazards to ensure that decision-makers are properly taking such risks into account and that the public can meaningfully contribute to agency decisions through informed comment. The draft SA fails at this goal, providing another indication that a PEIS is necessary.

Given the strong unlikelihood of NNSA meeting its plutonium pit production goals by 2030, the agency should slow down and get the NEPA process right. Moreover, NEPA indisputably helps DOE make better decisions and conserve taxpayer dollars.⁶ A PEIS should be used to fully identify and begin to successfully address all program risks, including budget and schedule. Further, both the PEIS and the SRS-specific environmental impact statement should address the unlikelihood of NNSA's meeting its declared plutonium pit production schedule. Likewise, because the IDA report clearly reveals that any NNSA effort to meet a 2030 deadline will necessarily be a rush job, the PEIS (as well as any other NEPA document such as a final SA or an EIS for the SRS site) must address all risks associated with the hasty nature of the agency's proposed action.

Finally, before committing irretrievable resources to expanded plutonium pit production, a new programmatic environmental impact statement should address how the Department of Energy's Defense Programs (including NNSA nuclear weapons programs since 2000) have been on the Government Accountability Office's High Risk List for project mismanagement since its inception in 1992.⁷ While GAO acknowledges that NNSA has made some progress, the new

⁶ As one concrete example, the now-Executive Director of Nuclear Watch New Mexico commented on the lack of wildfire prevention in a draft 1999 LANL Site-Wide Environmental Impact Statement (SWEIS). In response, the final LANL SWEIS included a detailed hypothetical wildfire that became all too real a half year later during the Cerro Grande Fire. That hypothetical scenario aided Lab leadership in their decision to order evacuation of all but essential personnel. Mitigation provisions in the final LANL SWEIS included fire prevention measures that helped to keep the Cerro Grande Fire a half-mile away from above ground plutonium-contaminated transuranic wastes stored at the Lab's Area G, which could have been catastrophic had their drums ruptured due to high heat.

⁷ HIGH-RISK SERIES Substantial Efforts Needed to Achieve Greater Progress on High-Risk Areas, Government Accountability Office, March 2019, p. 33, <https://www.gao.gov/assets/700/697245.pdf>. Of

PEIS should address how NNSA plans to completely get off that list through the hard work of reforming its capital acquisition program and instituting rigorous contractor accountability. This is particularly true given that NNSA plans to repurpose the MOX Facility, which has already squandered billions of taxpayer dollars.

Draft Supplement Analysis of the Complex Transformation Supplemental PEIS

On June 28, 2019 NNSA published a Notice of Availability for a *Draft Supplement Analysis of the Complex Transformation Supplemental Programmatic Environmental Impact Statement* that the public can comment on. In the Draft Supplement Analysis (hereinafter “DSA”) NNSA stated:

“The purpose of this analysis is to determine, at a programmatic level: (1) if the potential impacts of the proposed action exceed those in the Complex Transformation SPEIS; and (2) if so, if the impacts would be considered significant in the context of NEPA (40 CFR 1508.27), which would require preparation of a supplement to the Complex Transformation SPEIS.”⁸

Nuclear Watch commends NNSA for offering the Draft SA for public comment. However, we believe that the purpose of the Supplement Analysis as described above by NNSA (i.e., “proposed action exceed[ing] those in the Complex Transformation SPEIS”) is improperly limited in scope. What the law instead requires is:

“(a) DOE **shall** prepare a supplemental EIS if there are substantial changes to the proposal or significant new circumstances or information relevant to environmental concerns, as discussed in 40 CFR 1502.9(c)(1).”⁹

In turn 40 CFR 1502.9(c)(1) mandates that:

“(c) Agencies:

- (1) **Shall** prepare supplements to either draft or final environmental impact statements if:
 - (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or
 - (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.”¹⁰

particular relevance is “Capacity: not met. In August 2018, a statutorily required internal review of NNSA’s capacity identified unmet critical staffing needs, especially staffing to manage and oversee work on the agency’s uranium and plutonium missions, which are expected to grow.” P. 217. This does not bode well given the MOX program debacle.

⁸ *Draft Supplement Analysis of the Complex Transformation Supplemental Programmatic Environmental Impact Statement*, DOE/EIS-0236-S4-SA-02 June 2019, p. 26, <https://www.energy.gov/sites/prod/files/2019/06/f64/draft-supplement-analysis-eis-0236-s4-sa-02-complex-transformation-06-2019.pdf>.

⁹ 10 CFR § 1021.314 - *Supplemental environmental impact statements*, DOE NEPA Implementing Regulations, <https://www.law.cornell.edu/cfr/text/10/1021.314> (bolded emphasis added)

¹⁰ 40 CFR § 1502.9 - *Draft, final, and supplemental statements*, Council on Environmental Quality, <https://www.law.cornell.edu/cfr/text/40/1502.9> (bolded emphasis added)

We believe that 10 CFR § 1021.314 and 40 CFR § 1502.9 apply to programmatic environmental impact statements as well, and that both conditions of “substantial changes in the proposed action” and “significant new circumstances or information relevant to environmental concerns” are more than sufficiently met. This is different from benchmarking the need to whether “the potential impacts of the proposed action exceed those in the Complex Transformation SPEIS.”

Therefore, we believe that the way that NNSA has framed the Supplement Analysis as a question of whether NNSA’s new plutonium pit production proposal exceeds the risk boundaries of the Complex Transformation PEIS is not compliant with the law, i.e. the National Environmental Policy Act. This further makes NNSA’s preliminary conclusion that a draft supplemental PEIS is not required grossly incorrect and legally deficient. In addition, as discussed below, the answer to whether the agency’s new proposal exceeds the risk boundaries of the Complex Transformation PEIS is plainly “yes.”

Nuclear Watch further asserts that because the Chemistry and Metallurgy Research Replacement Project (CMRR)-Nuclear Facility (NF) was not built, all analysis of pit production at LANL in the CT SPEIS is outdated and no longer has any current relevance. NNSA now proposes to cram all the operations previously planned for the CMRR-NF into the Lab’s newly constructed Radiological Laboratory Utility and Office Building (AKA “Rad Lab”) and nearly 50-years-old Plutonium Facility-4. Moreover, NNSA now proposes to use the MOX Fuel Fabrication Facility (MFFF), which was poorly built for a different mission and never completed.

“[T]o determine, at a programmatic level: (1) if the potential impacts of the proposed action exceed those in the Complex Transformation SPEIS” strongly implies that NNSA’s Supplement Analysis is an exercise in determining whether potential public risks are “bounded by” the analyses in the Complex Transformation PEIS. But “bounded by” is not an actual NEPA term. As DOE’s own literature states:

“Neither the Council on Environmental Quality (CEQ) NEPA implementing regulations (40 CFR Parts 1500-1508) nor the DOE NEPA regulations specifically address bounding analyses in NEPA documents... **bounding analyses should not be used where more accurate and detailed assessment is possible and would better serve the purposes of NEPA.**” ¹¹

Therefore, it is improper that NNSA should hinge the outcome of this Supplement Analysis on the bounding analysis of the 11-year-old Complex Transformation PEIS.

Further, the 2008 CT SPEIS only analyzed generic hypothetical facilities for future plutonium pit production, i.e. the Consolidated Plutonium Center (CPC) and the Consolidated Nuclear Production Center (CNPC). Neither of these were built, while in contrast NNSA now proposes upgrades to and/or repurposing of specific existing facilities (i.e., LANL’s Rad Lab and PF-4 and SRS’s MFFF). A new PEIS should analyze those upgrades and repurposing of real (not hypothetical) facilities as “interconnected” actions whose “environmental effects are best considered in a single impact statement” because “more accurate and detailed assessment is

¹¹ *Mini-guidance Articles from Lessons Learned Quarterly Reports, December 1994 to September 2005*, p. 2-4, USDOE Office of NEPA Policy and Compliance, October 2005, <https://www.energy.gov/sites/prod/files/miniguide-20110511.pdf> Bolded emphasis added.

possible and would better serve the purposes of NEPA." We don't believe anything in NNSA's new proposal can be 'bounded' by the CT SPEIS.

Moreover, hinging the outcome of this SA on whether the boundaries of the CT SPEIS are exceeded or not hinders consideration of possible mitigation measures and leaves the relative differences in the impacts among the alternatives undiscernible. This too is contrary to stated DOE NEPA policy:

"Using Bounding Analyses in DOE NEPA Document

... DOE must ensure that the analysis is not so broad and all-encompassing as to mask the distinctions among alternatives, or to hinder consideration of mitigations... While the assumptions may be conservative and the impacts estimated may be substantially higher than those that would actually occur, the relative differences in the impacts among the alternatives should be discernible for the analysis to be useful in informing the choice among alternatives... **It is never appropriate to "bound" the environmental impacts of potential future actions (not yet proposed) and argue later that additional NEPA analysis is unnecessary because the impacts have been bounded by the original analysis.**" ¹²

In effect, this is what NNSA is doing, using analysis of hypothetical facilities in the 2008 Complex Transformation PEIS to claim in 2019 that no additional NEPA analysis is needed for expanded plutonium pit production at real specific facilities. This does not comport with DOE NEPA policy that "more accurate and detailed assessment is possible and would better serve the purposes of NEPA."

Additionally, even presuming that the agency's bounding approach to the draft SA had any logical merit or legal validity (which it does not), the fact remains that the agency's new proposal does plainly exceed the risks analyzed in the Complex Transformation PEIS. For example, the Complex Transformation PEIS projected that operations at LANL would take place in a new facility, whereas the agency now proposes essentially indefinite reliance on an antiquated facility that is approaching the end of its design life and that has a well-documented history of serious safety and reliability problems. Accordingly, the agency's new proposal is substantially riskier than anything considered in the Complex Transformation PEIS.

Likewise, the fact that the agency now proposes to produce plutonium pits at *two* locations simultaneously plainly has risks that exceed any analysis in the Complex Transformation PEIS, which only considered producing pits at *one* location. For example, there are risks associated with transportation of components, products and waste, and with having two waste streams instead of one, that were never analyzed in the Complex Transformation PEIS. Accordingly, even if there was any merit to the agency's reliance on a bounding approach to the Supplement Analysis (which there is not), the risks associated with the agency's new proposal plainly do exceed anything previously considered.

¹² Ibid., <https://www.energy.gov/sites/prod/files/miniguide-20110511.pdf>. Bolded emphasis added.

The Proposed Configuration of NNSA Facilities for Future Plutonium Pit Production Has Substantially Changed

The first substantial change in the configuration of facilities that NNSA proposes to use for expanded plutonium pit production is obvious - - the repurposing of the MOX Fuel Fabrication Facility (MFFF) for plutonium pit production. NNSA apparently thinks that it can adequately meet its NEPA obligation to analyze the repurposing of the MFFF for pit production through the SRS-specific environmental impact statement (EIS) that it has already initiated. We contend that is not enough, again reiterating that 10 CFR § 1021.314 and 40 CFR § 1502.9 apply to programmatic environmental impact statements as well. We further contend that the very fact that a second site (SRS) is now involved some 1,500 miles from the existing plutonium pit production site (i.e., the Los Alamos Lab) inherently requires programmatic review. See NukeWatch scoping comments on the SRS EIS in Attachment B.

Indeed, the draft SA itself confirms that NNSA views this change as “significant” under NEPA. Again, NEPA’s implementing regulations—which are binding on all federal agencies, 40 C.F.R. § 1500.3—clearly state that “[a]gencies . . . *shall* prepare supplements to either draft or final environmental impact statements if . . . [t]he agency makes substantial changes in the proposed action that are relevant to environmental concerns; or [t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” *Id.* § 1502.9(c). Here, NNSA’s own draft SA states that the “cancellation of the construction of the MFFF at SRS” is a “*significant change* that has occurred regarding plutonium disposition” since the Complex Transformation PEIS. Draft SA at 43. NNSA’s description of the MFFF cancellation as a “significant change” leaves no room to doubt that there has been a “substantial change” and a “significant new circumstance” within the meaning of NEPA’s implementing regulations.

Indeed, confirming the significance of this changed circumstance, NNSA likewise states that in light of the cancellation of the MFFF, “DOE has made no official decisions regarding how the surplus plutonium will be dispositioned.” *Id.* The fact that the cancellation of the MFFF has left NNSA and DOE with no coherent plan regarding this important issue is a clear indication of how significant the cancellation and proposed repurposing of this facility is within the meaning of the National Environmental Policy Act.

But the repurposing of the MFFF is not the only major facility change. The Chemistry and Metallurgy Research Replacement Project (CMRR)-Nuclear Facility at LANL was integral to all alternatives of plutonium pit production that the 2008 Complex Transformation SPEIS considered. However, the CMRR-NF was canceled in 2012 which resulted in an expanded mission and equipage of the Radiological Laboratory Utility and Office Building (AKA “Rad Lab”) and expanded upgrades to PF-4. We assert that this troika of proposed facility changes (i.e. MFFF repurposing, CMRR-NF cancellation and Rad Lab/PF-4 upgrades) plainly constitutes a significant changed circumstance as well as new information that demands programmatic review in a programmatic environmental impact statement.

The Drivers and the Requirement for Expanded Plutonium Pit Production Have Substantially Changed

The Draft Supplement Analysis states:

“Since 2008, NNSA has emphasized the need to eventually produce 80 pits per year; the joint DoD-DOE white paper entitled, *National Security and Nuclear Weapons in the 21st Century*, cataloged the need and justification for pit production rates. In the decade plus since this paper was published, the drivers and the requirement for pit production have remained relatively unchanged through several administrations and changes in congressional leadership.” D Supplement Analysis Ex. Summary.

Far from the drivers and the requirement for pit production remaining relatively unchanged as NNSA asserts, the main “drivers” have in fact radically changed in that they have been twice canceled. NNSA’s claim is then followed with only a vague justification that the third and latest “driver” that reputedly requires expanded pit production. Specifically, the 2008 DoD-DOE white paper *National Security and Nuclear Weapons in the 21st Century* stated that:

“[T]he Departments of Defense and Energy are pursuing an alternative to this strategy of indefinite life extension; namely, the gradual replacement of existing warheads with warheads of comparable capability that are less sensitive to manufacturing tolerances or to aging of materials. The generic concept is often referred to as the Reliable Replacement Warhead (RRW).”¹³

The white paper goes on to expressly link the need for expanded plutonium pit production to the Reliable Replacement Warhead (RRW). But in the same year Congress declined to fund RRW, thus cancelling the first rationale for expanded plutonium pit production.

Following that, NNSA claimed that the need for expanded pit production was justified by a future “Interoperable Warhead” which the agency described in congressionally-required annual Stockpile Stewardship and Management Plans as the centerpiece of its “3+2” plan to transform the nuclear weapons stockpile and its supporting research and production complex. But NNSA quietly canceled the Interoperable Warhead in an obscure December 2018 report, eliminating the second concrete justification for expanded pit production. In that same report NNSA offered a weak justification for future expanded pit production for the Interoperable Warhead’s proposed successor (the W87-1) by stating:

“This campaign to establish a national pit manufacturing capability at required capacity must happen even if the W87-1 program must, for some unplanned reason, deploy with a reused pit. If that were to be the case, then the pit manufacturing campaign would provide new pits for the LEP or replacement program that follows the W87-1.”¹⁴

¹³ *National Security and Nuclear Weapons in the 21st Century*, p.18, <https://dod.defense.gov/Portals/1/Documents/pubs/nuclearweaponspolicy.pdf>

¹⁴ W78 Replacement Program (W87-1): Cost Estimates and Use of Insensitive High Explosives Report to Congress, NNSA, December 2018, p. 6, <https://nukewatch.org/newsite/wp-content/uploads/2019/03/W78-Replacement-Program-Cost-Estimates-IHE-1.pdf>

Our point is that NNSA does not specify what that next Life Extension Program or replacement program is, thus has yet to offer a concrete justification for expanded plutonium pit production that it estimates will cost \$43 billion in taxpayer funds over 30 years.¹⁵ Plainly, contrary to NNSA's cursory claim that the "drivers" for pit production remain unchanged, the agency's proposals for pit production and the justifications for pit production have shifted radically multiple times. In light of these profoundly changed circumstances, it is imperative that a supplemental PEIS clearly defines the specific need for expanded plutonium pit production.

The 2008 white paper *National Security and Nuclear Weapons in the 21st Century* also noted:

"Successive efforts at extending the service life of the current inventory of warheads will drive the warhead configurations further away from the original design baseline that was validated using underground nuclear test data. Repeated refurbishments will accrue technical changes that, over time, might inadvertently undermine reliability and performance."¹⁶

This is echoed in NNSA's FY 2020 Congressional Budget Request:

"The stockpile is inherently moving away from the Underground Test (UGT) database through aggregate influences of aging, modern manufacturing techniques, modern materials, and evolving design philosophies."¹⁷

The Draft Supplement Analysis states that NNSA "is responsible for meeting the national security requirements established by the President and the Congress to maintain and enhance the safety, reliability, and performance of the United States nuclear weapons stockpile." DSA Ex. Summary. A supplemental PEIS should analyze a curatorship-like Stockpile Stewardship Program that rigorously hews to the tested pedigree of the nuclear weapons stockpile, avoiding changes at every possible turn that could introduce uncertainties. This is very salient given that according to NNSA's FY 2020 Congressional Budget Request future pits will not be exact replicas but instead will be "W87-like." A supplemental PEIS should explain what that term means and explore to what extent any heavily modified pit designs could undermine confidence in safety and reliability, thereby possibly degrading national security and prompting a return to full-scale testing, which would have severe international proliferation consequences.

The Draft SA concludes that no further programmatic review is needed for the Pantex Plant as a supporting site for expanded plutonium pit production. DSA p. 21. This is incorrect as the Pantex Plant is the site for nonintrusive requalification leading to reuse of existing pits in NNSA's Life Extension Programs. We contend that a supplemental PEIS is required to consider the extensive reuse of plutonium pits as a serious alternative to virgin pit production, an alternative that would be less expensive and less internationally provocative and environmentally damaging.

¹⁵ Plutonium Pit Production Engineering Assessment (EA) Results, NNSA, May 2018, slide 10 (add Alt 1 and 2c together), https://nukewatch.org/newsite/wp-content/uploads/2019/03/FINAL-Pu-Pit-Production-EA-Results-05.14.18_Unclassified.pdf

¹⁶ *National Security and Nuclear Weapons in the 21st Century*, p. 17, <https://dod.defense.gov/Portals/1/Documents/pubs/nuclearweaponspolicy.pdf>

¹⁷ NNSA FY 20 Congressional Budget Request, p. 158, <https://www.energy.gov/sites/prod/files/2019/04/f62/doe-fy2020-budget-volume-1.pdf>

To put this more strongly, the extensive reuse of existing plutonium pits should be the third alternative in a new programmatic environmental impact statement transcending the binary choice of expanded plutonium pit production and a No Action Alternative to not expand pit production (which the government is clearly biased against). It is a reasonable, credible alternative that would save taxpayers money and cause less environmental harm compared to expanded plutonium pit production.

Changes in Environmental Conditions, Operations, and NEPA Process

Under Changes in Environmental Conditions, Operations, and NEPA Process, the Draft SA states:

“While there are differences in the natural environment at both sites [LANL and SRS] since the Complex Transformation SPEIS was prepared, the differences are not significant in terms of analyzing changes in environmental impacts at a programmatic level.” DSA p. 23.

To begin with, the draft SA fails to provide sufficient details regarding the nature of the changed circumstances and any coherent justification for the NNSA’s claim that these differences are ostensibly “not significant.” Instead, the draft SA provides only a “high-level summary” of environmental conditions and punts on any detailed analysis, stating that “[i]f NNSA decides to implement the proposed action, site-specific documents would be prepared and would provide a detailed analysis of any changes in the environmental conditions at LANL and SRS, as appropriate.” *Id.*

This statement is effectively a concession of the draft SA’s inadequacy. NEPA requires agencies to fully analyze environmental circumstances and to assess the significance of any environmental conditions and impacts *before making a decision*. See, e.g., 40 C.F.R. § 1501.2 (“Agencies shall integrate the NEPA process with other planning *at the earliest possible time* to ensure that planning and decisions reflect environmental values.” (Emphasis added)). In flagrant contravention of this fundamental NEPA principle, NNSA instead proposes to make its decision first and then consider environmental circumstances afterwards. Because NNSA simply concludes based solely on a “high-level summary” of environmental conditions, which it concedes must be supplemented, the draft SA is plainly inadequate.

Moreover, the draft SA’s suggestion that changed environmental conditions are ostensibly “not significant” is plainly incorrect. Since the 2008 Complex Transformation PEIS LANL experienced the grave threat of another major wildfire, the 2011 Los Conchas Fire. After ignition, that crown fire raced 13 miles due east to the Lab’s western boundary in 24 hours. Given climate change, global warming and increased aridity in the Southwest, the incidences of wildfire at or near LANL will likely only increase.

Concerning operations at LANL, the Complex Transformation PEIS did not consider the track record of chronic nuclear safety infractions at PF-4, which ultimately led to the cessation of major plutonium operations for nearly four years. Indeed, the Draft SA claims that at both LANL and SRS “Potential impacts from some accidents, such as criticality accidents, would not change, as these accidents are not dependent on the number of pits produced.” DSA p. 30 and 35. That

categorical statement seems to defy simple logic. *See* Attachment A (describing the shutdown of LANL plutonium operations and an OIG report demonstrating that NNSA has failed to correct its deficient management of safety issues at LANL).

As the Defense Nuclear Facilities Safety Board (DNFSB) noted in its required 2018 annual report to Congress:

“Nuclear Criticality Safety at Los Alamos National Laboratory (LANL)—Based on an evaluation of the LANL nuclear criticality safety program, the Board in its November 28, 2018, letter to the Secretary of Energy, identified the following related to this vitally important safety program: (1) lack of concrete milestones in corrective action initiatives for weaknesses in the program; (2) inadequate staffing in the nuclear criticality safety division; (3) inadequate documentation for daily work activities with the potential to impact nuclear criticality safety; (4) instances of poor operational quality in implementing nuclear criticality safety requirements; and (5) repetitive, ineffective corrective actions for weaknesses in the program.”¹⁸

We contend that a supplemental PEIS is needed to analyze the occupational and public risks of repeated, chronic nuclear criticality safety incidences at LANL and how to resolve them. By extension this applies to any future pit production at SRS as well. We argue that a genuine, comprehensive nuclear safety regime needs to be instituted at a programmatic level that must be considered in programmatic environmental impact statement.

The Draft SA considers the Waste Isolation Pilot Plant (WIPP) as a supporting site for expanded plutonium pit production since production would increase transuranic waste disposal at WIPP. The DSA notes that available capacity has decreased since the time the Complex Transformation SPEIS was prepared but concludes that the impacts of increased pit production on TRU disposal at WIPP are not significant. DSA p. 21. However, this contention of insignificance is plainly premature and lacks any rational basis. Indeed, the draft SA also states that in light of the “significant change” of cancelling construction of the MFFF at SRS, NNSA is evaluating the possibility of instead disposing of surplus plutonium at WIPP. Draft SA at 43. Accordingly, the changes proposed at LANL and SRS plainly have an important impact on WIPP, and the fact that NNSA concedes that cancelling the MFFF is a “significant change” plainly reveals that the impact on the WIPP will be commensurately “significant.”

We contend that programmatic review is required to consider and analyze all the possible future competing demands on WIPP. These include future expanded pit production, 34 tons or more of existing “excess” plutonium and potential attempts by DOE to “reinterpret” or downgrade some high-level radioactive wastes, likely another topic of legal dispute in another forum. It should also be noted that the DSA’s claim of current remaining capacity of 108,048 cubic meters at WIPP could be reduced by 30% if the current challenge by citizen groups (including Nuclear Watch NM) to DOE’s recalculation of disposed TRU waste is successful. Finally, a new PEIS must guarantee that all future transuranic waste packaging and shipping will be safe, given that

¹⁸ Defense Nuclear Facilities Safety Board 29th Annual Report to Congress, April 2019, p. ii, <https://www.dnfsb.gov/sites/default/files/document/17791/2018%20Annual%20Report%20to%20Congress%20%5B2019-100-017%5D.pdf>

LANL sent an improperly prepared waste drum to WIPP that ruptured, exploded, and closed that facility for nearly three years, costing the American taxpayer some \$3 billion.

Under “Cumulative Impacts” the Draft SA concludes that “The potential cumulative transportation impacts [of the Yucca Mountain Repository] would be reduced from that presented in the Complex Transformation SPEIS.” Omitted from any consideration in the DSA is the current application submitted by the Holtec Corporation to the Nuclear Regulatory Commission for “Consolidated Interim Storage” in New Mexico of up to 170,000 metric tons of past and future spent nuclear fuel. The cumulative impacts of this proposal could substantially exceed that of Yucca Mountain since the requested total inventory is far greater than that proposed for Yucca Mountain. Moreover, the lethal spent nuclear fuel would have to be moved again once a permanent repository is ever completed. A supplemental PEIS should consider the cumulative impacts of proposed Consolidated Interim Storage of high level wastes.

Also, under “Cumulative Impacts” the DSA notes that there have been numerous changes to NNSA’s Plutonium Disposition Plan, including the cancellation of the MOX program and the repurposing of the MOX Fuel Fabrication Facility for plutonium pit production. As a consequence, LANL would likely be involved in oxidizing plutonium as part of the proposed “dilute and dispose” process to dispose of excess plutonium at WIPP. DSA p. 43. This however cries out for programmatic review at the highest level since that plutonium oxidizing can only take place at LANL’s PF-4, the already overcrowded facility slated to produce at least 30 pits per year, with a long track record of nuclear safety infractions. It is not clear that there is even enough floor space in PF-4 for oxidation of up to 2.5 tons of plutonium annually if expanded pit production is implemented, and reportedly preparations for expanded oxidizing is on hold until pit production requirements are better known. But this is the very reason why a programmatic environmental impact statement is required, to help sort out possible competing priorities between different programs.

DOE Is Systematically Degrading Safety

The long track record of chronic nuclear criticality incidences at LANL has become publicly known primarily through the reporting of the Defense Nuclear Facilities Safety Board (DNFSB). This has obvious relevance to any future plutonium pit production at SRS. In what is arguably an attempt to kill the messenger DOE has issued its Order 140.1 *Interface with the Defense Nuclear Facilities Safety Board* to replace its prior directive on interface with the Board, DOE Manual 140.1-1B. As the Board itself observed:

“...DOE Order 140.1, *Interface with the Defense Nuclear Facilities Safety Board*, issued in May 2018, threatens to undermine the Board’s ability to execute its statutory mission under the Atomic Energy Act. DOE Order 140.1 improperly attempts to diminish the Board’s statutory mandate in four principal ways, all of which are inconsistent with the text of the Atomic Energy Act:

- The Order contains a narrow definition of “Public Health and Safety,” which only includes individuals located outside of DOE site boundaries (i.e., excluding onsite individuals and workers);
- The Order provides exemptions allowing DOE and contractors to not provide access to facilities that DOE determines do not have the potential to adversely affect public health and safety, which could limit Board oversight at many defense nuclear facilities;

- The Order lacks a clear provision to provide the Board with ready access to such information, facilities, and personnel as the Board considers necessary to carry out its responsibilities; and
- The Order provides an allowance for DOE to deny Board requests for relevant deliberative and pre-decisional information.”¹⁹

The last point in particular strikes at the heart of potential risks that the public may be exposed to by plutonium pit production at the repurposed MOX Facility, especially in light of numerous allegations of improper and shoddy construction. The Safety Board is the only independent entity that can review and comment on NNSA facility planning before those plans are made final. The DOE attempt to bar the DNFSB from ostensibly “deliberative and pre-decisional information”—apparently designated as such unilaterally by DOE without any prospect for appeal or review—could directly lead to a facility repurposed for pit production lacking the safety provisions and requirements that would make the public safer.

DOE/NNSA’s degradation of safety even as it plans to ramp up plutonium pit production appears to be systematic. As the Safety Board notes:

“DOE has begun the process to revise 10 CFR Part 830, *Nuclear Safety Management*, which has served as the cornerstone of its regulatory framework to ensure adequate protection of public health and safety... Overall, the Board is concerned that the proposed revision to 10 CFR Part 830 will make it more difficult for the Department to exercise consistent oversight across the complex and loosens requirements upon which DOE and the public rely to ensure adequate protection of public health and safety. The Board identified concerns with DOE’s proposal to remove the requirement for DOE to annually review and approve changes to documented safety analyses. The Board found that DOE’s proposed change, if implemented, created a potential for the safety basis and facility operations to drift outside the envelope approved by DOE”²⁰

This is again directly relevant to the risks posed to the public by plutonium pit production at both LANL and SRS. LANL’s PF-4 has long had a bad track record of insufficient and /or outdated safety bases and the removal of the requirement to annually review and approve changes could directly threaten the public.

In short, a new PEIS is needed to fully review the risks posed by plutonium pit production to the public by apparent systemic attempts by DOE to degrade institutional safety and independent review of safety. That review should be incorporated into the SRS-specific EIS as well.

Alleged Construction Deficiencies at the MOX Fuel Fabrication Facility

There are numerous allegations over shoddy and potentially illegal activities related to the installation of various components in the MOX plant. These allegations pertain not only to the faulty HVAC system, which may have to be demolished in its entirety, but also to many other installations. If any part of the HVAC system is proposed for reuse there must then be full

¹⁹ Ibid., p. 2.

²⁰ Ibid., p. 29.

documentation that it meets nuclear quality control standards for both the components, including gaskets and hangers, and their installation.

A new PEIS must seriously analyze the as-built quality of the MOX Facility and demonstrate that it indeed can be “repurposed” for expanded plutonium pit production. The new PEIS must include a full review of MOX construction, inspections and certification of components. This includes the HVAC system and wall penetrations. The certification of components that may be considered for reuse in the repurposed MOX Fuel Fabrication Facility must be demonstrated to meet nuclear quality control requirements. The extent of problems with construction of the MOX Facility may well preclude its use for pit production.

All of this is underscored by the fact that the U.S. government has filed a false claims lawsuit against the MOX Facility contractor. As the Department of Justice announced:

“... the United States has filed suit against CB&I AREVA MOX Services LLC (MOX Services) and Wise Services Inc. under the False Claims Act and the Anti-Kickback Act in connection with a contract between MOX Services and the National Nuclear Security Administration relating to the design and operation of the MOX Fuel Fabrication Facility (MFFF) at the NNSA Savannah River Site in Aiken, South Carolina... “Government contractors who line their bank accounts by receiving kickbacks or submitting fraudulent claims undermine the public's trust in government programs and operations,” said Assistant Attorney General Jody Hunt of the Department of Justice’s Civil Division. “We will continue to vigorously pursue those who misuse taxpayer funds.”... “The Department of Energy Office of Inspector General remains committed to ensuring the integrity of the Department’s contractors and subcontractors,” said Teri L. Donaldson, Department of Energy Inspector General. “We take allegations of false claims, overbilling, and kickbacks very seriously and will aggressively investigate these matters to protect the Department and the American taxpayers.” ”²¹

DOE and NNSA should demonstrate that professed zeal for protecting the American taxpayer through full investigations into fraud, waste, abuse and mismanagement before repurposing the MOX Facility, and report on it in a new draft PEIS. Most importantly, the draft PEIS should objectively evaluate whether the MOX Fuel Fabrication Facility can realistically be repurposed for expanded plutonium pit production to begin with. This should precede the draft SRS environmental impact statement which should give still greater detail on facility impacts, waste streams, etc.

Seismic Concerns

We note how seismic concerns played a major role in causing massive cost overruns involving billions of taxpayer dollars and related complete redesigns of both the Chemistry and Metallurgy Research Replacement Project at the Los Alamos National Laboratory and the Uranium Processing Facility (UPF) at the Y-12 Site. A new PEIS should incorporate the freshest seismic data possible for expanded plutonium pit production at LANL, especially given that it is not clear

²¹ *United States Files False Claims Act Lawsuit in Connection With MOX Fuel Fabrication Facility Contract*, Department of Justice, February 14, 2019, <https://www.justice.gov/opa/pr/united-states-files-false-claims-act-lawsuit-connection-mox-fuel-fabrication-facility>

that PF-4 can ever be brought up to modern seismic codes. This is underscored by the fact that one of the main reasons that the CMRR-Nuclear Facility was ultimately cancelled was because of its dramatically increasing costs. This was largely due to the need to pour a concrete “base mat” to replace the unconsolidated volcanic sediments that underlie all of LANL’s Technical Area-55. Obviously, no such fix is possible for the aging PF-4—reinforcing the need for a new or supplemental PEIS to consider, among other issues, the safety and environmental risks associated with continuing to use this aging, vulnerable facility well beyond its intended design life.

Nuclear Watch urges the NNSA to avoid repeating these failures by fully incorporating seismic safety provisions into the repurposing of the MOX Fuel Fabrication Facility (MFFF) for plutonium pit production, as well as by analyzing seismic issues concerning ongoing operations at LANL. We think the Complex Transformation PEIS seismic assessment of SRS to be far too complacent, stating “The Atlantic Coastal Plain tectonic province in which SRS is located is characterized by generally low seismic activity that is expected to remain subdued (DOE 2004a).”²² That needs to be corrected in the draft SRS EIS.

In particular, we advise paying close attention to any SRS-related seismic concerns expressed by the Defense Nuclear Facilities Safety Board.²³ Further, NNSA should provide the Safety Board ready access to pre-decisional blueprints, data sheets, etc., relevant to repurposing MFFF, contrary to the apparent intent of DOE Order 140.1 (see our earlier comment section *DOE Is Systematically Degrading Safety*).

We note that the Savannah River Site is not immune from seismic concerns, as it is located some 100 miles from the site of the 1886 6.9–7.3 Mw Charleston, SC earthquake that had little or no preceding historic seismic activity. It was the most damaging earthquake ever to occur in the Southeastern United States and ranks among the most powerful ever in eastern North America. In Aiken County where SRS is located, chimney tops fell, millpond dams failed, and trains were derailed.

A 2014 US Geological Survey Seismic Hazard Map²⁴ shows that South Carolina is among the sixteen states that have the highest risk for experiencing earthquakes. Since the mid-1980s, there have been no fewer than eleven earthquakes whose epicenters were on the Savannah River Site. Two had a magnitude of 2.6, the highest recorded, occurring in 1985 and 2001. From October 2001 to March 2002, there were eight earthquakes.²⁵ Moreover, there was a magnitude 4.1 earthquake near SRS on Valentine’s Day, 2014.²⁶

²² October 2008 Final Complex Transformation SPEIS, Chapter 4, Affected Environment 4.8.6.3 Seismology, p. 4-353.

²³ Although dated, see for example <https://ehss.energy.gov/deprep/1992-2/tr92d03a.pdf> questioning SRS’ seismic modeling.

²⁴ Seismic Hazard Maps and Site-Specific Data, USGS, <https://earthquake.usgs.gov/hazards/hazmaps/>

²⁵ This seismic information is from *Savannah River Site monitors activity Quake shakes Aiken County*, Dede Biles, September 18, 2014, https://www.aikenstandard.com/news/savannah-river-site-monitors-activity-quake-shakes-aiken-county/article_e15ca9b8-2aa7-57e0-8d67-baf84abd66a5.html

²⁶ <http://www.dnr.sc.gov/geology/RecentEarthquakes.htm>

In short, a new PEIS should fully analyze seismic concerns and possible mitigation strategies to lower public risks from future expanded plutonium pit production. The DNFSB has postulated high doses to the public in the event that “PF-4” at LANL was seriously damaged by a seismic event. These risks, and similar risks at SRS, should be fully explored in the new PEIS.

Wildfire Risks

The risk of wildfires will likely increase with climate change and global warming. We note the risks posed by recent wildfires at the Idaho National Laboratory and the Hanford nuclear reservation in Washington State. In April-May 2000 and June 2011 very dangerous crown fires threatened the Los Alamos National Laboratory (indeed the Lab and townsite were fully evacuated except for essential personnel during the 2000 Cerro Grande Fire). In November 2018 the Woolsey Fire nearly completely burned the Santa Susanna Field Laboratory, causing deep public mistrust over resulting airborne contaminants.

Whereas the wildfire risks at LANL are all too apparent, the Savannah River Site is not immune from those risks, especially given climate change and global warming. A new PEIS should programmatically examine the risks that wildfire pose to expanded plutonium pit production. Further, Nuclear Watch stresses the point that NEPA helps DOE and NNSA make better decisions, even during extreme wildfire emergencies. As previously noted in these comments, the now-Executive Director of Nuclear Watch New Mexico commented on the lack of wildfire prevention in a draft 1999 LANL Site-Wide Environmental Impact Statement (SWEIS). In response, the final LANL SWEIS included a detailed hypothetical wildfire that became all too real a half year later during the Cerro Grande Fire. That hypothetical scenario aided Lab leadership in their decision to order evacuation of all but essential personnel. Mitigation provisions in the final LANL SWEIS included fire prevention measures that helped to keep the Cerro Grande Fire a half-mile away from above ground plutonium-contaminated transuranic wastes stored at the Lab’s Area G, which could have been catastrophic had their drums ruptured due to high heat.

Miscellaneous

A new PEIS is needed to fully consider potential Intentional Destructive Acts scenarios, including both internal sabotage and terror events.

A new PEIS is needed to analyze the impacts of diverting taxpayer dollars to new nuclear weapons facilities instead of cleaning up the massive environmental damage caused by past research and production. What are the long-term public health and environmental effects of leaving radioactive and chemical contaminants that can pollute precious water resources, while new, unnecessary, and costly nuclear facilities that will produce more contaminants are being built?

A new PEIS must be completely free of predetermination. NNSA must concretely demonstrate that it can pursue an impartial process without predetermination that leads to an objective decision to repurpose the MFFF or not.

What are the risks of establishing plutonium pit production at SRS, which will be a completely new mission there? Will staff be adequately trained? Will SRS avoid the chronic nuclear safety

infractions that have plagued the Los Alamos Lab, which has 70 years of experience in pit production?

A new PEIS is needed to analyze all future radioactive and chemical waste streams and their disposal. The State of South Carolina has been in a long struggle with the Department of Energy to not become the nation's *de facto* dumping ground for excess plutonium. Indeed, DOE recently faced litigation and controversy due to its secretive shipment of plutonium from South Carolina to Nevada.²⁷ The prospect of future such shipments and any associated environmental impacts must be analyzed in a new PEIS. How will expanded pit production add to the unwanted inventory of plutonium that is already at SRS? How might that further strain the relationship between NNSA and the state of South Carolina?

Given a new escalating nuclear arms race and the pending demise of all international arms control, a new PEIS is needed to examine the possible adverse proliferation consequences of expanded plutonium pit production. This includes the negative example that it will pose to other countries and possible impacts on the NonProliferation Treaty (which the U.S. signed in 1970 but has never honored its mandate to enter into serious negotiations leading to global nuclear disarmament). Further, since NNSA does not plan to produce exact replicas of existing pits (instead they will be "W87-like"²⁸), a new PEIS should analyze how heavily modified pit designs could undermine confidence in stockpile safety and reliability, thereby possibly degrading national security and prompting a return to full-scale testing. That would have very serious global proliferation consequences.

The public comment period for a new PEIS should be at least 120 days.

The 1998 Court Order Requiring a Supplemental PEIS

In addition to the clear need for a PEIS under NEPA and its implementing regulations, DOE is currently subject to a court order that mandates the preparation of a PEIS under the current circumstances. That order establishes the following requirement:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), DOE shall prepare and circulate a Supplemental PEIS, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.²⁹

²⁷ E.g., <https://www.seattletimes.com/business/doe-secretly-shipped-plutonium-from-south-carolina-to-nevada/>

²⁸ See NNSA FY 2020 Congressional Budget Request, beginning page 122 with numerous other references, <https://www.energy.gov/sites/prod/files/2019/04/f62/doe-fy2020-budget-volume-1.pdf>

²⁹ *Natural Resources Defense Council v. Pena*, 20 F.Supp.2d 45, 50 (D.D.C. 1998), <https://law.justia.com/cases/federal/district-courts/FSupp2/20/45/2423390/>

Because DOE and NNSA are currently devoting resources to designing a pit production capability of *at least* 80 pits per year, including a plan to produce pits at SRS, this order clearly requires the agencies to undertake a Supplemental PEIS.

In contrast, NNSA's June 2019 *Draft Supplement Analysis of the Complex Transformation Supplemental Programmatic Environmental Impact Statement* concludes:

“Therefore, as Head of Defense Programs and pursuant to NNSA's Administrative Procedure and DOE's National Environmental Policy Act Implementing Procedures (10 CFR 1021.314(c)), I have preliminarily determined that no further NEPA documentation is required at a programmatic level, and NNSA may amend the existing Complex Transformation SPEIS ROD.” DSA p. 48.

We believe NNSA's preliminary determination to not prepare a supplemental PEIS is legally insufficient under NEPA because of all the reasons stated above. Additionally, NNSA cannot evade the clear requirement of this court order. First, it is indisputable that NNSA is planning on producing more than 80 pits per year.³⁰ Second, we believe this requirement pre-empts NNSA apparent plan to avoid a supplemental PEIS by amending the Record of Decision (ROD) for the 2008 Complex Transformation PEIS. This is because the court order clearly refers to the 1996 Stockpile Stewardship and Management PEIS, whose Record of Decision relocated the plutonium pit production mission to LANL while explicitly limiting it to no more than 20 pits per year.³¹

NNSA Must Begin the PEIS Now

Until NNSA fully complies with NEPA through the preparation of a programmatic environmental impact statement on expanded plutonium pit production, Nuclear Watch believes that any irreversible or irretrievable commitment of resources to either the expansion of pit production at LANL or to the repurposing of the MOX Facility at SRS is unlawful. Accordingly, to properly address all of the issues mentioned above, Nuclear Watch New Mexico insists that 1) NNSA begin the required PEIS right away for the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility for plutonium pit production at SRS, and 2) suspends the SRS-specific environmental impact statement process until that PEIS is completed.

- End of Comments -

³⁰ See for example the May 10, 2018 *Joint Statement from Ellen M. Lord and Lisa E. Gordon-Hagerty on Recapitalization of Plutonium Pit Production* that first announced expansion of pit production, to wit: “This two-prong approach – with **at least** 50 pits per year produced at Savannah River and **at least** 30 pits per year at Los Alamos – is the best way to manage the cost, schedule, and risk of such a vital undertaking.” (Bolded emphasis added.) <https://www.energy.gov/nnsa/articles/joint-statement-ellen-m-lord-and-lisa-e-gordon-hagerty-recapitalization-plutonium-pit>

³¹ Although the court order uses the phrase “at LANL,” there can be no legitimate dispute that the NNSA's proposed action plainly exceeds the terms described in the court order. The plan to produce at least 80 pits at multiple sites is plainly different and has greater impacts than producing up to at most 80 pits solely at LANL.

These comments on NNSA's draft Supplement Analysis respectfully submitted,

Jay Coghlan
Executive Director

Scott Kovac
Research Director

Attachment A

The need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory and the Savannah River Site

**Nickolas Lawton, MGE, LLP and Geoffrey Fettus, NRDC
to DOE Secretary and NNSA Administrator
May 17, 2019**

<https://nukewatch.org/newsite/wp-content/uploads/2019/05/Summary-Pit-Production.pdf>

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VIA ELECTRONIC MAIL

Re: The need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina.

On behalf of the public interest organizations Nuclear Watch New Mexico, Savannah River Site Watch, the Natural Resources Defense Council, and Tri-Valley Communities Against a Radioactive Environment (collectively “the Nuclear Safety Organizations”), we are writing to notify the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) of the need to prepare a Programmatic Environmental Impact Statement (“PEIS”) in connection with the agencies’ stated plan to expand the production of plutonium pits for nuclear weapons at the Los Alamos National Laboratory (“LANL”) in New Mexico and the Savannah River Site (“SRS”) in South Carolina. Because the National Environmental Policy Act (“NEPA”) mandates that “[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time* to ensure that planning and decisions reflect environmental values,” 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now.

EXECUTIVE SUMMARY

The Trump Administration’s 2018 Nuclear Posture Review called for the expanded production of nuclear weapons for the first time in many years, and specifically called for production of 80 plutonium pits (the cores of nuclear weapons) per year by 2030. To that end,



the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) plan to expand production of plutonium pits at the Los Alamos National Laboratory in New Mexico and to repurpose an incomplete facility at the Savannah River Site in South Carolina. At Los Alamos, this plan will require roughly tripling plutonium pit production in facilities with nuclear safety deficiencies so severe that DOE suspended all nuclear weapons production there for over four years, and which DOE recently found have not been adequately resolved. At the Savannah River Site, this plan will require repurposing a facility that was never designed for plutonium pit production, that is still incomplete, and that has been subject to construction-related fraud. Both aspects of DOE and NNSA’s plan to expand plutonium pit production entail serious risks for the environment and public safety. Additionally, these plans will cost at least \$9 billion over the next ten years and at least \$42 billion over the project’s duration.

The National Environmental Policy Act (“NEPA”) requires federal agencies to take a hard look at proposed actions before committing to a course of action or making any irreversible or irretrievable commitment of resources. NEPA requires agencies to publicly disclose environmental impacts, involve the public in agency decision-making, and to seriously consider all viable alternatives to a proposed action. Thus, agencies must prepare an Environmental Impact Statement (“EIS”) for any action that may have significant environmental impacts. Where agency actions are closely related, they must be considered together in a single Programmatic EIS (“PEIS”).

DOE and NNSA have stated that it is their intention to meet the Trump Administration’s goal of producing 80 plutonium pits per year by 2030 through the expansion of pit production at Los Alamos and the Savannah River Site. Because the agencies’ previous environmental analysis for activities at Los Alamos is badly outdated and does not properly consider the serious and ongoing safety issues that led to a four-year shutdown in nuclear weapons production there, NEPA requires a hard look at the proposed expansion of plutonium pit production at that site through a new or supplemental EIS. Likewise, because the agencies have not prepared any environmental analysis for the proposal to produce plutonium pits at an incomplete facility at SRS that has been subject to construction fraud, NEPA requires the production of an EIS for this activity as well. And because the proposed actions at LANL and SRS are inextricably related aspects of DOE and NNSA’s plan to meet the Trump Administration’s call for expanded nuclear weapon production, DOE and NNSA must prepare a PEIS to consider these proposed actions together. However, the agencies instead appear to be shirking NEPA’s requirements by undertaking activities at LANL and SRS without first preparing the legally required environmental analysis. To come into compliance with NEPA, DOE and NNSA must begin the required PEIS process now.

DISCUSSION

I. NEPA.

NEPA is the “basic national charter for protection of the environment.” 40 C.F.R. § 1500.1. NEPA’s “national policy” is to “encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment . . . [and] enrich the understanding of the ecological systems and natural resources

important to the nation” 42 U.S.C. § 4321. To guard against environmental damage, Congress required all federal agencies to prepare a “detailed statement” for each “major federal action significantly affecting the quality of the human environment” that includes “the environmental impact of the proposed action” as well as a thorough consideration of alternatives to the proposed action. *Id.* § 4332(c).

In light of NEPA’s mandates, the Supreme Court has reasoned that NEPA is “intended to reduce or eliminate environmental damage and to promote ‘the understanding of the ecological systems and natural resources important to’ the United States.” *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 756 (2004) (quoting 42 U.S.C. § 4321).

To achieve NEPA’s goals, federal agencies must prepare an EIS for any major federal action with significant environmental effects. 42 U.S.C. § 4332(c). NEPA’s procedures are designed to inject environmental considerations “in the agency decision making process itself,” and to “‘help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.’” *Pub. Citizen*, 541 U.S. at 768-69 (quoting 40 C.F.R. § 1500.1(c)). Therefore, “NEPA’s core focus [is] on improving agency decisionmaking,” *Pub. Citizen*, 541 U.S. at 769 n.2, and specifically on ensuring that agencies take a “hard look” at potential environmental impacts and alternatives “as part of the agency’s process of deciding whether to pursue a particular federal action,” *Balt. Gas and Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 100 (1983).

Importantly, the NEPA process “shall serve as the means of assessing the environmental impact of proposed agency actions, *rather than justifying decisions already made.*” 40 C.F.R. § 1502.2(g) (emphasis added); *see also id.* § 1502.5 (requiring that NEPA review “shall be prepared early enough *so that it can serve practically as an important contribution to the decision making process and will not be used to rationalize or justify decisions already made*”) (emphasis added).

An agency must prepare an EIS for every “major Federal action significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(c). Under NEPA’s implementing regulations, “significance” requires consideration of both context and intensity. 40 C.F.R. § 1508.27. “Context” considerations include the affected region, interests, and locality, varying with the setting of the action, and include both short and long-term effects. *Id.* § 1508.27(a). “Intensity” refers to the severity of impact, including: impacts that may be both beneficial and adverse; unique characteristics of the geographic area, such as proximity to wetlands, wild and scenic rivers, or ecologically critical areas; the degree to which the effects on the quality of the human environment are likely to be highly controversial; the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; whether the action is related to other actions with individually insignificant but cumulatively significant impacts; the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act; and whether the action threatens a violation of federal law imposed for the protection of the environment. *See* 40 C.F.R. § 1508.27(b).

Under NEPA, to determine the proper scope of an EIS an agency “shall consider 3 types of actions,” including connected actions, cumulative actions, and similar actions. *Id.* § 1508.25. Connected actions include those that “are closely related and therefore should be discussed in the same impact statement” because they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” *Id.* § 1508.25(a)(1). Cumulative actions are those that “with other proposed actions have cumulatively significant impacts.” *Id.* 1508.25(a)(2). And similar actions “when viewed with other reasonably foreseeable or proposed agency actions have similarities that provide a basis for evaluating their environmental consequences together.” *Id.* § 1508.25(a)(3). An agency should analyze similar actions together “when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.” *Id.* In such circumstances, a Programmatic Environmental Impact Statement is necessary where “actions are ‘connected,’ ‘cumulative,’ or ‘similar,’ such that their environmental effects are best considered in a single impact statement.” *American Bird Conservancy v. Federal Communication Commission*, 516 F.3d 1027, 1032 (D.C. Cir. 2008) (quoting 40 C.F.R. § 1508.25(a)).

II. DOE and NNSA’s Plans for Expanded Plutonium Pit Production

In 2018, the Trump Administration issued a Nuclear Posture Review that, for the first time in many years, called for expanding production of nuclear weapons. *See* U.S. Dep’t of Defense, *Nuclear Posture Review*, February 2018, at 1–2.¹ Despite the fact that “[f]or decades, the United States led the world in efforts to reduce the role and number of nuclear weapons,” *id.* at 1, the 2018 Nuclear Posture Review reversed this strategy by calling for “a flexible, tailored nuclear deterrent strategy,” an apparent euphemism for the development of new nuclear weapons, *id.* at 2; *see also id.* at 63 (noting that the U.S. “has not executed a new nuclear weapon program for decades” and calling for “research and development” and “technology maturation” in order “to design and develop nuclear weapons”); *id.* at 52 (depicting a proposed increase in the nuclear weapons budget to levels not seen since the Cold War).

To support the Trump Administration’s call for new nuclear weapons, the Nuclear Posture Review announced the need to “[p]rovide the enduring capability and capacity to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030.” *Id.* at 64. The Review further stated that in order to increase production of plutonium pits, which are the core of nuclear weapons, “significant and sustained investments will be required over the coming decade.” *Id.* Indeed, the Congressional Budget Office (“CBO”) has estimated that DOE’s plan to “produce at least 80 plutonium pits per year by 2030” will cost “about \$9 billion from 2019 to 2028.” CBO, *Projected Costs of U.S. Nuclear Forces*, January 2019, at 5.² Furthermore, NNSA recently estimated that repurposing the MOX Facility at SRS for plutonium pit production will have a “lifecycle cost” of \$27.8 billion, while expanding pit production at LANL will cost between \$14.3 billion and \$18.8 billion—meaning that over the next decades this plan will likely

¹ The 2018 Nuclear Posture Review is available online at <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>

² This CBO report is available at <https://www.cbo.gov/system/files/2019-01/54914-NuclearForces.pdf>

cost taxpayers at least \$42 billion. NNSA, *Plutonium Pit Production Engineering Assessment (EA) Results*, May 2018, at 10.³

Producing plutonium pits “entails extensive processing of very hazardous materials, which typically requires a specialized facility.” CBO, *Projected Costs of U.S. Nuclear Forces*, at 8 n.13. Plutonium pit production in the United States was performed on a large scale at the Rocky Flats Plant in Colorado until 1989, when an FBI raid investigating safety and environmental violations led to the closure of that facility. See Congressional Research Service, *U.S. Nuclear Weapon “Pit” Production Options for Congress*, February 2014, at 18.⁴ DOE has declined to attempt to restart operations at Rocky Flats and has instead undertaken a “Sisyphean history” of “failed efforts to construct a building to restore pit production.” *Id.* “The United States has not had the capacity to make more than about 10 [pits per year] since 1989.” *Id.*

Currently, the United States has the capacity to produce a very limited number of plutonium pits only at the Los Alamos National Laboratory in New Mexico, a facility with a history of serious safety problems. See DOE Office of Enterprise Assessments, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, April 2019, at 1.⁵ Indeed, DOE has recognized “significant weaknesses (i.e. non-compliances with significant impact)” in LANL’s management of nuclear safety issues “over the past eleven years.” *Id.* at 2. These “significant weaknesses . . . have allowed identified problems to go uncorrected, problem recurrences to be routinely accepted, and corrective actions to often be delayed for years.” *Id.* at v. These problems led to the production of plutonium pits at LANL being shut down “for over four years.” *Id.* Moreover, DOE has recognized that despite changing the contractor responsible for managing these issues, LANL has made “only limited improvement in addressing longstanding weaknesses” and that many of these safety issues “persist, which can lead to the degradation of nuclear safety.” *Id.* Nevertheless, the Trump Administration’s plan is not only to produce plutonium pits at LANL, but to do so at a rate that has not been seen for decades. See DOE, *Final Report for the Plutonium Pit Production Analysis of Alternatives*, October 2017 at 1 (noting that DOE plans to produce 30 pits per year at LANL, but that it produced only 10 pits per year “in the early 2000s” and that no pits have been produced at LANL since 2012).⁶ DOE has acknowledged that its plan to accelerate pit production at LANL has a “high risk level,” may cause “significant unmitigated off-site consequences,” and that “[r]easonable mitigation strategies” are “unavailable.” DOE, *Engineering Assessment Report, Pu Pit Production Engineering Assessment*, April 2018, at 4-9.⁷

³ This NNSA Report is available at https://nukewatch.org/newsite/wp-content/uploads/2019/03/FINAL-Pu-Pit-Production-EA-Results-05.14.18_Unclassified.pdf

⁴ This Report is available at <https://fas.org/sgp/crs/nuke/R43406.pdf>

⁵ This DOE Report is available at <https://www.energy.gov/ea/downloads/assessment-management-nuclear-safety-issues-los-alamos-national-laboratory-april-2019>

⁶ A redacted version of this DOE Report is available at http://www.lasg.org/MPF2/documents/NNSA_PuPitAoA_Oct2017_redacted.pdf

⁷ A redacted version of this DOE Report is available at https://nukewatch.org/newsite/wp-content/uploads/2019/03/Pu-Pit-Engineering-Assessment-Report-Rev-2_20-April-2018.pdf

Because DOE does not believe that it is possible for LANL to produce plutonium pits at the rate the Trump Administration has proposed, *id.*, DOE and NNSA have also proposed to produce plutonium pits at an as-yet-incomplete Mixed Oxide Fuel Fabrication Facility (“the MOX Facility”) at the Savannah River Site in South Carolina. However, the MOX Facility was never designed for that purpose, *id.*, and has proven to be a multi-billion dollar boondoggle.⁸

Since 1991, the SRS mission has revolved principally around the storage or disposal of radioactive material, in particular plutonium from dismantled nuclear weapons. *See Complaint, United States of America v. CB&I AREVA MOX Services, LLC*, No. 1:19-cv-00444, ECF No. 1, at 8. In 1999, NNSA entered into a contract for the construction of the MOX Facility at SRS “to convert surplus nuclear weapons-grade plutonium into safe, stable fuel for civilian nuclear power generation.” *Id.* Construction began on the MOX Facility in 2007. *See* Government Accountability Office, *MOX Fuel Fabrication Facility: Briefings in Response to a Mandate in the National Defense Authorization Act for Fiscal Year 2017* (“GAO MOX Report”), November 2017, at 1.⁹ However, the MOX Facility project soon ran into dramatic delays and cost overruns. *See id.* (noting that cost estimates rose from \$3.4 billion to \$17.2 billion between 2007 and 2016). After spending at least \$3.4 billion on the MOX facility, *id.*, DOE has recently abandoned any intention to complete the MOX Facility. In November 2017, the Government Accountability Office found that despite DOE spending billions of dollars on the MOX Facility, it was at that time only roughly 30 percent complete. *Id.* at 4.¹⁰

In addition to stopping work on the MOX Facility after sinking billions of dollars into it, DOE has also recently revealed that the MOX Facility’s construction was subject to extensive fraud. Indeed, the government recently brought a False Claims Act case against the MOX Facility contractor and subcontractor, alleging that the contractors defrauded NNSA out of “millions of dollars” by submitting “fraudulent claims, supported by forged and fraudulent invoices, for construction related materials that did not exist.” *See Complaint, United States of America v. CB&I AREVA MOX Services, LLC*, No. 1:19-cv-00444, ECF No. 1, at 1–2. As such, after spending billions of taxpayer dollars, DOE now has a 30-percent-complete facility plagued by fraudulent construction practices.

Now, DOE and NNSA are considering converting the incomplete MOX Facility into a site for the production of the majority of the plutonium pits that the Trump Administration has stated are necessary. Indeed, of the 80 pits per year that DOE and NNSA say they must produce

⁸ *See, e.g.*, https://www.aikenstandard.com/news/nnsa-delivered-mox-termination-notice-this-week-construction-expected-to/article_b907332c-ce40-11e8-b971-ebc9931647b9.html (noting that the MOX Facility was “initially expected to come online in 2016 at a cost of \$4.8 billion” but that “the project’s timeline and price tag have seriously bloated” and reporting the termination of the over-budget project).

⁹ This GAO Report is available at <https://www.gao.gov/assets/690/688369.pdf>

¹⁰ DOE issued a stop work order on May 14, 2018. The State of South Carolina sought to enjoin this decision, reasoning that DOE’s intention to instead pursue a dilute-and-dispose approach to plutonium disposal violated NEPA, among other defects, but the Fourth Circuit rejected the State’s arguments. *See State of South Carolina v. United States*, No. 18-1684, ECF No. 42 (4th Cir. Jan 8, 2019).

by 2030, 50 pits would be produced at the MOX Facility. See NNSA, *Engineering Assessment Report: Pu Pit Production Engineering Assessment*, April 2018, at xi.¹¹ DOE has acknowledged the significant risks of this plan. See DOE, *Analysis of Alternatives*, at 1 (noting the “qualitative risk of reconfiguring a partially completed facility for a new mission in a new location”).

Notably, DOE and NNSA are treating the 80 pits per year as a minimum figure, meaning that the agencies would require the ability to produce more than 30 pits per year at LANL and more than 50 pits per year at SRS. See NNSA, *Pu Pit Production Engineering Assessment*, at 1-2 (“Plutonium pit production capability will be able to produce a minimum of 80 [pits per year] by 2030.” (emphasis added)); see also NNSA, *Final Report for the Plutonium Pit Production Analysis of Alternatives*, October 2017, at 1 (“The pit production requirement is an annual ‘at least’ production rate”).

Troublingly, DOE and NNSA appear to be shirking their duties under NEPA. The agencies previously acknowledged in October 2017 that any approach to meeting the Trump Administration’s goal of producing at least 80 plutonium pits per year would “require an environmental impact statement.” *Id.* at 57; see also *id.* at 60 (“all alternatives are assumed to require a full EIS”); *id.* at 65 (“All alternatives will likely require an EIS”). However, in April 2018 the NNSA stated that “only a NEPA review is required” for the conversion of the MOX Facility to plutonium pit production, without acknowledging that an EIS is clearly required for such a significant action. NNSA, *Pu Pit Production Engineering Assessment*, at 4-6. And DOE and NNSA have not acknowledged the need to prepare a Programmatic EIS to consider the entirety of the agencies’ proposed approach to meeting the Trump Administration’s expanded plutonium pit production goals. This approach flouts NEPA’s purposes and explicit requirements.

III. Analysis.

A. Repurposing the MOX Facility to Produce Plutonium Pits Requires an EIS.

NEPA requires the preparation of an EIS for any “major federal action significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(c). To determine whether impacts are significant, agencies must consider a project’s “context” and “intensity,” which is evaluated according to ten factors, 40 C.F.R. § 1508.27, any one of which may necessitate an EIS. *Ocean Advocates v. U.S. Army Corps of Eng’rs*, 402 F.3d 846, 865 (9th Cir. 2005).

To begin with, DOE’s plan to repurpose the incomplete MOX facility to produce plutonium pits is a new proposed action that has never previously been analyzed in any NEPA process. Although DOE and NNSA have prepared previous PEISs for earlier plans regarding nuclear weapons fabrication (described further below), no previous NEPA analysis has considered producing nuclear weapon components using the MOX Facility.

¹¹ This NNSA Engineering Assessment is available at https://www.lasg.org/MPF2/documents/NNSA_PuPitEA_Rev2_20April2018-redacted.pdf

Moreover, DOE and NNSA's plan to repurpose the incomplete MOX facility plainly will have significant environmental impacts and thus requires an EIS. Beginning with the context, this plan will entail spending billions of taxpayer dollars over many years to conduct highly hazardous fabrication of plutonium pits at an incomplete facility that was never designed for this purpose. Because this plan, which bears directly on the nation's national security interests, entails significant risks to the surrounding environment and local communities, consideration of this project's context plainly indicates that the plan is "significant" within the meaning of NEPA. *See* 40 C.F.R. § 1508.27(a) (requiring consideration of "contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality"). Moreover, the plan to repurpose the MOX Facility to produce plutonium pits plainly implicates many of the significance criteria in NEPA's implementing regulations, any one of which may necessitate an EIS. *See Ocean Advocates*, 402 F.3d at 865.

First, this plan may affect public health or safety, 40 C.F.R. § 1508.27(b)(2), both because the processing of plutonium for nuclear weapons "entails extensive processing of very hazardous materials," CBO, *Projected Costs of U.S. Nuclear Forces*, January 2019, at 8 n.13, and because the fact that the MOX Facility was never designed for the production of nuclear weapon components raises very important questions about whether such activities may be undertaken safely at this Facility. *See, e.g., NNSA, Pu Pit Engineering Assessment*, at 2-39 ("The significant number of samples required to support a 50 ppy plutonium pit mission . . . could increase the material at risk . . . above the current safety basis limits"). Likewise, because the release of radiological or hazardous materials from the Savannah River Site could spread for many miles, the impacts on the neighboring populations could be dire. *See, e.g., DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-374 (acknowledging that members of the public within a 50-mile radius of SRS could be affected by radiation on the site).

Second, this plan may affect "[u]nique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas." 40 C.F.R. § 1508.27(b)(3). For example, DOE's own description of the Savannah River Site notes that it includes "hundreds of individual wetland areas." DOE, *Facts from the Savannah River Site*, at 2.¹² Indeed, "[s]ome SRS surface waters are classified as . . . unique and irreplaceable on a national or eco-regional basis." DOE, *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-356. Likewise, the portions of the Savannah River Site managed by the U.S. Forest Service includes "65,000 acres" of habitat for the endangered red-cockaded woodpecker, indicating that this is an ecologically critical area. U.S. Forest Service, *Savannah River Fast Facts*.¹³

Third, this plan would be "highly controversial," 40 C.F.R. § 1508.27(b)(4), and would be "highly uncertain or involve unique or unknown risks," *id.* § 1508.27(b)(5). To begin with, the extent of work that it would take to repurpose the incomplete MOX Facility remains profoundly unclear, in part because there is a dispute about the status of the construction so far.

¹² This DOE Fact Sheet is available at https://www.srs.gov/general/news/factsheets/srs_overview.pdf

¹³ This Fact Sheet is available at <https://www.srs.gov/general/news/factsheets/usfs-sr.pdf>

Thus, the GAO found that the MOX Facility is “about 30 percent complete,” while the contractor insisted that it was 74 percent complete. GAO, *MOX Report*, at 4. Meanwhile, as noted above, the United States has recently sued the MOX Facility contractor under the False Claims Act for falsifying reports on what construction activities were actually undertaken. Under these circumstances, the plan to repurpose the MOX Facility to produce nuclear weapons is both “highly controversial” and “highly uncertain” within the meaning of NEPA’s implementing regulations. As Senator Lindsay Graham stated regarding repurposing the MOX Facility, “I have no confidence you got a plan. I think you’re making this up as you go.” Senate Appropriations Committee, Energy and Water Development Subcommittee Hearing on the Proposed NNSA Budget, April 5, 2019.

Fourth, this action “may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.” 40 C.F.R. § 1508.27(b)(8). Indeed, the counties in which the Savannah River Site is located contain numerous areas listed on the National Register of Historic Places.¹⁴ Likewise, the nearby city of Augusta, Georgia also contains numerous areas listed on the National Register of Historic Places.¹⁵ Because a release of radiological or otherwise hazardous materials from the Savannah River Site could spread for many miles, the impacts to historic places within the area that could be affected by a catastrophic accident at a repurposed MOX Facility must be considered in an EIS. *See, e.g., DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-374 (acknowledging that members of the public within a 50-mile radius of SRS could be affected by radiation on the site).¹⁶

Finally, the proposed repurposing of the MOX Facility to produce plutonium pits “may adversely affect an endangered or threatened species or its habitat that has been determined to be critical.” 40 C.F.R. § 1508.27(b)(9). SRS and the surrounding area provide habitat for numerous endangered species, including the red-cockaded woodpecker, the wood stork, the shortnose sturgeon, and several species of plants. *See, DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-356–57 (listing endangered species near SRS). A release of radiological or hazardous contaminants from a repurposed MOX Facility could have severe adverse impacts on these listed species.¹⁷

Accordingly, contrary to NNSA’s statement that “only a NEPA review is required” for the conversion of the MOX Facility to plutonium pit production. NNSA, *Pu Pit Production Engineering Assessment*, at 4-6, there can be no legitimate dispute that an EIS is necessary.

¹⁴ See <http://www.nationalregister.sc.gov/aiken/nraiken.htm> (listing historic sites in Aiken County); <http://www.nationalregister.sc.gov/barnwell/nrbarnwell.htm> (listing historic sites in Barnwell County); <http://www.nationalregister.sc.gov/allendale/nrallendale.htm> (listing historic sites in Allendale County).

¹⁵ See <https://nationalregisterofhistoricplaces.com/ga/richmond/state.html> (listing historic sites in Augusta).

¹⁶ Likewise, DOE and NNSA must undertake an analysis of impacts to historic places pursuant to the National Historic Preservation Act, which agencies typically conduct in parallel with NEPA.

¹⁷ Likewise, for this reason DOE and NNSA must undertake formal consultation with the United States Fish and Wildlife Service pursuant to section 7(a)(2) of the Endangered Species Act.

B. Expansion of Plutonium Pit Production at LANL Requires a Supplemental EIS.

Where “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts,” an agency must prepare a Supplemental EIS (“SEIS”). 40 C.F.R. § 1502.9(c)(1)(ii); 10 C.F.R. § 1021.314(a). Whether new information is sufficiently significant to necessitate an SEIS “turns on the value of the new information.” *Marsh*, 490 U.S. at 374. Where “new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.” *Id.* New information that “raise[s] substantial questions regarding the project’s impact [is] enough to require further analysis.” *League of Wilderness Defenders v. Connaughton*, 752 F.3d 755, 760 (9th Cir. 2014) (quoting *Klamath Siskiyou Wildlands Ctr. v. Boody*, 468 F.3d 549, 561–62 (9th Cir. 2006)).

DOE and NNSA appear to be moving forward with a plan to produce 30 plutonium pits per year at LANL without preparing any NEPA analysis that considers new information and changed circumstances since the agencies undertook their *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement* in 2008. However, because important new information has come to light regarding the highly questionable safety of producing plutonium pits at LANL, the preparation of an SEIS is clearly necessary.

As NNSA has recognized, “LANL is currently authorized to produce only 20 pits per year.” NNSA, *Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory*, April 2018, at Appendix B-3. This is because DOE and NNSA issued a governing Record of Decision in 2009 that authorizes production of pits “to not exceed 20 pits per year.” *Id.* at 46. And although NNSA has asserted that it previously evaluated the production of 80 pits per year in 2008, *id.*, the agency’s prior analysis did not—and could not—take into account information and changed circumstances that arose after 2008.

As DOE’s own Office of Enterprise Assessments found in 2019, the management of nuclear safety issues at LANL has been sorely lacking for many years and is not significantly improving. For example, “significant weaknesses” in the management of nuclear safety issues “have allowed identified problems to go uncorrected, problem recurrences to be routinely accepted, and corrective actions to often be delayed for years.” DOE, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, at v. These “significant weaknesses” can “allow layers of defense for nuclear safety to degrade to the extent they did leading to the pause in June 2013 of key fissile material operations in the Plutonium Facility at LANL for over four years.” *Id.*

Indeed, in 2013 the director of the LANL laboratory “paused all fissile material operations in the Plutonium Facility . . . due to systemic and recurring weaknesses in the . . . criticality safety program and conduct of operations.” *Id.* at 2. Moreover, “[d]ue to the scope and significance of these weaknesses that had been allowed to develop, the mitigation . . . took over four years to be completed for some of the key fissile material operations.” *Id.*

DOE found that LANL suffers from serious and ongoing problems in management of nuclear safety issues. In particular, DOE has found that “insufficient attention is given to ensuring timely and effective correction of nuclear safety issues.” *Id.* at 15. Likewise, “84% of the high-significance . . . issues did not have an extent-of-condition review to identify potential recurring or systemic issues”; “55% of the high-significance issues that involved nuclear safety analyses” never received documentation of their causes; and “approximately 46% of 196 high-significance issues had been closed without addressing the underlying cause of the event, and 96% of those issues lacked effectiveness evaluations.” *Id.* at 2. “Numerous examples” of insufficient management of nuclear safety issues “revealed practices that allowed nuclear safety issues to be lost, closed by transfer to unrelated issues, closed with promises of future action, or *intentionally closed without taking any corrective action.*” *Id.* at 18 (emphasis added).

And critically, DOE has found that LANL has shown “only limited improvement in addressing longstanding weaknesses” in the management of nuclear safety issues. *Id.* at iv. Ongoing “deficiencies in [issues management] metrics and assessments have allowed poor [issues management] practices to persist.” *Id.* at 9. Indeed, DOE found that “significant weaknesses” in the management of nuclear safety issues “at LANL persist, which can lead to the degradation of nuclear safety.” *Id.* at iv.

The editorial board of the Albuquerque Journal recently found that this “is a huge issue considering the lab is ramping up production on the devices that act as nuclear bomb triggers.” The editorial board stated that “[f]alling short of the bare minimum in the eyes of the DOE is a far cry from where the public expects or needs LANL to be.” It further emphasized that “[t]op brass must take the audit’s criticisms seriously and demonstrate above-and-beyond efforts” and “make safety the lab’s top mission.”¹⁸

Although NNSA prepared a Supplement Analysis (“SA”) for the ongoing operation of LANL in April 2018, which concluded that no SEIS was necessary, its discussion of the pertinent nuclear safety issues is wholly inadequate. The SA asserts that “DOE has taken actions to address the criticality safety concerns,” and that “[f]ull operations, including pit manufacturing, resumed . . . in August 2016.” NNSA, *Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory*, at 96. However, since NNSA issued that Supplement Analysis, DOE’s own Office of Enterprise Assessments has found that the deficiencies in the management of nuclear safety issues that led to the four-year shutdown at LANL are, in fact, continuing. *See supra*. Indeed, by finding that improving the management of nuclear safety issues “will be key to safely supporting increased production rates of plutonium pits through 2030,” DOE, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, at v, DOE itself has revealed that the increased production of plutonium pits at LANL cannot currently be undertaken safely.

Against this backdrop of highly unreliable management of nuclear safety risks, DOE and NNSA’s counterintuitive plan to not only continue, but expand, the production of plutonium pits at LANL cannot lawfully be undertaken in the absence of an SEIS. Indeed, NNSA cannot

¹⁸ See <https://www.abqjournal.com/1316264/lanl-leaders-must-make-safety-the-labs-top-mission.html>

credibly claim to have taken any serious look under NEPA at these ongoing nuclear safety issues, because NNSA's last Supplement Analysis was issued in 2018, while DOE's findings of ongoing nuclear safety management deficiencies were issued in 2019. More critically, because NNSA's efforts to improve the management of nuclear safety issues at LANL have clearly not worked, as DOE's own analysis has found, the agencies must take the hard look that NEPA requires at these ongoing deficiencies in nuclear safety management, and at the impacts of, and alternatives to, the proposal to expand plutonium pit production. Under these circumstances, a new or supplemental EIS is clearly necessary.

C. A Programmatic EIS is Necessary to Consider These Plainly Related Activities.

As explained, NEPA requires agencies to consider multiple actions together in a single Programmatic EIS when those "actions are 'connected,' 'cumulative,' or 'similar,' such that their environmental effects are best considered in a single impact statement." *American Bird Conservancy*, 516 F.3d at 1032 (quoting 40 C.F.R. § 1508.25(a)). Here, the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS plainly fall within the ambit of "connected," "cumulative," and "similar" actions within the meaning of NEPA, meaning that they must be considered together in a single programmatic EIS.

The expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS are "connected" actions under NEPA. Connected actions "are closely related and therefore should be discussed in the same impact statement" because they "[a]re interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 1508.25(a)(1). Both the proposed expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits at SRS are interdependent parts of DOE and NNSA's plan to fulfill the Trump Administration's stated goal in its 2018 Nuclear Posture Review of producing at least 80 plutonium pits per year by 2030. *See* Dep't of Defense, *Nuclear Posture Review*, at 64. Because the Administration cannot reach the Nuclear Posture Review goal without both proposed actions at LANL and SRS, and because both actions depend on the Nuclear Posture Review for their justification, these actions are "connected" under NEPA and must be considered together in a single EIS.

Likewise, both projects are "similar" because "when viewed with other reasonably foreseeable or proposed agency actions" both "have similarities that provide a basis for evaluating their environmental consequences together." 40 C.F.R. § 1508.25(a)(3). These similarities are clear. To begin with, both projects involve producing plutonium pits for nuclear weapons. Moreover, both projects are being proposed in locations where the safety of producing plutonium pits is highly questionable at best: as described above, LANL suffers from serious and ongoing deficiencies in the management of nuclear safety issues, while the MOX Facility was never designed for fabrication of plutonium pits, is still incomplete, and was the subject of fraudulent construction practices that leave the state and safety of the building highly uncertain. Finally, because both projects entail processing highly hazardous nuclear materials in facilities

with serious safety concerns, both projects are likely to have serious and similar nuclear safety issues and environmental impacts. Accordingly, both actions are “similar” under NEPA.

Furthermore, both actions also satisfy the definition of “cumulative” actions, because they will “have cumulatively significant impacts.” 40 C.F.R. § 1508.25(a)(2). A cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Id.* § 1508.7. Here, not only will the expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits each have significant impacts in their own right, but each project will also likely have cumulative environmental impacts that should be taken into account in a single EIS. For example, because each site will be performing similar activities and working with similar materials, each site will likely generate wastes that DOE and NNSA will have to determine how to treat, store, or dispose of.

Accordingly, because the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS are clearly “connected,” “cumulative,” and “similar” actions, “their environmental effects are best considered in a single impact statement,” *American Bird Conservancy*, 516 F.3d at 1032, and a PEIS is the legally and practically appropriate way to accomplish this.

Not surprisingly, therefore, DOE’s own regulations require the production of a PEIS under these circumstances. DOE’s regulations mandate that “[w]hen required to support a DOE programmatic decision (40 CFR 1508.18(b)(3)), DOE shall prepare a programmatic EIS.” 10 C.F.R. § 1021.330(a). In turn, a “DOE programmatic decision” includes the “[a]doption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.” 40 C.F.R. § 1508.18(b)(3). Here, both proposed actions at LANL and SRS are “systematic and connected agency decisions” undertaken to implement the specific “executive directive” in the 2018 Nuclear Posture Review to produce at least 80 plutonium pits per year by 2030. Accordingly, DOE’s regulations mandate the preparation of a PEIS.

In addition to the need for a PEIS being clear under NEPA and its implementing regulations, DOE is currently subject to a court order in a case brought by two of the signatories to this letter that mandates the preparation of a PEIS under the current circumstances. That order establishes the following requirement:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), DOE shall prepare and circulate a Supplemental PEIS, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.

Natural Resources Defense Council v. Pena, 20 F.Supp.2d 45, 50 (D.D.C. 1998). Because DOE and NNSA are currently devoting resources to designing a pit production capability of *at least* 80 pits per year, including a plan to produce pits at SRS, this order clearly requires the agencies to undertake a Supplemental PEIS.

Indeed, in analogous circumstances, DOE and NNSA have undertaken PEISs in the past. For example, in 1996, DOE undertook a *Stockpile Stewardship and Management PEIS* to consider relocating pit production to LANL. Likewise, in 2003, DOE undertook (but never finalized) a *Modern Pit Facility Supplemental PEIS* to analyze a possible increase in the rate of plutonium pit production. Similarly, in 2006, DOE undertook a *Complex 2030 Supplemental PEIS* to consider the modernization of the U.S. nuclear weapons program. And most recently, in 2008, the agencies undertook a *Complex Transformation Supplemental PEIS* in order to analyze alternatives for the modernization of the U.S. nuclear weapons program. Because both the agencies' plans and circumstances at both LANL and SRS have changed significantly since that time—including the new plan to radically increase the level of plutonium pit production, the demonstrated and ongoing serious safety issues at LANL, and the dubious proposition to repurpose the incomplete MOX Facility at SRS—the agencies must undertake a new or supplemental PEIS now as well.

D. DOE and NNSA Must Begin the NEPA Process Now.

Because NEPA mandates that “[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time*,” 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now. DOE and NNSA have already begun the process for deciding how to move forward with the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS, and the agencies must begin preparing a PEIS now “to ensure that planning and decisions reflect environmental values.” *Id.*¹⁹

DOE and NNSA have undertaken significant steps toward the expansion of plutonium pit production at LANL and toward the repurposing of the MOX Facility. For example, DOE has sought and obtained the concurrence of the Nuclear Weapons Council regarding the proposed actions.²⁰ Moreover, DOE and NNSA have already used an undisclosed amount of taxpayer funds to direct its contractor to undertake design and planning for the repurposing of the incomplete MOX Facility to produce plutonium pits.²¹ Although it is not entirely clear how

¹⁹ On October 31, 2018, the Nuclear Safety Organizations sent NNSA a similar letter explaining the need for a PEIS and requesting a response within 30 days. NNSA has not responded.

²⁰ See <https://dod.defense.gov/News/News-Releases/News-Release-View/Article/1518222/joint-statement-from-ellen-m-lord-and-lisa-e-gordon-hagerty-on-recapitalization/>

²¹ See https://www.aikenstandard.com/news/srns-tasked-with-initial-work-for-savannah-river-pit-production/article_e3f15ab0-15ec-11e9-805c-d36536fe2d31.html

much money is already being spent on this effort at SRS, DOE has requested that Congress allocate \$410 million toward design and planning for the repurposing of the MOX Facility.²²

Likewise, Lisa Gordon-Hagerty, the Administrator of NNSA has testified to the House Subcommittee on Energy and Water Development that “NNSA is investing in the Savannah River Plutonium Processing Facility,” and that “LANL is actively installing pit production equipment and has begun hiring to meet future work scope.” Testimony Statement of Lisa Gordon-Hagerty before House Subcommittee on Energy and Water Development, April 2, 2019 (“Gordon-Hagerty Testimony”), at 5–6. Ms. Gordon-Hagerty also testified that “[r]epurposing the [MOX] Facility and producing plutonium pits at SRS and LANL is the preferred path,” and that “[t]he time to move forward is now.” *Id.* at 5. Similarly, Peter Fanta, a deputy assistant secretary of defense for nuclear matters, stated that “[t]here is one plan,” and that NNSA must “[s]top discussing it, stop slowing it, stop looking at it again, stop looking at seven other alternatives.” See <https://www.exchangemonitor.com/dod-still-satisfied-nnsa-pit-plan-warns-civilian-agency-margin/>.

However, taking a hard look at the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS, and considering alternatives to this proposed plan, is precisely what NEPA requires. And because NEPA mandates that agencies undertake the NEPA process as early as possible in order to promote informed decision-making, DOE and NNSA must undertake a PEIS as soon as possible.

Until DOE and NNSA fully comply with NEPA through the preparation of a PEIS, any irreversible or irretrievable commitment of resources to either the expansion of pit production at LANL or to the repurposing of the MOX Facility at SRS is unlawful. Accordingly, we request that DOE and NNSA respond to this letter within 30 days to explain when the agencies intend to undertake the required PEIS for the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility for plutonium pit production at SRS.

Sincerely,

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CC: Sen. Lamar Alexander, Chair, Senate Energy and Water Appropriations Subcommittee
Sen. Dianne Feinstein, Ranking Member, Senate Energy and Water Appropriations Subcomm.
Sen. Tom Udall, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Chair, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Ranking Member, Strategic Forces Subcommittee, SASC

²² DOE, *FY 2020 Congressional Budget Request*, March 2019, at 121–22, available at <https://www.energy.gov/sites/prod/files/2019/04/f62/doe-fy2020-budget-volume-1.pdf>

Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Mac Thornberry, Ranking Member, House Armed Services Committee
Rep. Jim Cooper, Chairman, Strategic Forces Subcommittee, House Armed Services Committee
Rep. Deb Haaland, House Armed Services Committee
Rep. Xochitl Torres Small, House Armed Services Committee
Rep. John Garamendi, House Armed Services Committee
Rep. Ben Ray Lujan, NM-3
Mr. Bruce Diamond, NNSA Office of the General Counsel
Mr. Charles Verdon, NNSA Deputy Administrator for Defense Programs
Mr. Brian Costner, DOE NEPA Office
Ms. Nicole Nelson-Jean, Manager, NNSA Savannah River Field Office
Mr. Steve Goodrun, NNSA Los Alamos Office

Attachment B

Scoping comments for the NNSA's draft environmental impact statement for plutonium pit production at the Savannah River Site

**Jay Coghlan and Scott Kovac
Nuclear Watch New Mexico
July 25, 2019**

https://nukewatch.org/newsite/wp-content/uploads/2019/07/NukeWatch_NM_SRS_EIS_Scoping_Comments-7-25-19.pdf



Ms. Jennifer Nelson
NEPA Document Manager
NNSA Savannah River Site Field Office
P.O. Box A
Aiken, SC 29802

July 25, 2019

By email to: NEPA-SRS@srs.gov

Re: Scoping comments for the National Nuclear Security Administration's (NNSA's) draft environmental impact statement for plutonium pit production at the Savannah River Site

Dear SRS EIS NEPA Document Manager,

Nuclear Watch New Mexico is pleased to submit these scoping comments on the *National Nuclear Security Administration's (NNSA's) draft environmental impact statement for plutonium pit production at the Savannah River Site*.

The Need for a Programmatic Environmental Impact Statement

This is our first and primary concern, that NNSA must first complete a programmatic environmental impact statement (PEIS) on its nation-wide plans for plutonium pit production, in advance of the Savannah River Site-specific environmental impact statement. To get right to the point, we argue that the SRS EIS process should go no further than this scoping period and should resume only after a completed formal Record of Decision for a new or supplemental PEIS.

Because the National Environmental Policy Act ("NEPA") mandates that "[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time* to ensure that planning and decisions reflect environmental values," 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now. We believe that simply amending the Record of Decision (ROD) for the Complex Transformation (CT) PEIS, as NNSA clearly plans to do, will not be sufficient to formally raise the agency's desired level of production from the currently sanctioned level of 20 pits per year to more than 80. We argue this because of:

- 1) The staleness of the CT PEIS given that it is now more than 19 years old;
- 2) More significantly, numerous changed circumstances and much more new information since the 2008 CT PEIS; and
- 3) Outside of NEPA, an existing 1998 court order that requires DOE to prepare a supplemental PEIS when it begins to consider producing more than 50 pits per year under routine conditions or more than 80 with multiple shifts.

For the record, we enclose our previous remarks and outline of National Environmental Policy Act requirements from our May 17, 2019 letter addressed to the NNSA Administrator, signed by Attorneys Nick Lawton of Meyer Glitzenstein & Eubanks LLP and Geoff Fettus of the Natural Resources Defense Council, representing the public interest groups NRDC, Nuclear Watch New Mexico, Tri-Valley CAREs and SRS Watch. Nuclear Watch is pleased that NNSA has correctly decided to prepare the relevant environmental impact statement for repurposing the MOX Fuel Fabrication Facility (MFFF) for plutonium pit production at the Savannah River Site (SRS). However, we believe that action is backwards, as NNSA must first prepare a PEIS from which the SRS-specific EIS is tiered. To further add to our argument, that PEIS is required under NEPA because:

- 1) It is needed to raise the plutonium pit production level from the 20 pits per year sanctioned by the 1996 Stockpile Stewardship and Management PEIS to 80 or more; and
- 2) A second site (SRS) is now proposed for simultaneous production, which is inherently a “programmatic” decision.

Excerpt from our May 17, 2019 Letter on the Need for a PEIS

As our May 17, 2019 letter explained, NEPA requires agencies to consider multiple actions together in a single Programmatic EIS when those “actions are ‘connected,’ ‘cumulative,’ or ‘similar,’ such that their environmental effects are best considered in a single impact statement.” *American Bird Conservancy*, 516 F.3d at 1032 (quoting 40 C.F.R. § 1508.25(a)). Here, the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS plainly fall within the ambit of “connected,” “cumulative,” and “similar” actions within the meaning of NEPA, meaning that they must be considered together in a single programmatic EIS.

The expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS are “connected” actions under NEPA. Connected actions “are closely related and therefore should be discussed in the same impact statement” because they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” 40 C.F.R. § 1508.25(a)(1). Both the proposed expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits at SRS are interdependent parts of DOE and NNSA’s plan to fulfill the Trump Administration’s stated goal in its 2018 Nuclear Posture Review of producing at least 80 plutonium pits per year by 2030. *See* Dep’t of Defense, *Nuclear Posture Review*, at 64. Because the Administration cannot reach the Nuclear Posture Review goal without both proposed actions at LANL and SRS, and because both actions depend on the Nuclear Posture Review for their justification, these actions are “connected” under NEPA and must be considered together in a single EIS.

Likewise, both projects are “similar” because “when viewed with other reasonably foreseeable or proposed agency actions” both “have similarities that provide a basis for evaluating their environmental consequences together.” 40 C.F.R. § 1508.25(a)(3). These similarities are clear. To begin with, both projects involve producing plutonium pits for nuclear weapons. Moreover, both projects are being proposed in locations where the safety of producing plutonium pits is highly questionable at best as LANL suffers from serious and ongoing deficiencies in the management of nuclear safety issues, while the MOX Facility was never designed for fabrication of plutonium pits, is still incomplete, and was the subject of fraudulent construction practices that

leave the state and safety of the building highly uncertain. Finally, because both projects entail processing highly hazardous nuclear materials in facilities with serious safety concerns, both projects are likely to have serious and similar nuclear safety issues and environmental impacts. Accordingly, both actions are “similar” under NEPA.

Furthermore, both actions also satisfy the definition of “cumulative” actions, because they will “have cumulatively significant impacts.” 40 C.F.R. § 1508.25(a)(2). A cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Id.* § 1508.7. Here, not only will the expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits each have significant impacts in their own right, but each project will also likely have cumulative environmental impacts that should be taken into account in a single EIS. For example, because each site will be performing similar activities and working with similar materials, each site will likely generate wastes that DOE and NNSA will have to determine how to treat, store, or dispose of.

Accordingly, because the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS are clearly “connected,” “cumulative,” and “similar” actions, “their environmental effects are best considered in a single impact statement,” *American Bird Conservancy*, 516 F.3d at 1032, and a PEIS is the legally and practically appropriate way to accomplish this.

Not surprisingly, therefore, DOE’s own regulations require the production of a PEIS under these circumstances. DOE’s regulations mandate that “[w]hen required to support a DOE programmatic decision (40 CFR 1508.18(b)(3)), DOE shall prepare a programmatic EIS.” 10 C.F.R. § 1021.330(a). In turn, a “DOE programmatic decision” includes the “[a]doption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.” 40 C.F.R. § 1508.18(b)(3). Here, both proposed actions at LANL and SRS are “systematic and connected agency decisions” undertaken to implement the specific “executive directive” in the 2018 Nuclear Posture Review to produce at least 80 plutonium pits per year by 2030. Accordingly, DOE’s regulations mandate the preparation of a PEIS.

Some Select New Information and Changed Circumstances Since the 2008 Complex Transformation Programmatic Environmental Impact Statement

This is by no means all inclusive. In addition, Nuclear Watch asserts that all of the following issues should be considered by both a new programmatic environmental impact statement on expanded plutonium pit production and the SRS-specific environmental impact statement, while reiterating that the PEIS must come first. Further, we would expect the SRS EIS to have far more site-specific information.

First, while the CT PEIS considered various levels of expanded plutonium pit production at five specific NNSA candidate sites, it did not consider **simultaneous production at two sites**. We contend this changed circumstance is justifiable cause alone for a new programmatic environmental impact statement on expanded plutonium pit production.

The Institute for Defense Analysis Report: On May 21, 2019 we obtained an unclassified executive summary of the Institute for Defense Analysis' critique on NNSA's plans for expanded plutonium pit production.¹ It concluded:

Summary of Main Findings

1. Eventually achieving a production rate of 80 ppy is possible for all options considered by the EA [expanded pit production Engineering Assessment], but will be extremely challenging.
2. No available option can be expected to provide 80 ppy by 2030. DoD should evaluate how to best respond to this requirement shortfall.
3. Trying to increase production at PF-4 by installing additional equipment and operating a second shift is very high risk.
4. Effort to identify and address risks is underway, but is far from complete.
5. Strategies identified by NNSA to shorten schedules will increase the risks of schedule slip, cost growth, and cancellation.

In addition, the report stated:

IDA examined past NNSA programs and could find no historical precedent to support starting initial operations (Critical Decision-4, or CD-4) by 2030, much less full rate production. Many similar projects (e.g., the Modern Pit Facility, Chemistry Metallurgy Research Replacement-Nuclear Facility, and Pit Disassembly and Conversion Facility) were eventually cancelled. Of the few major projects that were successfully completed, all experienced substantial cost growth and schedule slippage; we could find no successful historical major project that both cost more than \$700 million and achieved CD-4 in less than 16 years...²

These damning conclusions by independent experts buttress the need for full programmatic review of NNSA's plans for expanded plutonium pit production. NNSA is planning to throw bad money after bad money, wasting taxpayers' funds trying to achieve pit production goals that it will most likely fail at, at the MOX Fuel Fabrication Facility (MFFF), a facility that has already failed in its previous mission while wasting billions of taxpayer dollars.

Given the strong unlikelihood of NNSA meeting its plutonium pit production goals by 2030, the agency should slow down and get NEPA right. Moreover, NEPA indisputably helps DOE make better decisions and conserve taxpayer dollars.³ A PEIS should be used to fully identify and begin to successfully address all program risks, including budget and schedule. Further, both the

¹ Institute for Defense Analysis, March 2019, available at <https://nukewatch.org/newsite/wp-content/uploads/2019/07/IDA-ExecSum-UNC-March2019.pdf>

² Ibid., p. vi.

³ As one concrete example, the now-Executive Director of Nuclear Watch New Mexico commented on the lack of wildfire prevention in a draft 1999 LANL Site-Wide Environmental Impact Statement (SWEIS). In response, the final LANL SWEIS included a detailed hypothetical wildfire that became all too real a half year later during the Cerro Grande Fire. That hypothetical scenario aided Lab leadership in their decision to order evacuation of all but essential personnel. Mitigation provisions in the final LANL SWEIS included fire prevention measures that helped to keep the Cerro Grande Fire a half-mile away from above ground plutonium-contaminated transuranic wastes stored at the Lab's Area G, which could have been catastrophic had their drums ruptured due to high heat.

PEIS and the SRS-specific environmental impact statement should address the unlikelihood pit production meeting NNSA's declared schedule.

Finally, to use a NEPA term, before committing "irretrievable resources" to expanded plutonium pit production, both the new programmatic environmental impact statement and the SRS-specific EIS should address how Department of Energy Defense Programs (including NNSA nuclear weapons programs since 2000) have been on the Government Accountability Office's High Risk List for project mismanagement since its inception in 1992.⁴ While GAO acknowledges that NNSA has made some progress (and more so than DOE Environmental Management), both documents should address how NNSA plans to completely get off that list through the hard work of reforming its capital acquisition program and instituting rigorous contractor accountability. This is particularly true given that NNSA plans to repurpose" the MOX Facility, which squandered billions of taxpayer dollars.

Draft Supplement Analysis of the Complex Transformation Supplemental PEIS

On June 28, 2019 NNSA published a Notice of Availability for a *Draft Supplement Analysis of the Complex Transformation Supplemental Programmatic Environmental Impact Statement* that the public can comment on. In the Draft Supplement Analysis (hereinafter "DSA") NNSA stated:

The purpose of this analysis is to determine, at a programmatic level: (1) if the potential impacts of the proposed action exceed those in the Complex Transformation SPEIS; and (2) if so, if the impacts would be considered significant in the context of NEPA (40 CFR 1508.27), which would require preparation of a supplement to the Complex Transformation SPEIS.⁵

Nuclear Watch commends NNSA for offering the DSA for public comment and we will be submitting extensive comment by the deadline of August 12. However, we believe that the purpose of the Supplement Analysis as described above by NNSA (i.e., "proposed action exceed[ing] those in the Complex Transformation SPEIS") is improperly limited in scope. What the law requires is:

(a) DOE **shall** prepare a supplemental EIS if there are substantial changes to the proposal or significant new circumstances or information relevant to environmental concerns, as discussed in 40 CFR 1502.9(c)(1).⁶

⁴ HIGH-RISK SERIES Substantial Efforts Needed to Achieve Greater Progress on High-Risk Areas, Government Accountability Office, March 2019, p. 33, <https://www.gao.gov/assets/700/697245.pdf>. Of particular relevance is "Capacity: not met. In August 2018, a statutorily required internal review of NNSA's capacity identified unmet critical staffing needs, especially staffing to manage and oversee work on the agency's uranium and plutonium missions, which are expected to grow." P. 217. This does not bode well given the MOX program debacle.

⁵ *Draft Supplement Analysis of the Complex Transformation Supplemental Programmatic Environmental Impact Statement*, DOE/EIS-0236-S4-SA-02 June 2019, p. 26, <https://www.energy.gov/sites/prod/files/2019/06/f64/draft-supplement-analysis-eis-0236-s4-sa-02-complex-transformation-06-2019.pdf>.

⁶ 10 CFR § 1021.314 - Supplemental environmental impact statements, DOE NEPAS Implementing Regulations, <https://www.law.cornell.edu/cfr/text/10/1021.314> (bolded emphasis added)

In turn 40 CFR 1502.9(c)(1) mandates that:

(c) Agencies:

(1) **Shall** prepare supplements to either draft or final environmental impact statements if:

(i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or

(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.⁷

We believe that 10 CFR § 1021.314 and 40 CFR § 1502.9 apply to programmatic environmental impact statements as well, and that both conditions of “substantial changes in the proposed action” and “significant new circumstances or information relevant to environmental concerns” are more than sufficiently met. This renders NNSA’s preliminary conclusion that a draft supplemental PEIS is not required grossly incorrect.

The Proposed Configuration of NNSA Facilities for Future Plutonium Pit Production Has Substantially Changed

The first substantial change is the configuration of facilities that NNSA proposes to use for expanded plutonium pit production is obvious - - the repurposing of the MOX Fuel Fabrication Facility (MFFF) for plutonium pit production. NNSA obviously thinks that it can adequately meet its NEPA obligation to analyze the repurposing of the MFFF for pit production through the SRS-specific environmental impact statement (EIS) that it has already initiated. We contend that is not enough, again reiterating that 10 CFR § 1021.314 and 40 CFR § 1502.9 apply to programmatic environmental impact statements as well. We further contend that the very fact that a second site (SRS) is now involved some 1,500 miles from the existing plutonium pit production site (i.e., the Los Alamos Lab) inherently requires programmatic review.

But the repurposing of the MFFF is not the only major facility change. The Chemistry and Metallurgy Research Replacement Project (CMRR)-Nuclear Facility at LANL was integral to all alternatives of plutonium pit production that the 2008 Complex Transformation SPEIS considered. However, the CMRR-NF was canceled in 2012 which resulted in an expanded mission and equipment of the Radiological Laboratory Utility and Office Building (AKA “Rad Lab”) and expanded upgrades to PF-4. We assert that this troika of proposed facility changes (i.e. MFFF repurposing, CMRR-NF cancellation and Rad Lab/PF-4 upgrades) demands programmatic review in a programmatic environmental impact statement.

The Drivers and the Requirement for Expanded Plutonium Pit Production Have Substantially Changed

The DSA states:

Since 2008, NNSA has emphasized the need to eventually produce 80 pits per year; the joint DoD-DOE white paper entitled, *National Security and Nuclear Weapons in the 21st Century*, cataloged the need and justification for pit production rates. In the decade plus

⁷ 40 CFR § 1502.9 - Draft, final, and supplemental statements, Council on Environmental Quality, <https://www.law.cornell.edu/cfr/text/40/1502.9> (bolded emphasis added)

since this paper was published, the drivers and the requirement for pit production have remained relatively unchanged through several administrations and changes in congressional leadership. DSA Ex. Summary.

Far from the drivers and the requirement for pit production remaining relatively unchanged as NNSA asserts, the main “drivers” have in fact radically changed in that they have been twice canceled. This is then followed with only a vague justification that the third and latest “driver” that reputedly requires expanded pit production. Specifically, the 2008 DoD-DOE white paper *National Security and Nuclear Weapons in the 21st Century* stated that

[T]he Departments of Defense and Energy are pursuing an alternative to this strategy of indefinite life extension; namely, the gradual replacement of existing warheads with warheads of comparable capability that are less sensitive to manufacturing tolerances or to aging of materials. The generic concept is often referred to as the Reliable Replacement Warhead (RRW).⁸

The white paper goes on to expressly link the need for expanded plutonium pit production to the Reliable Replacement Warhead (RRW). But in the same year Congress declined to fund RRW, thus negating the first rationale for expanded plutonium pit production.

Following that NNSA claimed that the need for expanded pit production was justified by a future “Interoperable Warhead” which the agency described in congressionally-required annual Stockpile Stewardship and Management Plans as the centerpiece of its “3+2” plan to transform the nuclear weapons stockpile and its supporting research and production complex. But NNSA quietly canceled the Interoperable Warhead in an obscure December 2018 report, eliminating the second concrete justification for expanded pit production. In that same report NNSA offered a weak justification for future expanded pit production for the Interoperable Warhead’s proposed successor (the W87-1) by stating:

This campaign to establish a national pit manufacturing capability at required capacity must happen even if the W87-1 program must, for some unplanned reason, deploy with a reused pit. If that were to be the case, then the pit manufacturing campaign would provide new pits for the LEP or replacement program that follows the W87-1.⁹

Our point is that NNSA does not specify what that next Life Extension Program or replacement program is, thus has yet to offer a concrete justification for expanded plutonium pit production that it estimates will cost \$43 billion in taxpayer funds over 30 years.¹⁰ It is imperative that a supplemental PEIS clearly defines the specific need for expanded plutonium pit production.

⁸ *National Security and Nuclear Weapons in the 21st Century*, p.18,

<https://dod.defense.gov/Portals/1/Documents/pubs/nuclearweaponspolicy.pdf>

⁹ W78 Replacement Program (W87-1): Cost Estimates and Use of Insensitive High Explosives Report to Congress, NNSA, December 2018, p. 6, <https://nukewatch.org/newsite/wp-content/uploads/2019/03/W78-Replacement-Program-Cost-Estimates-IHE-1.pdf>

¹⁰ Plutonium Pit Production Engineering Assessment (EA) Results, NNSA, May 2018, slide 10 (add Alt 1 and 2c together), https://nukewatch.org/newsite/wp-content/uploads/2019/03/FINAL-Pu-Pit-Production-EA-Results-05.14.18_Unclassified.pdf

The 2008 white paper *National Security and Nuclear Weapons in the 21st Century* also noted:

Successive efforts at extending the service life of the current inventory of warheads will drive the warhead configurations further away from the original design baseline that was validated using underground nuclear test data. Repeated refurbishments will accrue technical changes that, over time, might inadvertently undermine reliability and performance.¹¹

This is echoed in NNSA's FY 2020 Congressional Budget Request:

The stockpile is inherently moving away from the Underground Test (UGT) database through aggregate influences of aging, modern manufacturing techniques, modern materials, and evolving design philosophies.¹²

The DSA states that NNSA "is responsible for meeting the national security requirements established by the President and the Congress to maintain and enhance the safety, reliability, and performance of the United States nuclear weapons stockpile." DSA Ex. Sum. A supplemental PEIS should analyze a curatorship-like Stockpile Stewardship Program that rigorously hews to the tested pedigree of the nuclear weapons stockpile, avoiding changes at every possible turn that could introduce uncertainties. This is very salient given that according to NNSA's FY 2020 Congressional Budget Request future pits will not be exact replicas but instead will be "W87-like." A supplemental PEIS should explain what that is and explore to what extent any heavily modified pit designs could undermine confidence in safety and reliability, thereby possibly degrading national security and prompting a return to full-scale testing, which would have severe international proliferation consequences.

The DSA concludes that no further programmatic review is needed for the Pantex Plant as a supporting site for expanded plutonium pit production. DSA p. 21. This is incorrect as the Pantex Plant is the site for nonintrusive requalification leading to reuse of existing pits in NNSA's Life Extension Programs. We contend that a supplemental PEIS is required to consider the extensive reuse of plutonium pits as a serious alternative to virgin pit production, an alternative that would be less expensive and less internationally provocative and environmentally damaging.

Changes in Environmental Conditions, Operations, and NEPA Process

Under Changes in Environmental Conditions, Operations, and NEPA Process, the DSA states:

While there are differences in the natural environment at both sites [LANL and SRS] since the Complex Transformation SPEIS was prepared, the differences are not significant in terms of analyzing changes in environmental impacts at a programmatic level. DSA p. 23.

¹¹ *National Security and Nuclear Weapons in the 21st Century*, p. 17,
<https://dod.defense.gov/Portals/1/Documents/pubs/nuclearweaponspolicy.pdf>

¹² NNSA FY 20 Congressional Budget Request, p. 158,
<https://www.energy.gov/sites/prod/files/2019/04/f62/doe-fy2020-budget-volume-1.pdf>

We disagree. Since the 2008 Complex Transformation PEIS LANL experienced the grave threat of another major wildfire, the 2011 Los Conchas Fire. After ignition that crown fire raced 13 miles due east to the Lab's western boundary in 24 hours. Given climate change, global warming and increased aridity in the Southwest, the incidences of wild fire at or near LANL will likely only increase.

Concerning operations at LANL, the Complex Transformation PEIS did not consider the track record of chronic nuclear safety infractions at PF-4, which ultimately led to the cessation of major plutonium operations for nearly four years. Indeed, the DSA claims that at both LANL and SRS "Potential impacts from some accidents, such as criticality accidents, would not change, as these accidents are not dependent on the number of pits produced." DSA p. 30 and 35. That categorical statement seems to defy simple logic.

As the Defense Nuclear Facilities Safety Board (DNFSB) noted in its required 2018 annual report to Congress:

Nuclear Criticality Safety at Los Alamos National Laboratory (LANL)—Based on an evaluation of the LANL nuclear criticality safety program, the Board in its November 28, 2018, letter to the Secretary of Energy, identified the following related to this vitally important safety program: (1) lack of concrete milestones in corrective action initiatives for weaknesses in the program; (2) inadequate staffing in the nuclear criticality safety division; (3) inadequate documentation for daily work activities with the potential to impact nuclear criticality safety; (4) instances of poor operational quality in implementing nuclear criticality safety requirements; and (5) repetitive, ineffective corrective actions for weaknesses in the program.¹³

We contend that a supplemental PEIS is needed to analyze the occupational and public risks of repeated, chronic nuclear criticality safety incidences at LANL and how to resolve them. By extension this applies to any future pit production at SRS as well. We argue that a genuine, comprehensive nuclear safety regime needs to be instituted at a programmatic level that must be considered in programmatic environmental impact statement.

The DSA considers the Waste Isolation Pilot Plant (WIPP) as a supporting site for expanded plutonium pit production since production would increase transuranic waste disposal at WIPP. The DSA notes that available capacity has decreased since the time the Complex Transformation SPEIS was prepared but concludes that the impacts of increased pit production on TRU disposal at WIPP are not significant. DSA p. 21. We contend that programmatic review is required to consider and analyze all the possible future competing demands on WIPP. These include the current proposal to "dilute and dispose" of 6 tons of excess plutonium from SRS and the future consequences of DOE attempted reclassification of some high-level wastes so that they can be disposed of at WIPP. It should also be noted that the DSA's claim of current remaining capacity of 108,048 cubic meters at WIPP could be reduced by 30% if the current challenge by citizen groups (including Nuclear Watch NM) to DOE's recalculation of disposed TRU waste is successful.

¹³ Defense Nuclear Facilities Safety Board 29th Annual Report to Congress, April 2019, p. ii, <https://www.dnfsb.gov/sites/default/files/document/17791/2018%20Annual%20Report%20to%20Congress%20%5B2019-100-017%5D.pdf>

Under “Cumulative Impacts” the DSA concludes that “The potential cumulative transportation impacts [of the Yucca Mountain Repository] would be reduced from that presented in the Complex Transformation SPEIS.” Omitted from any consideration in the DSA is the current application submitted by the Holtec Corporation to the Nuclear Regulatory Commission for “Consolidated Interim Storage” in New Mexico of up to 170,000 metric tons of past and future spent nuclear fuel. The cumulative impacts of this proposal could substantially exceed that of Yucca Mountain since the requested total inventory is far greater than that proposed for Yucca Mountain. Moreover, at least in theory the lethal spent nuclear fuel would have to be moved again once a permanent repository is ever (if ever) completed. A supplemental PEIS should consider the cumulative impacts of proposed Consolidated Interim Storage of high level wastes.

Also, under “Cumulative Impacts” the DSA notes that there have been numerous changes to NNSA’s Plutonium Disposition Plan, including the cancellation of the MOX program and the repurposing of the MOX Fuel Fabrication Facility for plutonium pit production. As a consequence, LANL would likely be involved in oxidizing plutonium as part of the proposed “dilute and dispose” process to dispose of excess plutonium at WIPP. DSA p. 43. This however cries out for programmatic review at the highest level since that plutonium oxidizing can only take place at LANL’s PF-4, the already overcrowded facility slated to produce at least 30 pits per year, with a long track record of nuclear safety infractions. It is not clear that there is enough floor space in PF-4 for oxidation of up to 2.5 tons of plutonium annually if expanded pit production is implemented, and reportedly preparations for expanded oxidizing is on hold until pit production requirements are better known. But this is the very reason why a programmatic environmental impact statement is required, to help sort out possible competing priorities between different programs.

Is DOE Systematically Degrading Safety?

The long track record of chronic nuclear criticality incidences at LANL has become publicly known primarily through the reporting of the Defense Nuclear Facilities Safety Board (DNFSB). This has obvious relevance to any future plutonium pit production at SRS. In what is arguably an attempt to kill the messenger DOE has issued its Order 140.1 *Interface with the Defense Nuclear Facilities Safety Board* to replace its prior directive on interface with the Board, DOE Manual 140.1-1B. As the Board itself observed:

...DOE Order 140.1, *Interface with the Defense Nuclear Facilities Safety Board*, issued in May 2018, threatens to undermine the Board’s ability to execute its statutory mission under the Atomic Energy Act. DOE Order 140.1 improperly attempts to diminish the Board’s statutory mandate in four principal ways, all of which are inconsistent with the text of the Atomic Energy Act:

- The Order contains a narrow definition of “Public Health and Safety,” which only includes individuals located outside of DOE site boundaries (i.e., excluding onsite individuals and workers);
- The Order provides exemptions allowing DOE and contractors to not provide access to facilities that DOE determines do not have the potential to adversely affect public health and safety, which could limit Board oversight at many defense nuclear facilities;
- The Order lacks a clear provision to provide the Board with ready access to such information, facilities, and personnel as the Board considers necessary to carry out its responsibilities; and

- The Order provides an allowance for DOE to deny Board requests for relevant deliberative and pre-decisional information.¹⁴

The last point in particular strikes at the heart of potential risks that the public may be exposed to by plutonium pit production at the repurposed MOX Facility, especially in light of numerous allegations of improper and shoddy construction. The Safety Board is the only independent entity that can review and comment on NNSA facility planning before those plans are made final. The DOE attempt to bar the DNFSB from “relevant deliberative and pre-decisional information” could directly lead to a facility repurposed for pit production lacking the safety provisions and requirements that would make the public safer.

DOE/NNSA’s degradation of safety even as it plans to ramp up plutonium pit production appears to be systematic. As the Safety Board notes:

DOE has begun the process to revise 10 CFR Part 830, *Nuclear Safety Management*, which has served as the cornerstone of its regulatory framework to ensure adequate protection of public health and safety... Overall, the Board is concerned that the proposed revision to 10 CFR Part 830 will make it more difficult for the Department to exercise consistent oversight across the complex and loosens requirements upon which DOE and the public rely to ensure adequate protection of public health and safety. The Board identified concerns with DOE’s proposal to remove the requirement for DOE to annually review and approve changes to documented safety analyses. The Board found that DOE’s proposed change, if implemented, created a potential for the safety basis and facility operations to drift outside the envelope approved by DOE”¹⁵

This is again directly relevant to the risks posed to the public by plutonium pit production at both LANL and SRS. LANL’s PF-4 has long had a bad track record of insufficient and /or outdated safety bases and the removal of the requirement to annually review and approve changes could directly threaten the public.

In short, a new PEIS is needed to fully review the risks posed by plutonium pit production to the public by apparent systemic attempts by DOE to degrade institutional safety and independent review of safety. That review should be incorporated into the SRS-specific EIS as well.

The 1998 Court Order Requiring a Supplemental PEIS

In addition to the clear need for a PEIS under NEPA and its implementing regulations, DOE is currently subject to a court order that mandates the preparation of a PEIS under the current circumstances. That order establishes the following requirement:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), DOE shall prepare and circulate a

¹⁴ Ibid., p. 2.

¹⁵ Ibid., p. 29.

Supplemental PEIS, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.¹⁶

Because DOE and NNSA are currently devoting resources to designing a pit production capability of *at least* 80 pits per year, including a plan to produce pits at SRS, this order clearly requires the agencies to undertake a Supplemental PEIS.

In contrast, NNSA's June 2019 *Draft Supplement Analysis of the Complex Transformation Supplemental Programmatic Environmental Impact Statement* concludes:

Therefore, as Head of Defense Programs and pursuant to NNSA's Administrative Procedure and DOE's National Environmental Policy Act Implementing Procedures (10 CFR 1021.314(c)), I have preliminarily determined that no further NEPA documentation is required at a programmatic level, and NNSA may amend the existing Complex Transformation SPEIS ROD. DSA p. 48.

We believe NNSA's preliminary determination to not prepare a supplemental PEIS is legally insufficient under NEPA because of all the reasons stated above. But even if a court were to rule against us on that count, we believe that NNSA cannot evade the clear requirement of the court order. First, it is indisputable that NNSA is planning on producing more than 80 pits per year.¹⁷ Second, we believe this requirement pre-empts NNSA's apparent plan to avoid a supplemental PEIS by amending the Record of Decision (ROD) for the 2008 Complex Transformation PEIS. This is because the court order clearly refers to the 1996 Stockpile Stewardship and Management PEIS, whose Record of Decision relocated the plutonium pit production mission to LANL while explicitly limiting it to no more than 20 pits per year.

NNSA could perhaps seize on the phrase "at LANL" to construe that the court order is not applicable to NNSA's current plans for at least 30 pits per year at LANL and at least 50 pits per year at SRS because it would not exceed what the SSM PEIS contemplated for just LANL alone. We assert in advance that it would be ill advised for NNSA to do so. The SSM PEIS also considered relocating plutonium pit production to SRS, and in both cases (including LANL) analyzed an annual capacity of approximately 50 pits per year on a single shift. But the SSM PEIS in no case contemplated producing pits at both sites simultaneously and at a level exceeding 80 pits per year. Thus, we believe that the court order clearly mandates that NNSA must prepare a supplemental PEIS for expanded plutonium pit production since the agency plans to produce more than 80 pits per year.

¹⁶ *Natural Resources Defense Council v. Pena*, 20 F.Supp.2d 45, 50 (D.D.C. 1998), <https://law.justia.com/cases/federal/district-courts/FSupp2/20/45/2423390/>

¹⁷ See for example the May 10, 2018 *Joint Statement from Ellen M. Lord and Lisa E. Gordon-Hagerty on Recapitalization of Plutonium Pit Production* that first announced expansion of pit production, , to wit: "This two-prong approach – with **at least** 50 pits per year produced at Savannah River and **at least** 30 pits per year at Los Alamos – is the best way to manage the cost, schedule, and risk of such a vital undertaking." (Bolded emphasis added.) <https://www.energy.gov/nnsa/articles/joint-statement-ellen-m-lord-and-lisa-e-gordon-hagerty-recapitalization-plutonium-pit>

DOE and NNSA Must Begin the PEIS Now

Until NNSA fully complies with NEPA through the preparation of a programmatic environmental impact statement on expanded plutonium pit production, Nuclear Watch believes that any irreversible or irremediable commitment of resources to either the expansion of pit production at LANL or to the repurposing of the MOX Facility at SRS is unlawful. Accordingly, to properly address all of the issues mentioned above, Nuclear Watch New Mexico insists that 1) NNSA begin the required PEIS right away for the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility for plutonium pit production at SRS, and 2) suspends the SRS-specific environmental impact statement process until that PEIS is completed.

After all, what is the rush, when NNSA is highly unlikely to meet its 2030 SRS pit production role, as the Institute for Defense Analysis so compellingly demonstrated?

Savannah River Site Specific Issues

Alleged Construction Deficiencies at the MOX Fuel Fabrication Facility

There are numerous allegations over shoddy and potentially illegal activities related to the installation of various components in the MOX plant. These allegations pertain not only to the faulty HVAC system, which may have to be demolished in its entirety, but also to many other installations. If any part of the HVAC system is proposed for reuse there must then be full documentation that it meets nuclear quality control standards for both the components, including gaskets and hangers, and their installation.

The draft EIS must seriously analyze the as-built quality of the MOX Facility and demonstrate that it indeed can be “repurposed” for expanded plutonium pit production. The draft EIS must include a full review of MOX construction, inspections and certification of components. This includes the HVAC system and wall penetrations. The certification of components that may be considered for reuse in the repurposed MOX Fuel Fabrication Facility must be demonstrated to meet nuclear quality control requirements. The extent of problems with construction of the MOX Facility may well preclude its use for pit production.

All of this is underscored by the fact that the U.S. government has filed a false claims lawsuit against the MOX Facility contractor. As the Department of Justice announced:

... the United States has filed suit against CB&I AREVA MOX Services LLC (MOX Services) and Wise Services Inc. under the False Claims Act and the Anti-Kickback Act in connection with a contract between MOX Services and the National Nuclear Security Administration relating to the design and operation of the MOX Fuel Fabrication Facility (MFFF) at the NNSA Savannah River Site in Aiken, South Carolina... “Government contractors who line their bank accounts by receiving kickbacks or submitting fraudulent claims undermine the public's trust in government programs and operations,” said Assistant Attorney General Jody Hunt of the Department of Justice’s Civil Division. “We will continue to vigorously pursue those who misuse taxpayer funds.”... “The Department of Energy Office of Inspector General remains committed to ensuring the integrity of the Department’s contractors and subcontractors,” said Teri L. Donaldson, Department of Energy Inspector General. “We take allegations of false claims,

overbilling, and kickbacks very seriously and will aggressively investigate these matters to protect the Department and the American taxpayers.”¹⁸

DOE and NNSA should demonstrate that professed zeal for protecting the American taxpayer through full investigations into fraud, waste, abuse and mismanagement before repurposing the MOX Facility, and report on it in the draft SRS EIS. Most importantly, the draft SRS EIS should objectively evaluate whether the MOX Fuel Fabrication Facility can realistically be repurposed for expanded plutonium pit production to begin with. A detailed plan for repurposing the MFFF for pit production must be analyzed in the SRS EIS (as complete as possible given probable classification barriers).

Seismic Concerns

We note how seismic concerns played a major role in causing massive cost overruns involving billions of taxpayer dollars and related complete redesigns of both the Chemistry and Metallurgy Research Replacement Project at the Los Alamos National Laboratory and the Uranium Processing Facility (UPF) at the Y-12 Site. Nuclear Watch urges the NNSA to avoid repeating these failures by fully incorporating seismic safety provisions into the repurposing of the MOX Fuel Fabrication Facility (MFFF) for plutonium pit production. We think the Complex Transformation PEIS seismic assessment of SRS to be far too complacent, stating “The Atlantic Coastal Plain tectonic province in which SRS is located is characterized by generally low seismic activity that is expected to remain subdued (DOE 2004a).”¹⁹ That needs to be corrected in the draft SRS EIS.

In particular, we advise paying close attention to any SRS-related seismic concerns expressed by the Defense Nuclear Facilities Safety Board (DNFSB). Further, NNSA should provide the Safety Board ready access to pre-decisional blueprints, data sheets, etc., relevant to repurposing MFFF, contrary to the apparent intent of DOE Order 140.1 (see our earlier comment section *Is DOE Systematically Degrading Safety?*).

We note that the Savannah River Site is not immune from seismic concerns, as it is located some 100 miles from the site of the 1886 6.9–7.3 Mw Charleston, SC earthquake that had little or no preceding historic seismic activity. It was the most damaging earthquake ever to occur in the Southeastern United States and ranks among the most powerful ever in eastern North America. In Aiken County, chimney tops fell, millpond dams failed and trains were derailed.

A 2014 US Geological Survey Seismic Hazard Map²⁰ shows that South Carolina is among the sixteen states that have the highest risk for experiencing earthquakes. Since the mid-1980s, there have been no fewer than 11 earthquakes whose epicenters were on the Savannah River Site. Two had a magnitude of 2.6, the highest recorded, occurring in 1985 and 2001. From October 2001 to

¹⁸ *United States Files False Claims Act Lawsuit in Connection With MOX Fuel Fabrication Facility Contract*, Department of Justice, February 14, 2019, <https://www.justice.gov/opa/pr/united-states-files-false-claims-act-lawsuit-connection-mox-fuel-fabrication-facility>

¹⁹ October 2008 Final Complex Transformation SPEIS, Chapter 4, Affected Environment 4.8.6.3 Seismology, p. 4-353.

²⁰ Seismic Hazard Maps and Site-Specific Data, USGS, <https://earthquake.usgs.gov/hazards/hazmaps/>

March 2002, there were eight earthquakes.²¹ Moreover, there was a magnitude 4.1 earthquake near SRS on Valentine's Day, 2014.²²

In short, the SRS EIS should fully analyze seismic concerns and possible mitigation strategies to lower public risks from future plutonium pit production. The DNFSB has postulated high doses to the public in the event that the plutonium pit production facility (known as "PF-4") at LANL was seriously damaged by a seismic event. While the seismic risks are no doubt lower at SRS, and the neighboring population further way, they should nevertheless be fully explored in the SRS EIS.

Wildfire Risks

The risk of wildfires will likely increase with climate change and global warming. We note the risks posed by the current wildfires at the Idaho National Laboratory and the Hanford nuclear reservation in Washington State. In April-May 2000 and June 2011 very dangerous crown fires threatened the Los Alamos National Laboratory (indeed the Lab and townsite were fully evacuated except for essential personnel during the 2000 Cerro Grande Fire). In November 2018 the Woolsey Fire nearly completely burned the Santa Susanna Field Laboratory, causing deep public mistrust over resulting airborne contaminants.

As one source puts it:

The contaminated ground surface at Savannah River Site (SRS) is a result of the decades of work that has been performed maintaining the country's nuclear stockpile and performing research and development on nuclear materials. The volatilization of radionuclides during wildfire results in airborne particles that are dispersed within the smoke plume and may result in doses to downwind firefighters and the public. To better understand the risk that these smoke plumes present, we have characterized four regions at SRS in terms of their fuel characteristics and radiological contamination on the ground. Combined with general meteorological conditions describing typical and extreme burn conditions, we have simulated potential fires in these regions and predicted the potential radiological dose that could be received by firefighting personnel and the public surrounding the SRS. In all cases, the predicted cumulative dose was a small percent of the US Department of Energy regulatory limit (0.25 mSv). These predictions were conservative and assumed that firefighters would be exposed for the duration of their shift and the public would be exposed for the entire day over the duration of the burn. Realistically, firefighters routinely rotate off the firefront during their shift and the public would likely remain indoors much of the day. However, we show that even under worst-case conditions the regulatory limits are not exceeded. We can infer that the risks associated with wildfires would not be expected to cause cumulative doses above the level of concern to either responding personnel or the offsite public.

²¹ This seismic information is from *Savannah River Site monitors activity Quake shakes Aiken County*, Dede Biles, September 18, 2014, https://www.aikenstandard.com/news/savannah-river-site-monitors-activity-quake-shakes-aiken-county/article_e15ca9b8-2aa7-57e0-8d67-baf84abd66a5.html

²² <http://www.dnr.sc.gov/geology/RecentEarthquakes.htm>

That conclusion needs to be reconfirmed in the SRS EIS given the addition of the plutonium pit production mission. Further, Nuclear Watch stresses the point that NEPA helps DOE and NNSA make better decisions, even during extreme wildfire emergencies. As previously stated in footnote 3 of these comments, the now-Executive Director of Nuclear Watch New Mexico commented on the lack of wildfire prevention in a draft 1999 LANL Site-Wide Environmental Impact Statement (SWEIS). In response, the final LANL SWEIS included a detailed hypothetical wildfire that became all too real a half year later during the Cerro Grande Fire. That hypothetical scenario aided Lab leadership in their decision to order evacuation of all but essential personnel. Mitigation provisions in the final LANL SWEIS included fire prevention measures that helped to keep the Cerro Grande Fire a half-mile away from above ground plutonium-contaminated transuranic wastes stored at the Lab's Area G, which could have been catastrophic had their drums ruptured due to high heat.

Miscellaneous Specifics

What analytical chemistry and materials characterization capabilities will the repurposed MOX Fuel Fabrication Facility have? Will they be redundant to LANL's AC and MC capabilities? Will they be independent of LANL's AC and MC capabilities? Will there have to be transport of special nuclear materials between LANL and SRS to take advantage of LANL's AC and MC capabilities?

What plutonium pit radiographic capabilities, if any, will the repurposed MOX Fuel Fabrication Facility have?

In general, expanded plutonium pit production will likely prompt the need for increased hydrotests. Are there any plans for hydrotesting at SRS? If so, the draft EIS needs to consider their potential environmental effects and possible mitigation measures.

A "Repurposed MFFF Capabilities Study" is needed that examines what plutonium capabilities are truly needed for at least 50 pits per year. That study needs to appropriately configure those capabilities at the repurposed MFFF down to the floor plan level. The SRS EIS must then analyze in detail those needed capabilities and the appropriate floor plan configuration.

A Cost-Benefit Analysis Is Needed. A legitimate SRS EIS would perform a cost-benefit analysis given the MFFF's massive cost overrun and the government's false claims lawsuit. DOE NEPA Implementation Regulation (40 CFR § 1502.23) states:

If a cost-benefit analysis relevant to the choice among environmentally different alternatives is being considered for the proposed action, it shall be incorporated by reference or appended to the statement as an aid in evaluating the environmental consequences. To assess the adequacy of compliance with section 102(2)(B) of the Act the statement shall, when a cost-benefit analysis is prepared, discuss the relationship between that analysis and any analyses of unquantified environmental impacts, values, and amenities. For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. In any event, an environmental impact statement should at least indicate those considerations,

including factors not related to environmental quality, which are likely to be relevant and important to a decision.

If there was ever a project that needed a cost benefit analysis, it is pit production at the Savannah River Site, which the SRS EIS should incorporate.

The draft SRS EIS must fully consider Intentional Destructive Acts scenarios, including both internal sabotage and terror events. The draft EIS should disclose those scenarios to the fullest extent possible given probable classification barriers.

The Draft EIS should analyze the impacts of diverting taxpayer dollars to new nuclear weapons facilities instead of cleaning up the massive environmental damage caused by past research and production. What are the long-term public health and environmental effects of leaving radioactive and chemical contaminants that can pollute precious water resources, while new, unnecessary, and costly nuclear facilities that will produce more contaminants are being built?

The draft SRS EIS must be completely free of predetermination. The draft SRS EIS will be clearly unusual given that the MFFF is already partially built. NNSA must concretely demonstrate that it can pursue an impartial process without predetermination that leads to an objective decision to repurpose the MFFF or not.

What are the risks of establishing plutonium pit production at SRS, which will be a completely new mission there? Will staff be adequately trained? Will SRS avoid the chronic nuclear safety infractions that have plagued the Los Alamos Lab, which has 70 years of experience in pit production?

The risks of transport of plutonium back and forth to SRS from such sites as Pantex and the Los Alamos Lab must be analyzed in the draft EIS.

What are all of the radioactive and chemical waste streams and how will they be disposed of? The State of South Carolina has been in a long struggle with the Department of Energy to not become the nation's *de facto* dumping ground for excess plutonium. How will expanded pit production add to the unwanted inventory of plutonium that is already at SRS? How might that further strain the relationship between NNSA and the state of South Carolina?

All analyses in the draft EIS must address the risk to the most vulnerable, that is pregnant female farmer, fetuses, children and the elderly, rather than the standard, less vulnerable "Reference Man."

DOE should dedicate funding to local and state governments for independent environmental monitoring, with the right of review of that monitoring by the potentially affected public.

All socioeconomic impacts to potentially affected communities must be analyzed. How many jobs will be generated? How long will these jobs last? Will people be brought in from outside of the area to work at these facilities? If so, what positions will they fill? Impacts to tourism must be analyzed. Impacts to property values must be analyzed.

SRS must not be considered for expanded plutonium pit production only because the MFFF already exists. The issue of jobs or contracts must not drive the establishment of plutonium pit production at SRS, but that appears to be a main motivator for DOE and local politicians. Those issues should have no bearing on a national security program of this sort. Making this project into a parochial jobs project is also part of DOE's recipe for failure.

All cited reference documents should be made immediately accessible online upon the release of the draft SRS EIS.

The public comment period for the draft EIS should be at least 90 days.

- End of Scoping Comments -

These scoping comments on the SRS EIS for plutonium pit production respectfully submitted,

Jay Coghlan
Executive Director

Scott Kovac
Research Director

Attachment C

Comments on NNSA's Draft Supplement Analysis of the 2008 Complex Transformation PEIS

**Geoffrey Fettus, Senior Attorney, Natural Resources Defense Council
August 9, 2019**

<https://nukewatch.org/newsite/wp-content/uploads/2019/08/NRDC-CT-PEIS-Supp-Analysis-Comments.pdf>



August 9, 2019

Ms. Jennifer Nelson
NEPA Document Manager
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By email to NEPA-SRS@srs.gov

Re: Comments on NNSA's Draft Supplement Analysis of the 2008 Complex Transformation PEIS

Dear NEPA Document Manager:

These comments by the Natural Resources Defense Council (NRDC) reiterate two fundamental points I have already made with co-counsel William N. Lawton of Meyer Glitzenstein & Eubanks, LLP in our May 17, 2019 letter to Department of Energy (DOE) Secretary James Richard Perry and National Nuclear Security Administration (NNSA) Administrator Lisa Gorden-Hagerty:¹

- 1) Given NNSA's May 10, 2018 decision to expand plutonium pit production, the National Environmental Policy Act (NEPA) clearly requires the agency to prepare a new programmatic environmental impact statement (PEIS) to supplement the 2008 Complex Transformation PEIS; and
- 2) Even if NNSA does not agree with the above, there is a 1998 court order that requires DOE to prepare a supplemental PEIS in the event NNSA's proposed plans for future plutonium pit production extend beyond fabrication at LANL of 50 pits per year under "routine conditions," or 80 pits per year under "multiple shift operations."

We intend to enforce that court order, if necessary.

A. NEPA Requires a New PEIS to Supplement the 2008 Complex Transformation PEIS

The stated purpose of the NNSA's *Supplement Analysis of the 2008 Complex Transformation Programmatic Environmental Impact Statement* is:

"... to allow NNSA to determine whether, prior to proceeding with the effort to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030, the existing Complex Transformation SPEIS should be supplemented, a new environmental impact statement should be prepared, or no further *National Environmental Policy Act* (NEPA) analysis is required. The Draft SA preliminarily concludes that further NEPA documentation at a programmatic level is not required; however, NNSA will consider comments on this Draft SA and publish a Final SA."²

¹ See, *The need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina*; Nickolas Lawton, MGE, LLP and Geoffrey Fettus, NRDC; May 17, 2019; <https://nukewatch.org/newsite/wp-content/uploads/2019/05/Summary-Pit-Production.pdf>

² *Supplement Analysis of its 2008 Complex Transformation Programmatic Environmental Impact Statement*, NNSA, June 2019, Executive Summary, <https://www.energy.gov/nepa/downloads/eis-0236-s4-sa-02-draft-supplement-analysis>

NNSA has reached the wrong preliminary conclusion. In our view, NNSA must complete a new programmatic environmental impact statement (PEIS) on its radically revised plan for expanded production of plutonium pits, the radioactive core of nuclear weapons. Simply amending the Record of Decision for the 2008 Complex Transformation (CT) PEIS will not suffice to support a decision to exceed the currently authorized level of 20 pits per year at the Los Alamos National Laboratory (LANL), which was sanctioned by the original 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement. The need for a new PEIS is the product of numerous changed circumstances, much new information, and NNSA's new plan for simultaneous pit production at two disparate sites, separated by some 1,388 miles, a programmatic alternative that the Complex Transformation PEIS never considered.

NNSA's new proposal is sufficient justification by itself for a new PEIS. This is so for a host of reasons that should be evident. The new decision shifts the preponderance of NNSA's pit production capacity to a new site that has never hosted this activity before. Such a program entails new patterns for long-distance transportation for intrinsically hazardous plutonium in various forms, including fabricated nuclear weapons pits and plutonium-contaminated wastes. All of this could pose a hazard to the public from a security standpoint if the plutonium were to fall into the wrong hands or was dispersed into the environment by fire, a chemical explosion, or some other such unforeseen accident. Countenancing such situations is precisely what NEPA is for – prior to making the decision to proceed with such major federal programmatic actions.

To use the Department of Energy's own NEPA regulatory language, a new PEIS is required because the expansion of pit production at LANL and the repurposing of the MOX Facility at SRS are "systematic and connected agency decisions" that are clearly "connected," "cumulative," and "similar" actions, and therefore "their environmental effects must be considered in a single impact statement." Accordingly, DOE's own NEPA regulations require the preparation of a PEIS.

NNSA's Supplement Analysis erroneously claims that the drivers and requirements for expanded plutonium pit production have remained the same. To the contrary, they have substantially changed; NNSA's past rationales for expanded pit production have involved speculative new-design nuclear weapons that end-up being canceled, such as the prior "Reliable Replacement" and "Interoperable" warheads. NNSA's latest rationale is for a newly proposed W87-1 warhead. In this instance, the Department attempts to inoculate itself against future objections on these matters by asserting that if it does not use newly manufactured pits in this latest iteration, it will use them for the as yet unnamed next warhead "Life Extension Program."³ NNSA has yet to offer a concrete, consistent rationale for an expensive and substantially expanded plutonium pit production.

NEPA requires that a federal agency clearly state the national purpose and need to be met by any programmatic proposal with significant environmental impacts. Such a clear statement of DOE's purpose and need for proposing expanded plutonium pit production at a new site, and an analysis of all reasonable alternatives that might satisfy this purpose and need with fewer environmental impacts, seems especially indicated in this case given that up to 20,000 existing pits are already stored at the Pantex Plant near Amarillo, TX. Moreover, independent experts have found that existing pits have reliable lifetimes of more than a century and can, if necessary, be refurbished.⁴ All of this points to the fact that in order to fulfill its NEPA obligations, NNSA must consider the extensive reuse of existing plutonium pits as a credible alternative to expanded plutonium pit production, and that the only appropriate and legally compliant

³ See *W78 Replacement Program (W87-1): Cost Estimates and Use of Insensitive High Explosives*, NNSA, December 2018, page 6, <https://nukewatch.org/newsite/wp-content/uploads/2019/03/W78-Replacement-Program-Cost-Estimates-IHE-1.pdf>.

⁴ *Pit Lifetime Study*, JSR-06-035, November 20, 2006, the Mitre Corporation (also known as the "JASONS"), https://www.nukewatch.org/facts/nwd/JASON_ReportPuAging.pdf.

vehicle for that is a new programmatic environmental impact statement on expanded plutonium pit production.

A new PEIS is also needed to analyze the occupational and public risks of repeated, chronic nuclear criticality safety infractions at LANL and how to resolve them. By extension, the need for a more effective nuclear criticality regimen applies to any future pit production at SRS as well. A genuine, comprehensive nuclear safety regime needs to be instituted at a programmatic level, and its putative beneficial impact on hazard reduction to workers and the public analyzed in a new PEIS. This document must also review potential risks to the public from apparent systemic attempts by DOE to degrade institutional safety, such as relaxing internal nuclear safety rules and restricting access of the independent Defense Nuclear Facilities Safety Board.

Additionally, but not last, the risks of increased transport of plutonium and plutonium-contaminated wastes between NNSA sites must be analyzed in a new PEIS. The only repository for transuranic radioactive wastes from plutonium pit production is the Waste Isolation Pilot Plant (WIPP). New programmatic review is required to analyze all (if any) of the increasing radioactive waste disposal demands on WIPP, which include future expanded pit production, 34 tons or more of existing “excess” plutonium and potential attempts by DOE to “reinterpret” or downgrade some high-level radioactive wastes, likely another topic of legal dispute in another forum. A new PEIS must guarantee that all future transuranic waste packaging and shipping will be safe, given that LANL sent an improperly prepared waste drum to WIPP that ruptured, exploded, and closed that facility for nearly 3 years, costing the American taxpayer some \$3 billion.

B. The 1998 Court Order

While a new or Supplemental PEIS in the present circumstance is indicated under any good faith interpretation of NEPA and its implementing regulations, the DOE apparently does not yet perceive its obligations in this light. Therefore, we respectfully remind the Department that it remains subject to a court order that *mandates* the preparation of a PEIS in the current circumstances. That Order established the following requirement:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), *DOE shall prepare and circulate a Supplemental PEIS, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.*⁵

DOE now proposes pit fabrication of “*at least*” 50 pits per year at SRS and “*at least*” 30 pits per year at LANL. So not only has DOE introduced an entirely new production site in a radically different climate and geography into its programmatic proposal, but the previously analyzed *limit* of 80 pits per year under “multiple shift operations” has become an open-ended capacity for “no fewer than” 80 pits per year at multiple sites. Absent further NEPA programmatic review, NNSA is limited to *no more than* 80 pits per year *at LANL*, and only through utilizing a lesser “routine” production capability for 50 pits per year in “multiple shift operations.” Since it is clear that the new proposed production rate of “no fewer than” 80 pits per year will *not* be achieved via multiple shift operation of a smaller “routine” capability *at LANL*, this too becomes another factor triggering the Court’s requirement for a Supplemental PEIS. As the principle plaintiffs’ counsel on the case, NRDC intends to defend this hard-won decision.

⁵ *Natural Resources Defense Council v. Pena*, 20 F.Supp.2d 45, 50 (D.D.C. 1998), <https://law.justia.com/cases/federal/district-courts/FSupp2/20/45/2423390/>

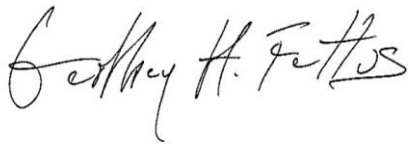
C. Conclusion

To close, in analogous circumstances, DOE and NNSA have undertaken PEISs in the past, providing ample legal precedent for why NNSA must prepare a new PEIS now. For example, in 1996, DOE undertook a *Stockpile Stewardship and Management PEIS* to consider, *inter alia*, relocating pit production to LANL. Likewise, in 2003, DOE prepared (but never finalized) a *Modern Pit Facility Supplemental PEIS* to analyze a possible increase in the rate of plutonium pit production and evaluate potential alternative sites. Similarly, in 2006, DOE undertook a *Complex 2030 Supplemental PEIS* to consider the modernization of the U.S. nuclear weapons program. And most recently, in 2008, the agencies undertook a *Complex Transformation Supplemental PEIS* in order to analyze alternatives for the modernization of the U.S. nuclear weapons program, including expanded plutonium pit production.

Because NNSA's plans and circumstances at both LANL and SRS have changed significantly in the 11 years since it last undertook NEPA programmatic analysis of this issue—and these now clearly exceed the boundaries established by Court order in 1998—the agency *must* prepare a timely Supplemental PEIS “prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability” that goes beyond “fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations.”

Indeed, by undertaking or preparing to undertake “detailed” engineering design for pit production in a “repurposed” MOX plutonium fuel facility at SRS—before completing the required Supplemental PEIS—NNSA flirts with actual or anticipatory breach of the 1998 Court Order. We would be happy to meet with relevant DOE staff and decisionmakers in order to assist the Department in its efforts to find a lawful course that complies with its NEPA obligations.

Respectfully submitted,



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Savannah River Site Watch

August 12, 2019

Ms. Jennifer Nelson,
NEPA Document Manager
NNSA SRS Field Office
P.O. Box A,
Aiken, SC 29802
By email to: NEPA-SRS@srs.gov

Re: Comments on NNSA's Draft Supplement Analysis of the 2008 Complex Transformation PEIS that seeks to raise plutonium pit production from 20 pits per year to more than 80, via use of Plutonium Bomb Plant (PBP) at SRS

Dear NEPA Document Manager:

These comments - via email and attached - are being submitted on behalf of Savannah River Site Watch, a duly registered non-profit organization that focuses on policies of the U.S. Department of Energy, with a primary focus on the Savannah River Site.

As the draft Supplement Analysis is deficient and offers no technical justification for the dramatic 400% shift in pit-production capacity requirements. I request that a new, legally mandated Programmatic Environmental Impact Statement, to supplement the 2008 Complex Transformation PEIS, be prepared. The draft Supplement Analysis fails to properly review these key matters outlined below, as required by NEPA.

If a determination is made that no new, required PEIS is to be prepared then I request that NNSA halt the entire NEPA review process for expanded pit production.

First, I request that a nuclear non-proliferation assessment be prepared on production of new pits and the nuclear warheads that would be outfitted with such pits. As it appears that all new pits would go to a single warhead - W87-1-like warhead - there are proliferation concerns with deployment of such a new warhead and such concerns, including compliance with the Treaty on the Nonproliferation of Nuclear Weapons, must be analyzed in an assessment attached to all relevant NEPA documents and the PEIS. Likewise, steps that NNSA could take to avoid manufacturing pits for an unneeded warhead must be presented.

Second, I request a full assessment of the ability of staff at the Savannah River Site to produce pits in the proposed Plutonium Bomb Plant (PBP), a project unfunded and unauthorized by Congress. SRS has no expertise in alloying plutonium with gallium nor with handling and casting liquid plutonium. Creating such pit-fabrication expertise from point zero will be a long, arduous and uncertain path with unknown outcome. As SRS only has some expertise in storing plutonium, processing plutonium into oxide (with such work now terminated) and downblending plutonium for disposal in the Waste Isolation Pilot Plant, it totally lacks any experience related to pit fabrication. Claims that SRS can develop expertise and begin pit production must be substantiated via technical documents that are part of the NEPA and PEIS record. As it stands now, the record shows that SRS would be unable to produce pits as presented by DOE's ambitious proposal.

Third, I request that the NEPA and PEIS record include a thorough analysis of the state of construction and design at the Mixed Oxide Fuel Fabrication Facility (MFF) and what it would take to convert the poorly constructed MOX plant to a Plutonium Bomb Plant, including costs. The MOX plant option for pit production has never been reviewed in depth and that analysis must initially be done via a new PEIS, followed by a site-specific EIS. The analysis of the MOX plant must include status of embedded and through-wall components and if such components were installed correctly and if they meet design, quality control and operational standards. And, given the botched MOX plant construction job, will contractors CB&I Areva MOX Services or contractors affiliated with them be used for the pit mission? (Such contractors and their NNSA managers, who failed in their mission, should be banned from further work on construction projects for NNSA or DOE.) As there is no documented evidence that the MOX plant could be converted to pit production, this analysis must include professional analyses certified by nuclear and construction engineers. Unsubstantiated claims that the MOX plant can be used for pit production will undermine any DOE proposal for use of the MOX plant for pit production.

Additionally, the cost and difficulty of converting the partially finished MOX plant to a permanent Category-1 fissile material storage and processing facility must be discussed in depth. Currently the K-Area plutonium storage facility is the only permanent Cat-1 facility at SRS and creation of a second facility will be costly and pose security and environmental risks that must be analyzed.

Additionally, no reuse of the MOX plant should be finalized until there are full investigations into waste, fraud, abuse and mismanagement with the MOX project and the bungled construction of the Mixed Oxide Fuel Fabrication Facility. Investigations by Congress and government agencies into the MOX debacle are essential before any reuse of the MOX plant can even be considered. Simply sweeping the problems with the MOX debacle under the rug will be a DOE recipe for failure of any pursuit of a Plutonium Bomb Plant at SRS.

Fourth, the role of the mothballed Waste Solidification Building (WSB) at SRS must be fully analyzed and presented in the PEIS. The WSB was built to handle MOX waste and not pit waste. The construction status of the building has also been questioned and there must be a fully certified (by engineers) analysis included for the NEPA and PEIS record. Simple claims that the WSB can be used for plutonium and chemical waste processing will be insufficient to make the case for such use. The NEPA and PEIS documents must show disposal paths out of the WSB, if it were to be used, describing in detail both off-site and on-site disposition methods.

The stated purpose of the National Nuclear Security Administration's (NNSA's) *Supplement Analysis of the 2008 Complex Transformation Programmatic Environmental Impact Statement* is:

"... to allow NNSA to determine whether, prior to proceeding with the effort to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030, the existing Complex Transformation SPEIS should be supplemented, a new environmental impact statement should be prepared, or no further *National Environmental Policy Act* (NEPA) analysis is required. The Draft SA [Supplement Analysis] preliminarily concludes that further NEPA documentation at a programmatic level is not required; however, NNSA will consider comments on this Draft SA and publish a Final SA."

To meet legal NEPA requirements NNSA must complete a new programmatic environmental impact statement (PEIS) on its nation-wide plans for expanded production of plutonium pits, the radioactive cores of nuclear weapons. Simply amending the Record of Decision for the 2008 Complex Transformation (CT) PEIS, as NNSA plans to do, will not be sufficient to formally raise the level of production from the level of 20 pits per year at the Los Alamos National Laboratory (LANL) sanctioned by the original 1996 Stockpile Stewardship and Management PEIS. This is because of numerous changed circumstances and much new information and an existing 1998 court order that requires DOE to prepare a supplemental PEIS when it plans to produce more than 80 pits per year.

Further, a new PEIS is required because NNSA proposes simultaneous pit production at two sites, which the Complex Transformation PEIS never considered. NNSA's new plan involves the production of at least 30 pits per year at the Los Alamos Lab and at least fifty pits per year at the Savannah River Site (SRS), which would be a completely new mission there. This is inherently a "programmatic" decision, sufficient justification by itself for a new PEIS.

NNSA plans to establish pit production at SRS by "repurposing" the failed MOX Fuel Fabrication Facility (MFFF). To use the Department of Energy's own NEPA regulatory language, a new PEIS is required because the expansion of pit production at LANL and the repurposing of the MOX Facility at SRS are "systematic and connected agency decisions" that are clearly "connected," "cumulative," and "similar" actions, therefore "their environmental effects must be considered in a single impact statement." Accordingly, DOE's own NEPA regulations require the preparation of a PEIS.

Moreover, convincing conclusions by independent experts further reinforce the need for full programmatic review. For example, the Institute for Defense Analysis recently concluded that NNSA's plans for expanded plutonium pit production will be "extremely challenging" and calculated that NNSA has never completed a facility costing more than \$750 million in less than 16 years. Nevertheless, NNSA improbably claims pit production will begin at SRS by 2030. This is throwing bad money after bad money given the 7 billion in taxpayer dollars that NNSA has already wasted on the MOX Facility.

The Supplement Analysis claims that the drivers and requirements for expanded plutonium pit production have remained the same. To the contrary, they have substantially changed, further underlining the need for a new PEIS. Why is no pit production scheduled to maintain the safety and reliability of the existing nuclear weapons stockpile? Instead, NNSA's changing rationale for expanded production has been for speculative new-design nuclear weapons that end up being canceled, such as the past "Reliable Replacement Warhead" and "Interoperable Warhead." It is imperative that a new PEIS clearly and consistently define the specific needs and requirements for expanded plutonium pit production, especially given that up to 20,000 existing pits are already stored at the Pantex Plant near Amarillo, TX, and independent experts have found that existing pits have reliable lifetimes of more than a century.

Further, NNSA does not plan to produce exact replicas of existing pits. Therefore, a new PEIS should analyze how heavily modified pit designs could undermine confidence in stockpile safety and reliability, thereby possibly degrading national security and prompting a return to full-scale testing. A new PEIS must instead consider the extensive reuse of existing plutonium pits as a serious alternative to expanded pit production that is less harmful to the environment and will save taxpayers' money.

A new PEIS is also needed to analyze the occupational and public risks of repeated, chronic nuclear criticality safety infractions at LANL and how to resolve them. By extension this applies to any future pit production at SRS as well. A genuine, comprehensive nuclear safety regime needs to be instituted at a programmatic level that must be analyzed in a new PEIS. It must also fully review potential risks to the public by apparent systemic attempts by DOE to degrade institutional safety, such as relaxing internal nuclear safety rules and restricting access of the independent Defense Nuclear Facilities Safety Board (DNFSB). The oversight role of the DNFSB in planning and possible implementation of pit production must be analyzed and presented.

The risks of increased transport of plutonium between NNSA sites must be analyzed in a new PEIS. The only repository for transuranic radioactive wastes from plutonium pit production is the Waste Isolation Pilot Plant (WIPP) in southern New Mexico. New programmatic review is required to analyze all of the increasing radioactive waste disposal demands on WIPP, which include wastes from future expanded pit production, 34 tons of existing "surplus" plutonium and possible disposal by DOE of some reclassified high-level radioactive wastes. A new PEIS must guarantee that all future transuranic waste packaging and shipping will be safe, given that LANL sent an improperly prepared waste drum to WIPP that ruptured and closed that facility for nearly 3 years, costing the American taxpayer \$3 billion to reopen.

The new PEIS must be completely free of predetermination. NNSA must demonstrate that it can pursue an impartial process without predetermination that leads to an objective decision to repurpose the MOX Facility or not. The new PEIS must seriously analyze its as-built quality and demonstrate that it indeed can be “repurposed” for expanded plutonium pit production. The extent of problems with construction of the MOX Facility, underscored by the government’s false-claims lawsuit against the MOX contractor, may well preclude its reuse for pit production.

The new PEIS should analyze the impacts of diverting taxpayer dollars to new nuclear weapons facilities instead of cleaning up the massive environmental damage caused by past research and production. What are the long-term public health and environmental effects of leaving radioactive and toxic contaminants that can pollute precious water resources, while new, unnecessary, and costly nuclear facilities that will produce more contaminants are being built? To reiterate, given the deteriorating arms control climate and a potential new nuclear arms race, a new PEIS must analyze the potentially adverse impacts of expanding plutonium pit production on the global nonproliferation regime. This includes any adverse impacts on the NonProliferation Treaty which the U.S. signed in 1970 but has never honored its mandate to enter into serious negotiations leading to global nuclear disarmament.

All analyses in a new PEIS must address the risk to the most vulnerable, that is pregnant women, fetuses, children and the elderly, rather than the standard, less vulnerable “Reference Man.” The comment period for a draft PEIS should be at least 120 days. All cited reference documents in the final SA and the draft PEIS must should be made immediately accessible online upon the release of the documents.

I request to be placed on any email lists for the status of NEPA and other NNSA documents on pit production: srswatch@gmail.com.

Sincerely,

Tom Clements
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Tri-Valley CAREs

Communities Against a Radioactive Environment



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August 12, 2019

Ms. Jennifer Nelson
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Submitted by email to NNSA at: NEPA-SRS@srs.gov

Please acknowledge receipt to: marylia@trivalleycares.org and scott@trivalleycars.org

Re: Tri-Valley CAREs' comments on the National Nuclear Security Administration's Draft Supplement Analysis (SA) of the 2008 Complex Transformation Supplemental PEIS

Dear NEPA Document Manager,

Tri-Valley CAREs is a non-profit organization founded in 1983 by Livermore, California area residents to conduct research, public education and advocacy regarding the potential environmental, health and proliferation impacts of the U.S. nuclear weapons complex with a focus on the activities at Lawrence Livermore National Laboratory (LLNL).

1. Introduction

On June 28, 2019, NNSA published a formal Notice in the Federal Register announcing the availability of a Draft Supplement Analysis (SA) of the 2008 Complex Transformation Supplemental Programmatic Environmental Impact Statement pursuant to the agency's present day plan to expand plutonium pit (bomb core) production from the currently authorized limit of "up to" 20 pits per year to a new limit of 80 pits per year "or more" at two locations that are approximately 1,500 miles apart, the Los Alamos National Laboratory (LANL) in NM and the Savannah River Site (SRS) in SC.

The stated purpose of the NNSA's SA is to determine whether a full programmatic review of increasing plutonium pit production 4-fold or more is required by the National Environmental Policy Act (NEPA). The NNSA's Notice in the Federal Register states: *"The Draft SA concludes that further NEPA documentation at a programmatic level is not required."* This preliminary determination is flawed and contrary to the letter and spirit of the law.

Tri-Valley CAREs respectfully submits these comments on NNSA's Draft SA and we highlight the agency's legal obligation to conduct a relevant, up to date Programmatic Environmental Impact Statement (PEIS) before taking any further action to increase plutonium pit production.

Due to the highly interconnected nature of the NNSA's currently proposed action as well as the fragmented NEPA process being undertaken, which we believe will serve to avoid the requisite "hard look" at the national program and understate its risks, we append our scoping comment on the SRS EIS (July 25, 2019) and two letters on the subject sent by Tri-Valley CAREs and colleagues (October 31, 2018 and May 17, 2019). These materials should be considered in their entirety as part of Tri-Valley CAREs' comments on the Draft SA.

Tri-Valley CAREs has a history of involvement in the issue of plutonium pit production, including submittal of extensive comments on the 2008 Complex Transformation Supplemental PEIS on which NNSA is now trying to rely. As we detail in the sections that follow, the NNSA's present plans differ significantly from that 2008 document and thus a new Programmatic Environmental Impact Statement and public hearings at potentially affected sites across the country are required.

In addition, Tri-Valley CAREs is a party along with the Natural Resources Defense Council and others to the 1998 Federal Court Order that requires the Department of Energy/NNSA to undertake a fresh supplemental Programmatic Environmental Impact Statement should the agency propose future plutonium pit production that would be in excess of 50 pits per year under routine conditions or 80 pits per year under special conditions of multiple shift operations. The NNSA currently proposes to manufacture 80 pits or more per year under *routine conditions* not only using LANL, which was named in the Order, but now using two sites and clearly exceeding the conditions of the Court Order.

Tri-Valley CAREs stands willing to take action as needed to protect and enforce the Court Order specifically as well as NEPA more broadly.

2. NNSA must prepare a PEIS on expanded plutonium pit production and the development of the W87-1 warhead in which the new pits are to be used

The present nationwide program proposed by NNSA to expand plutonium pit production 4-fold or more by 2030 is clearly "connected," "cumulative," and "similar" according the National Environmental Policy Act.

NEPA mandates that agencies conduct a PEIS when there are interconnected environmental impacts from multiple sites. In this instance, the production of 80 or more plutonium pits from the repurposed MOX Facility at Savannah River Site and Los Alamos National Laboratory are connected, and both must be analyzed in a single Programmatic Environmental Impact Statement. So, too, must NNSA include the other DOE sites that would be potentially impacted by the raw materials, wastes, and transportation risks that are inextricably linked to the two-site proposal.

The Agency's reliance on such a huge volume of other NEPA documents, many of which are more than a decade old, does not provide the public and other stakeholders with a reasonable way to analyze the environmental consequences of the proposed action.

Moreover, the decades-old analyses were directed toward buildings that were never built and projects that have long been abandoned, including for example the Consolidated Plutonium Center, the Consolidated Nuclear Production Center and the Chemistry and Metallurgy Research Replacement (CMRR)–Nuclear Facility. The NNSA's current proposal differs significantly from what was considered in 2008.

At LANL, the new CMRR- Nuclear Facility is not being built and the increased pit production would be shoehorned into an old building (PF4) and a radiological lab originally built for a more narrow range of operations that currently planned.

Notably, the Complex Transformation Supplemental PEIS never analyzed a two-site scenario as is now being planned. The new proposal clearly exceeds the risks and “risk boundaries” of the 2008 document. The public deserves – and NEPA demands – a thoroughgoing analysis of the two-site proposal including at a minimum increased transportation, materials handling at multiple locations, multiple sites with changed waste streams, additional waste management activities at multiple locations, waste disposal in NM at WIPP with some streams now coming across the country from SC, and more. Additionally, the increased risk of a terrorist attack on the shipments of materials and plutonium pits must be analyzed under NEPA with a look to the entire shipping route. None of this was analyzed in the Complex Transformation Supplemental PEIS.

Further, the Draft SA deceptively suggests that in 2008 the agency analyzed a “pit production facility that would use the Mixed Oxide [MOX] Fuel Fabrication Facility (MFFF) and Pit Disassembly and Conversion Facility (PDCF) infrastructure.” Actually, the Complex Transformation Supplemental PEIS only summarily mentioned the prospect of using the MFFF infrastructure. And, the MOX facility today represents yet another profoundly changed circumstance from anything considered in 2008. In 2019, the MFFF is only partially constructed, is the subject of fraud investigation, and may harbor serious safety flaws in its walls and ductwork. A passing mention of MFFF infrastructure in 2008 cannot substitute for a rigorous analysis now.

In sum, while the Complex Transformation Supplemental PEIS – and its 1996 underlying review document - can provide the reader with an interesting walk down memory lane it clearly cannot and does not satisfy the NEPA requirement to analyze the present (i.e., actual) NNSA plan to increase plutonium pit production and its potential risks in sufficient detail to meet the “hard look” standard.

Additionally, if a primary purpose for these plutonium pits is, as noted by NNSA, a new nuclear weapons design, specifically the “W87-1 style warhead” that the Lawrence Livermore National Lab is tasked with developing (see more about this in the following comment), then this warhead, and all of the associated, connected actions (including plutonium pit production), should be analyzed in a fresh PEIS. This proposed weapon program, (the W87-1) has not undergone any specific NEPA review, nor was it ever part of the Complex Transformation Supplemental PEIS.

A PEIS of the proposed W87-1 warhead should analyze the development and testing of the warhead, the plutonium pit production required for the warhead, the manufacturing of the other nuclear and non-nuclear components of the warhead, the waste streams of those facilities and the warhead, transportation of hazardous materials, the impacts of a potential use of the warhead.

These matters must be considered in a fresh nationwide Programmatic Environmental Impact statement, as both the program and the impacts will be borne nationally and at multiple DOE and NNSA sites. We would note further that the PEIS must precede the draft SRS EIS. Anything else is “cart before the horse” and, contrary to NEPA, doing a site-specific review first is likely to prejudice what are properly programmatic decisions.

3. Improper Segmentation, Connected Actions, and Cumulative Impacts

NNSA's plan to produce 80 or more plutonium pits per year relies on two facilities to accomplish the task, SRS, and LANL. SRS is to produce 50 or more plutonium pits annually, and LANL is to produce 30 or more

annually. However, NNSA is proposing to conduct at least three separate studies for its proposed pit production plan. NNSA plans to conduct a solely site-specific Environmental Impact Statement at SRS an unspecified level of review at LANL, and to finalize its Draft Supplement Analysis to the 2008 Complex Transformation Supplemental PEIS. This is an attempt to segment what should be included in one single study. In the case of *Save Barton Creek Ass'n v. Fed. Highway Admin.*, 950 F.2d 1129 (5th Cir. 1992) the court stated that "Segmentation analysis functions to weed out projects which are pretextually segmented, and for which there is no independent reason to exist. When the segmentation project has no independent jurisdiction, no life of its own, or is simply illogical when viewed in isolation, the segmentation will be held invalid."

The Code of Federal Regulations state that "Proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement."¹ The code further states that actions are connected if they "Cannot or will not proceed unless other actions are taken previously or simultaneously"² or "Are interdependent parts of a larger action and depend on the larger action for their justification."³ The proposed plan by NNSA relies on simultaneous pit production at both sites and would not be able to fulfill the singular goal of 80 pits per year without both facilities being operational. Each facility is an independent part of the larger goal to produce 80 pits a year.

Tri-Valley CAREs also reminds the NNSA of its obligations under NEPA concerning "Cumulative Impacts" of the proposed project. The Council on Environmental Quality provides that NEPA requires the scoping process to address "Cumulative Impacts" of a proposed action by:

- Identifying the significant cumulative effect issues associated with the proposed action and defining the assessment goals
- Establishing the geographic scope for the analysis
- Establishing the time frame for the analysis
- Identifying other actions affecting the resource, ecosystems, and human communities of concern.

How can the cumulative impacts of plutonium pit production be analyzed with the "Hard Look" that NEPA requires if that analysis is segmented into site-specific inquiries rather than as a connected action?

4. Inadequate analysis of Purpose and Need is contrary to NEPA

DOE/NNSA has neither established a clear purpose and need for expanded pit production nor a purpose and need for new nuclear weapons that would require new pits, as mandated by NEPA.

It appears that NNSA is relying on the National Defense Authorization Act of Fiscal Year 2015 and the Nuclear Posture Review of 2018 and a DOE-Department of Defense "joint statement" of May 10, 2018, to make the proposal that production capability of 80 or more pits per year is established by 2030. But what are the 80+ pits per year for? The NEPA process to date has not reviewed or revealed which new or refurbished warheads might need new pits.

¹ 1502.4(a)

² 1508.25(a)(2)

³ 1508.25(a)(3)

A June 4, 2019 article in the Exchange Monitor - *HASC Panel's Bill Could Slow-Roll NNSA's Planned S.C. Pit Plant* - about a House Armed Services Committee hearing - stated that all the new pits would be for a new warhead: "The House panel's pit proposal is part of a broader effort by House Democrats to slow deployment of next- generation, silo-based intercontinental ballistic missiles called Ground-Based Strategic Deterrent. The 80 pits a year NNSA plans to produce by 2030 and beyond are all for the W87-1-style warheads that will tip Ground- Based Strategic Deterrent missiles."

Desire by the weaponeers to produce a new warhead and new pits for it do not justify new pit fabrication facilities. New warheads have proliferation and disarmament implications that have not been analyzed. Nor has the "W87-1-style" warhead been approved by Congress.

Likewise, with up to 20,000 pits in storage at DOE's Pantex site in Texas, NNSA has not disputed that such stored pits can be reused.

In a 2006 "Pit Lifetime" report for DOE by the JASON group of experts, it was stated, "that most plutonium pit types have credible lifetimes of at least 100 years." NNSA has presented nothing to counter this finding in the draft SA, and the JASON study must be made part of the record.

Subsequent to the JASON 2006 "Pit Lifetime" report, Lawrence Livermore National Laboratory published its ongoing research results in an article in Science & Technology Review in December 2012 titled, "Plutonium at 150 Years: Going Strong and Aging Gracefully."

The report reads in part: "In 1997, the National Nuclear Security Administration (NNSA) launched a comprehensive study at Lawrence Livermore and Los Alamos national laboratories to examine in detail how plutonium pits age and provide a firmer scientific basis for estimating the service life of these components. The study's results, announced in late 2006, showed that the slow degradation of plutonium in U.S. nuclear weapons would not affect warhead reliability for decades. Independent research teams at the two laboratories performed extensive mechanical testing and laboratory-based experiments on aged samples of a plutonium-239 alloy - plutonium mixed with a small amount of gallium to stabilize the material in its delta phase at room temperature. Alloy samples were taken from 15- to 44-year-old plutonium pits and from plutonium that was artificially aged to 65 years. These tests showed no significant changes in important physical properties such as density and strength. In analyzing the test results, the research teams determined that the minimum lifetime for plutonium pits was at least 85 years - 25 to 40 years longer than previously estimated.

It continues: "Now, six years later, these same naturally aged samples are 50 years old, and the accelerated alloy samples have reached an equivalent age of 150 years. Both sample lots continue to age gracefully, and extremely sensitive tests and high-resolution electron microscope images by Livermore chemists validate the confidence-building conclusions of the earlier study... 'The 2006 report and recent work continue to show no alarming trends and serve to validate our theories about how plutonium ages' ..."

Therefore, the scientific discussion regarding the effective "lifetime" of plutonium pits in nuclear weapons ranges from around 100 years to 150 years. This is significant to the NEPA process because it presents a less risky, proven, already-used, less expensive, less polluting alternative to new pit production, namely the "graceful" aging of pits in the first place with "pit reuse" when needed.

How does DOE explain the "purpose and need" for expanded pit production of 80 or more pits per year when pit reuse can be used in many circumstances?

Pit reuse, as we noted, is a proven process undertaken at the Pantex Plant in Texas, where up to 20,000 plutonium pits declared “excess” to the needs of the stockpile are stored. What is NNSA’s explanation of the need for new pit production or why existing pits can’t be reused? We know of no answer to that question that doesn’t start and end with the “elective development of new warheads that contain novel design pits.”

Additionally, new pits in new warheads present formidable weapons certification prospects without new nuclear explosive testing at some yield. The PEIS must evaluate the fact that these new pits from SRS and LANL may serve as a rationale for renewed underground testing of nuclear weapons in the United States. Additionally, the analysis should evaluate the risk of nuclear testing proliferating to other nuclear states if such testing were to be renewed in the United States.

Does NNSA foresee a need to test new design pits in new design weapons via underground nuclear testing in order to certify them for the stockpile?

NNSA has said it needs the capacity to produce 80 "or more" pits per year or "no fewer" than 80 pits per year. This has also been called a "surge capacity." What does this mean? How many actual pits does NNSA intend to produce per year or what actual capacity does NNSA intend to establish? What types of pits would be made by the new pit-production capacity?

As the U.S. has around 1750 deployed weapons and another 2000 in active reserve, what is the need for new nuclear weapons that would use new pits? How will the deployment of new weapons with new pits in them meet the legal obligations of the nuclear Non-Proliferation Treaty for the disarmament of nuclear weapons?

4. Significant environmental and operational changes at LANL have occurred since the 2008 Complex Transformation PEIS

Our appended “scoping” comment on pit production at SRS contains additional questions and comments. Additionally, there have been significant changes at LANL since the 2008 document. In 2011, the major Los Conchas Wildfire came within 13 miles of the LANL facility in a mere 24 hours. As climate change and global warming continue to increase the rate of wildfires, the risk to the facility rises as well. Has the potential impact of a fire or other natural disaster impacting the facility been studied and considered?

The 2008 Supplemental PEIS did not – and could not - consider a more recent track record of nuclear safety infractions at the site, which led to nearly a four-year period in which major plutonium operations were halted. This is a new and changed circumstance. Yet, the Draft SA issued by NNSA outright dismisses the record of accidents. The decision to ignore the troubled history at LANL demonstrates a lack of foresight by NNSA. Why is the history of past incidents and problems being dismissed? These serious incidents contain important lessons for the future that should be captured in a new PEIS. For example, their examination in a PEIS now may point the way toward specific mitigation measures that have not yet been considered (because the analysis has not been done).

5. Challenges of plutonium handling and pit production at LANL are significant

Los Alamos National Laboratory will be tasked with producing 30 or more pits per year. However, this facility has never produced more than 11 pits a year, and, as mentioned above, has had numerous issues and safety concerns.

What is the risk to workers and the public from accidents involving plutonium? What are the potential risks to the environment from a plutonium accident?

How is each facility expected to meet these ambitious new production goals when LANL has never met the authorized limit of 20 pits per year and SRS has never done this task period? What are the risks of proceeding with a 400% or more increase in pit production in one fell swoop when a reasonable alternative might be to ensure that LANL could, if needed, safely produce the “up to” 20 pits per year that has been authorized at LANL since the 1996 Stockpile Stewardship and Management PEIS Record of Decision and was reaffirmed in the 2008 Complex Transformation Supplemental PEIS?

6. NEPA implications of the Institute for Defense Analyses’ report to the Defense Department on NNSA’s pit production plan.

This spring Tri-Valley CAREs and several colleague groups obtained the unclassified executive summary of a report prepared by the Institute for Defense Analyses (IDA) for the Defense Department on NNSA’s proposal to expand plutonium pit production. It is attached and should be considered in its entirety as part of Tri-Valley CAREs comment on the Draft SA. In its conclusion it stated (Note: bolding here is for emphasis):

Summary of Main Findings

1. Eventually achieving a production rate of 80 ppy [pits per year] is possible for all options considered by the EA [Engineering Assessment], but will be **extremely challenging**.
2. **No available option can be expected to provide 80 ppy by 2030.** DoD should evaluate how to best respond to this requirement shortfall.
3. Trying to increase production at PF-4 at LANL by installing additional equipment and operating a second shift **is very high risk**.
4. **Effort to identify and address risks is underway, but is far from complete.**
5. Strategies identified by NNSA to shorten schedules will increase the risks of schedule slip, cost growth, and cancellation.

The IDA report reveals that some level of “effort” to identify risks is underway but is “far from complete”. This cries out for a PEIS! Further, it suggests that any premature “hurry up” could have unintended consequences that are both hazardous and directly relevant to NEPA in that the law is intended to forestall such risks. It is also worth noting that a central conclusion of the IDA report is that “no available option can be expected to provide 80 ppy by 2030.”

Yet, the NNSA’s Draft SA, prepared months after the agency had the IDA report in hand, proposes to move swiftly toward the option of increasing plutonium pit production by 400% or more by the Year 2030 using two locations, LANL and SRS. (Note that the IDA report included that two-site option and said it’s not feasible by 2030).

Why do the NNSA NEPA review documents including the Draft SA continue to say “by 2030”? What corners is NNSA willing to cut to try to make it happen? It’s frightening to consider the hazards to human health and the environment stemming from this scenario.

The IDA report underscores why a fresh PEIS that takes the required “hard look” at the entire program is so necessary at this time.

7. This proposed project is a huge waste of tax-payer funds

NNSA's Fiscal Year 2020 budget request and other documents make clear that future pit production will not be to maintain the safety and reliability of the existing nuclear weapons stockpile. Instead, future production will be for modified pit designs for new-design nuclear weapons, which will be financially costly and have negative nuclear non-proliferation implications, as we noted above. Given the current moratorium on explosive testing of nuclear weapons, those new-design pits cannot be fully explosively tested or alternatively, could prompt the U.S. to return to testing in order to certify them for the stockpile, which would have serious international proliferation consequences.

Again, up to 20,000 plutonium pits declared “excess” to stockpile needs already exist and are stored at DOE's Pantex site in Texas. As noted, independent experts (the JASON) have concluded that modern pits have reliable lifetimes of a century or more. LLNL's more recent research pushes pit lifetimes out further – to around 150 years. Given a reduced cost option available to NNSA here, a fresh PEIS needs to fully and concretely justify expanded plutonium pit production and discuss reuse of stored pits.

8. Waste issues and all exposure scenarios must be covered in a PEIS

The draft EIS needs to disclose all radioactive and toxic waste streams and how they will be disposed of. All analyses in the draft EIS must address the health risk of waste streams and plutonium management (including criticality risks) to the most vulnerable, that is to pregnant women, fetuses, children and the elderly, rather than the standard, less vulnerable “Reference Man.”

9. Conclusion

NEPA is intended to serve decision-makers, be they in agencies or elected officials, and the public alike. It is not merely a means of sharing information – as important as that may be - it is intended to involve diverse communities in environmental decisions with the ideal that better decisions will then result.

Tri-Valley CAREs believes that the proper application of NEPA, DOE/NNSA will reach the conclusion that superior alternatives to its current plan exist and should be pursued. To be clear, the proper application of NEPA requires a fresh PEIS rather than a fragmented, piecemeal approach.

At SRS with respect to establishing pit production at a rate of 50 or more per year, that review could determine that pit production there is risky and unwarranted. At LANL, proper NEPA analysis may result in a decision to solve the existing problems first, forswearing at least any expansion of capacity.

It is important for the public, Congress and DOE/NNSA to understand that there is a history of using NEPA as intended. The NEPA.gov website in its explanation of how decision-making is supposed to work under the law has chosen to highlight an example from DOE. We at Tri-Valley CAREs remember the specifics well.

Here is how NEPA.gov states it... “NEPA has been effective in providing public officials with the information they need to make better decisions. “Thank God for NEPA because there were so many pressures to make a selection for a technology that might have been forced upon us and that would have been wrong for the country...’ Then-Secretary of Energy James Watkins made this statement before the House Armed Services Committee in 1992 in regards to his decision to forgo proposed production

technologies. The environmental review process informed him, and other decision makers, that this technology would not align with the Department of Energy's departure from an emphasis on weapons productions towards an emphasis on cleanup of production facilities.”

The path is clear. Today, the DOE should consider carefully that expanded pit production does not align with its ongoing emphasis on cleanup of contaminated facilities. Indeed, expanded pit production would contradict the NEPA considerations employed by Admiral Watkins during his tenure as Secretary of Energy.

Tri-Valley CAREs calls on the Secretary of Energy, the NNSA Administrator, and other agency leadership to step up and undertake a new PEIS with public hearings across the country at potentially affected sites. Its end result may be a decision to forgo expanded pit production as unnecessary, costly, proliferation-provocative and polluting. First, at a minimum, the review must be done!

Finally, all draft and/or final reference documents used so far and in the future conduct of a fresh PEIS must be made accessible online.

Sincerely,

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June 24, 2020

VIA ELECTRONIC MAIL

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**Re: NNSA Must Issue a Record of Decision Regarding its Final Supplement
Analysis of the Complex Transformation Supplemental Programmatic
Environmental Impact Statement**

We are writing on behalf of the public interest organizations the Natural Resources Defense Council, Inc., Nuclear Watch New Mexico, Savannah River Site Watch, and Tri-Valley Communities Against a Radioactive Environment to advise the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) of their duties under the National Environmental Policy Act (“NEPA”). In particular, this letter reiterates the need for the agencies to prepare a new or supplemental Programmatic Environmental Impact Statement (“PEIS”) regarding their decision to produce plutonium pits for nuclear weapons at multiple sites. At a minimum, the agencies must issue a Record of Decision (“ROD”) based on their Final Supplement Analysis of the Complex Transformation Supplemental Programmatic Environmental Impact Statement, DOE/EIS-0236-S4-SA-02 (“Final Programmatic SA”) before undertaking any further implementation of the actions proposed in the Final Programmatic SA.

INTRODUCTION

This is the third letter I have sent on behalf of my clients to DOE and NNSA advising the agencies of their clear legal duty under NEPA to prepare a new or supplemental PEIS for their decision to produce plutonium pits for nuclear weapons at multiple sites. This letter attaches and incorporates by reference letters that we sent to the agencies on May 17, 2019 and on September 17, 2019. Our earlier letters contain detailed descriptions of the factual background for this letter; for the sake of brevity, this letter recites only the most crucial facts.

On May 17, 2019, we first advised DOE and NNSA that the agencies’ decision to produce plutonium pits for nuclear weapons requires analysis in a new or supplemental PEIS. A year before, on May 10, 2018, DOE and NNSA had announced their intention to produce

plutonium pits at both the Los Alamos National Laboratory (“LANL”) and the Savannah River Site (“SRS”), but in the intervening time had not announced any plan for complying with NEPA—and instead had ignored previous calls from my clients to inform the public about what environmental analysis would undergird the agencies’ new decision. However, in apparent response to our letter, on May 31, 2019, DOE and NNSA announced their intention to prepare a programmatic Supplement Analysis (“SA”), as well as a site-specific EIS for pit production at SRS and a site-specific SA for expanded pit production at LANL.

After DOE and NNSA issued a draft Programmatic SA, on September 17, 2019, we sent the agencies another letter to explain that, although our clients had submitted, and would continue to submit, comments on the agencies’ decision-making process at every available opportunity, the agencies’ chosen course for purported compliance with NEPA actually falls far short of what the statute requires. That letter explained that DOE’s refusal to conduct any new or supplemental programmatic NEPA analysis is inconsistent with fundamental statutory principles and amounts to impermissibly segmenting analysis of proposed activities at LANL and SRS into separate, site-specific environmental reviews, when in fact a programmatic review is necessary for this plainly programmatic action. For example, as that letter, and our clients’ comments, explained, the result of the agency’s chosen approach is that the agency has unlawfully failed to consider *any* programmatic alternatives to its decision to produce pits at two particular sites.¹

NNSA issued its Final Programmatic SA in early December 2019. The Final Programmatic SA reflects the refusal of DOE and NNSA to prepare any new or supplemental PEIS in association with the agencies’ decision to produce plutonium pits at both LANL and SRS. In particular, the Final SA “determined that no further NEPA documentation is required at a programmatic level, and NNSA may amend the existing Complex Transformation SPEIS ROD.” However, although DOE and NNSA issued their Final SA in early December 2019—roughly six months ago—the agencies have not issued any Amended ROD.

Nevertheless, despite the absence of any ROD providing legal authorization to implement the action described in the Final Programmatic SA, DOE and NNSA are in fact implementing that action. As the Final SA states, “to implement the proposed action” in the Final Programmatic SA, “NNSA will prepare site-specific documents,” including a site-specific EIS for operations at SRS and a site-specific SA for operations at LANL. In April 2020, DOE and NNSA issued a draft EIS for operations at SRS, and in March 2020, the agencies issued a draft SA for operations at LANL. Accordingly, the agencies have left no room to doubt that they are, in fact, implementing the action proposed in the Final Programmatic SA by preparing site-specific environmental analyses—but are doing so without any lawful authorization in the form of any Amended ROD at the programmatic level.²

¹ Our previous letters were included as attachments to our clients’ comments on the draft SA at LANL and the draft EIS at SRS. As such, we expect that the agencies will include these letters in the administrative record for any decisions it makes at the conclusion of those processes and will provide a reasoned response to the points raised in those letters.

² As our clients’ comments on the draft SA at LANL and the draft EIS at SRS, those documents were deficient for a variety of reasons. For the sake of brevity, we will not reiterate all those reasons here, but will note that among the critical defects of both documents is that they fail to

In the absence of any Amended ROD at the programmatic level, DOE and NNSA's continued implementation of the action proposed in the Final Programmatic SA is not lawful. *See* 40 C.F.R. § 1506.1(a) ("Until an agency issues a record of decision as provided in § 1505.2 . . . *no action concerning the proposal shall be taken*" (emphasis added)); *id.* § 1505.2 ("At the time of its decision . . . each agency shall prepare a concise public record of decision" (emphasis added)). DOE and NNSA have plainly already made a decision at the programmatic level, but are withholding a ROD without any legitimate reason. Instead, DOE and NNSA appear to be deliberately slow-walking the issuance of a formal Record of Decision in an apparent effort to prevent the federal courts from reviewing the agencies' failure to comply with NEPA.

DOE and NNSA must immediately come into compliance with NEPA. As previous letters have explained, and as my clients have explained in comments at every available opportunity, the agencies were incorrect to conclude that no further programmatic environmental review is needed. As such, to come into compliance with NEPA, the agencies must withdraw the Final Programmatic SA and commit to preparation of a new or supplemental PEIS regarding their intention to produce plutonium pits at multiple sites. At a bare minimum, if DOE and NNSA are committed to the analysis in the Final Programmatic SA and believe that it satisfies their duties under NEPA regarding programmatic environmental review, then the agencies must immediately issue a ROD based on that Final Programmatic SA, and must do so before they undertake any further implementation of the action proposed in the Final Programmatic SA.

DISCUSSION

I. Programmatic Environmental Analysis Remains Necessary

As an initial matter, we reiterate that DOE and NNSA's refusal to prepare a new or supplemental PEIS is a violation of NEPA, and remind the agencies that the current request for the issuance of an Amended ROD on the agencies' final SA should not be construed in any way as agreement with the agencies' conclusion in the Final SA. To the contrary, we continue to dispute the adequacy of the Final SA for all the reasons raised in our previous letters, which we incorporate by reference here. Indeed, the Final SA is riddled with profound legal and logical errors.

For example, the Final SA concedes that the production of plutonium pits at LANL and SRS are "connected" actions within the meaning of NEPA, yet refuses to consider those in a single NEPA document. Because "connected" actions are defined as actions that "are closely related and therefore should be discussed in the same impact statement," 40 C.F.R. § 1508.25(a)(1), the agencies' conclusion is plainly unlawful. The agencies maintain that they discharged any duty to analyze these activities together in the 2008 Complex Transformation PEIS, in particular claiming that the 2008 PEIS sufficiently analyzed the use of the Mixed-Oxide Fuel Fabrication Facility ("MOX Facility") to produce plutonium pits. However, this notion is belied by the fact that the 2008 PEIS was completed before the MOX Facility construction

remedy the agencies' failure to provide any programmatic analysis that comports with the requirements of NEPA.

process ran significantly over-time and over-budget, encountered significant construction fraud leading to a lawsuit against the contractor responsible for construction, and was eventually cancelled altogether—leaving only a partially completed building of questionable construction. Likewise, the notion that the 2008 PEIS contains any sufficient analysis of the impacts of utilizing the MOX Facility for the production of plutonium pits is belied by the fact that DOE and NNSA are currently preparing a new EIS for the activities at SRS. Because the agencies have conceded both that a new EIS is necessary for the activities at SRS, and that these activities are “connected” to the activities at LANL within the meaning of NEPA’s implementing regulations, the agencies are plainly required to consider these activities together in a new or supplemental PEIS.

Likewise, a new or supplemental PEIS is plainly necessary to enable DOE and NNSA to consider programmatic alternatives to the selection of these two particular sites for plutonium pit production. Even presuming that there is any merit to the agencies’ preference of producing pits at multiple sites—which my clients dispute—the agencies have never prepared any programmatic NEPA document to analyze any programmatic alternatives to consider *which* sites are suitable. This failing has thwarted Congress’s intent to provide the public the opportunity to understand and participate in the agencies’ decision-making process, particularly the process for selecting LANL and SRS as the sites for pit production. More fundamentally, the agencies’ failure to consider programmatic alternatives has also blinded them to the existence of other programmatic alternatives, such as the reuse of existing pits.

Dr. Frank von Hippel, a prominent nuclear physicist and a former assistant director for national security in the White House Office of Science and Technology, recently submitted comments on the Draft EIS for the SRS pit production facility, stressing that the agencies’ approach to NEPA has wrongly led to the exclusion of programmatic alternatives such as the alternative of pit reuse. These comments are attached. As Dr. von Hippel stated, these issues require “a Programmatic EIS on the proposal for pit production, inspection, lifetime estimation, refurbishment and reuse in NNSA’s larger complex, including the Kansas City Plant and LLNL as well as LANL, Pantex and SRS.”

II. DOE and NNSA Must Immediately Issue a ROD

Although DOE and NNSA are wrong to conclude in the Final Programmatic SA that no further NEPA analysis is required at a programmatic level, the agencies are nonetheless obligated to issue a Record of Decision for that conclusion.³

NEPA’s implementing regulations, which are “binding on all federal agencies,” 40 C.F.R. § 1500.3, plainly state that “[a]t the time of its decision . . . each agency shall prepare a concise public record of decision.” *Id.* § 1505.2. Here, DOE and NNSA’s Final Programmatic SA reached a “conclusion and determination” that “no further NEPA documentation is required at a programmatic level.” Because “conclusion and determination” are synonyms for “decision,” it is beyond dispute that the Final Programmatic SA has reached a “decision” within the meaning of NEPA’s implementing regulations. Thus, the agencies are required to issue a ROD now.

³ A Record of Decision must be published in the Federal Register. 10 C.F.R. § 1021.315(c).

Likewise, NEPA's implementing regulations—and DOE's own regulations—make clear that the agency's chosen course of implementing the proposal in the Final Programmatic SA *before* issuing a ROD is unlawful. *See* 40 C.F.R. § 1506.1(a) ("Until an agency issues a record of decision as provided in § 1505.2 . . . *no action concerning the proposal shall be taken . . .*" (emphasis added)); *see also* 10 C.F.R. § 1021.315(d) ("No action shall be taken until the decision has been made public" through publication in the Federal Register or by other means).⁴

Moreover, NEPA's implementing regulations only allow an interim action to be undertaken if it will not "[l]imit the choice of reasonable alternatives," 40 C.F.R. § 1506.1(a), and "[w]ill not prejudice the ultimate decision on the program," *id.* § 1506.1(c). "Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives." *Id.* Here, DOE's implementing actions—including its development of an SA for activities at LANL and an EIS for activities at SRS—flout these requirements because these implementing activities do limit the choice of reasonable programmatic alternatives, such as the selection of *different sites* for pit production or pit reuse as a credible alternative in whole or part to new pit production. Accordingly, DOE and NNSA find no support in NEPA's regulations allowing for truly interim actions. *See* 10 C.F.R. § 1021.211 ("DOE shall take no action concerning the proposal . . . before issuing a ROD, except as provided at 40 CFR 1506.1.").⁵

Thus, NEPA plainly requires DOE and NNSA to immediately issue a ROD regarding the "conclusion and determination" that the agencies reached in their Final Programmatic SA. Indeed, DOE's failure to issue a ROD based on the Final Programmatic SA for over six months stands in contrast to the agencies' own prior action of far more promptly issuing a ROD based on the 2008 Complex Transformation PEIS. In 2008, the agencies issued a ROD only 56 days after issuing the 2008 Complex Transformation PEIS (and only 26 days after the "waiting period" required by 10 C.F.R. § 1021.315(a)). *See* 73 Fed. Reg. 63,460 (Oct. 24, 2008) (issuance of the 2008 Complex Transformation SPEIS); 73 Fed. Reg. 77,644 (Dec. 19, 2008) (issuance of the

⁴ Although DOE's regulations state that "DOE may revise a ROD at any time," 10 C.F.R. § 1021.315(e), that language does not provide any basis for the delayed issuance of an Amended ROD here. First, that same provision also requires that "the revised decision" must be "adequately supported by an existing EIS," *id.*, which is certainly not the case because by recognizing the need to prepare an EIS for activities at SRS, DOE and NNSA have conceded that the decision to produce plutonium pits at multiple sites is not adequately supported by any previous EIS. Likewise, the same provision states that a "revised ROD is subject to the provisions" of NEPA's implementing regulations, *id.*, including the provision that a ROD must be issued "at the time of its decision." 40 C.F.R. § 1505.2. Thus, it is clear that the agencies must issue a ROD for the Final Programmatic SA immediately.

⁵ Until the agencies issue a ROD on the Final Programmatic SA, any further implementation of the action proposed in that SA—including further action on the draft SA prepared for activities at LANL or the draft EIS for activities at SRS—is unlawful. *See* 10 C.F.R. § 1021.211 ("DOE shall take no action concerning the proposal . . . before issuing a ROD").

ROD based on the 2008 Complex Transformation SPEIS). Accordingly, the agencies' previous actions in this context confirm that they understand the duty to promptly issue a ROD, and further indicate that the agencies' failure to issue a ROD on the Final Programmatic SA for over six months is unreasonable and unlawful.⁶

III. DOE and NNSA Are Unlawfully Attempting to Evade Judicial Review

DOE and NNSA's current tactic of slow-walking an Amended ROD altering the 2008 Complex Transformation SPEIS ROD appears to be nothing more than an attempt to prevent the federal courts from conducting any effective review of the agencies' decisions.⁷

As the agencies well know, judicial review of agencies' compliance with NEPA is available through the Administrative Procedure Act ("APA"), which provides that judicial review is available for "final agency action." 5 U.S.C. § 704. DOE and NNSA evidently hope that by withholding a ROD, they may be able to forestall litigation over their refusal to prepare any new or supplemental programmatic NEPA analysis by arguing that in the absence of an Amended ROD, the agency has not yet completed any "final agency action." Thus, the agencies appear to be withholding an Amended ROD on the programmatic issues in order to tactically delay litigation until the agencies have concluded the site-specific analyses at LANL and SRS and are ready to commence construction. This is an apparent effort to ensure that any litigation over the NEPA process for the agencies' *programmatic* decision-making on the expansion of plutonium pit production cannot be commenced until the agencies are already building and/or upgrading their desired facilities.⁸

⁶ The only viable alternative to the agencies immediately issuing a ROD for the Final Programmatic SA is for the agencies to abandon its premature effort to convert partially completed facilities at SRS to support pit production, which is not required by any law, terminate the EIS process at SRS, and instead develop a new or supplemental PEIS for the reasons described here and in our previous letters.

⁷ COVID-19 does not provide any legitimate excuse for the agencies' slow-walking of an Amended ROD. The agencies provided only a 15-day extension on NEPA comment periods in response to requests from members of the public, including my clients, and from members of Congress, for extensions of NEPA comment periods based on the COVID-19 pandemic. In doing so, the agencies stressed that the agencies ostensibly critical national security activities could not tolerate any further delay. As such, the agencies lack any basis for themselves delaying the issuance of a ROD by more than six months.

⁸ In fact, that the agencies are already implementing the actions analyzed in the Final Programmatic SA is clear from the fact that upgrades to facilities at LANL for expanded pit production are already occurring, specifically at the Radiological Laboratory Utility and Office Building (RLUOB) and Plutonium Facility-4. More than two years ago, my clients argued for the need for a pit production PEIS in extensive formal comments on a February 2018 draft RLUOB Environmental Assessment. See <https://nukewatch.org/importantdocs/resources/NWNM-Rad-Lab-comments-4-25-18.pdf> and <https://nukewatch.org/importantdocs/resources/NWNM-Addendum-Rad-Lab-comments-4-27-18.pdf> (quoting the Defense Nuclear Facilities Safety

The agencies' approach of slow-walking an Amended Programmatic ROD is a flagrant effort to deprive the federal courts of the power to issue a timely ruling that may have any practical impact on the agencies' chosen course of action. This tactic profoundly undermines NEPA and the role of the federal courts in ensuring that federal agencies comply with the nation's bedrock environmental laws.

CONCLUSION

For all the reasons described above and in our earlier letters, DOE and NNSA are currently in violation of NEPA. To correct their violations of NEPA, the agencies must prepare a new or supplemental PEIS in association with their decision to expand plutonium pit production by producing pits at multiple sites. At a minimum, the agencies must immediately issue an Amended ROD reflecting the decision that the agencies have already made in the Final Programmatic SA, and to ensure that the agencies properly sequence their decision-making as NEPA requires. Moreover, the Amended ROD on the Final Programmatic SA must be issued well before the agencies issue any Critical Decision-1 for either operations at SRS or LANL.

If the agencies refuse to issue an Amended ROD immediately, we hereby request that the agencies provide a "statement of the grounds" on which they refuse to do so. *See* 5 U.S.C. § 555(e) ("Prompt notice shall be given of the denial in whole or in part of a written application, petition, or other request of a person made in connection with any agency proceedings" and "the notice shall be accompanied by a brief statement of the ground for denial").

We request a response to this letter in no more than 30 days. Thank you for your prompt attention to this matter.

Sincerely,

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Board's observation that "the latter two [RLUOB] subprojects primarily support the increased capacity required for larger pit manufacturing rates").

CC: Sen. Lamar Alexander, Chair, Senate Energy and Water Appropriations Subcommittee
Sen. Dianne Feinstein, Ranking Member, Senate Energy and Water Appropriations Subcomm.
Sen. Tom Udall, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Chair, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Ranking Member, Strategic Forces Subcommittee, SASC
Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Mac Thornberry, Ranking Member, House Armed Services Committee
Rep. Jim Cooper, Chairman, Strategic Forces Subcommittee, House Armed Services Committee
Rep. Deb Haaland, House Armed Services Committee
Rep. Xochitl Torres Small, House Armed Services Committee
Rep. John Garamendi, House Armed Services Committee
Rep. Ben Ray Lujan, NM-3
Mr. Bruce Diamond, NNSA Office of the General Counsel
Mr. Charles Verdon, NNSA Deputy Administrator for Defense Programs
Mr. Brian Costner, DOE NEPA Office
Ms. Nicole Nelson-Jean, Manager, NNSA Savannah River Field Office
Mr. Michel Weiss, NNSA Los Alamos Office

**Attachments to June 24, 2020 Request
that DOE and NNSA issue a Record of Decision
on the Final Supplement Analysis of the
Complex Transformation Programmatic Environmental Impact Statement**

Attachment A

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May 17, 2019

James Richard Perry, Secretary
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1000 Independence Ave. SW
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Lisa E. Gordon-Hagerty, Administrator
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VIA ELECTRONIC MAIL

Re: The need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina.

On behalf of the public interest organizations Nuclear Watch New Mexico, Savannah River Site Watch, the Natural Resources Defense Council, and Tri-Valley Communities Against a Radioactive Environment (collectively “the Nuclear Safety Organizations”), we are writing to notify the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) of the need to prepare a Programmatic Environmental Impact Statement (“PEIS”) in connection with the agencies’ stated plan to expand the production of plutonium pits for nuclear weapons at the Los Alamos National Laboratory (“LANL”) in New Mexico and the Savannah River Site (“SRS”) in South Carolina. Because the National Environmental Policy Act (“NEPA”) mandates that “[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time* to ensure that planning and decisions reflect environmental values,” 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now.

EXECUTIVE SUMMARY

The Trump Administration’s 2018 Nuclear Posture Review called for the expanded production of nuclear weapons for the first time in many years, and specifically called for production of 80 plutonium pits (the cores of nuclear weapons) per year by 2030. To that end,



the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) plan to expand production of plutonium pits at the Los Alamos National Laboratory in New Mexico and to repurpose an incomplete facility at the Savannah River Site in South Carolina. At Los Alamos, this plan will require roughly tripling plutonium pit production in facilities with nuclear safety deficiencies so severe that DOE suspended all nuclear weapons production there for over four years, and which DOE recently found have not been adequately resolved. At the Savannah River Site, this plan will require repurposing a facility that was never designed for plutonium pit production, that is still incomplete, and that has been subject to construction-related fraud. Both aspects of DOE and NNSA’s plan to expand plutonium pit production entail serious risks for the environment and public safety. Additionally, these plans will cost at least \$9 billion over the next ten years and at least \$42 billion over the project’s duration.

The National Environmental Policy Act (“NEPA”) requires federal agencies to take a hard look at proposed actions before committing to a course of action or making any irreversible or irretrievable commitment of resources. NEPA requires agencies to publicly disclose environmental impacts, involve the public in agency decision-making, and to seriously consider all viable alternatives to a proposed action. Thus, agencies must prepare an Environmental Impact Statement (“EIS”) for any action that may have significant environmental impacts. Where agency actions are closely related, they must be considered together in a single Programmatic EIS (“PEIS”).

DOE and NNSA have stated that it is their intention to meet the Trump Administration’s goal of producing 80 plutonium pits per year by 2030 through the expansion of pit production at Los Alamos and the Savannah River Site. Because the agencies’ previous environmental analysis for activities at Los Alamos is badly outdated and does not properly consider the serious and ongoing safety issues that led to a four-year shutdown in nuclear weapons production there, NEPA requires a hard look at the proposed expansion of plutonium pit production at that site through a new or supplemental EIS. Likewise, because the agencies have not prepared any environmental analysis for the proposal to produce plutonium pits at an incomplete facility at SRS that has been subject to construction fraud, NEPA requires the production of an EIS for this activity as well. And because the proposed actions at LANL and SRS are inextricably related aspects of DOE and NNSA’s plan to meet the Trump Administration’s call for expanded nuclear weapon production, DOE and NNSA must prepare a PEIS to consider these proposed actions together. However, the agencies instead appear to be shirking NEPA’s requirements by undertaking activities at LANL and SRS without first preparing the legally required environmental analysis. To come into compliance with NEPA, DOE and NNSA must begin the required PEIS process now.

DISCUSSION

I. NEPA.

NEPA is the “basic national charter for protection of the environment.” 40 C.F.R. § 1500.1. NEPA’s “national policy” is to “encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment . . . [and] enrich the understanding of the ecological systems and natural resources

important to the nation . . .” 42 U.S.C. § 4321. To guard against environmental damage, Congress required all federal agencies to prepare a “detailed statement” for each “major federal action significantly affecting the quality of the human environment” that includes “the environmental impact of the proposed action” as well as a thorough consideration of alternatives to the proposed action. *Id.* § 4332(c).

In light of NEPA’s mandates, the Supreme Court has reasoned that NEPA is “intended to reduce or eliminate environmental damage and to promote ‘the understanding of the ecological systems and natural resources important to’ the United States.” *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 756 (2004) (quoting 42 U.S.C. § 4321).

To achieve NEPA’s goals, federal agencies must prepare an EIS for any major federal action with significant environmental effects. 42 U.S.C. § 4332(c). NEPA’s procedures are designed to inject environmental considerations “in the agency decision making process itself,” and to “‘help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.’” *Pub. Citizen*, 541 U.S. at 768-69 (quoting 40 C.F.R. § 1500.1(c)). Therefore, “NEPA’s core focus [is] on improving agency decisionmaking,” *Pub. Citizen*, 541 U.S. at 769 n.2, and specifically on ensuring that agencies take a “hard look” at potential environmental impacts and alternatives “as part of the agency’s process of deciding whether to pursue a particular federal action,” *Balt. Gas and Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 100 (1983).

Importantly, the NEPA process “shall serve as the means of assessing the environmental impact of proposed agency actions, *rather than justifying decisions already made.*” 40 C.F.R. § 1502.2(g) (emphasis added); *see also id.* § 1502.5 (requiring that NEPA review “shall be prepared early enough *so that it can serve practically as an important contribution to the decision making process and will not be used to rationalize or justify decisions already made*”) (emphasis added).

An agency must prepare an EIS for every “major Federal action significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(c). Under NEPA’s implementing regulations, “significance” requires consideration of both context and intensity. 40 C.F.R. § 1508.27. “Context” considerations include the affected region, interests, and locality, varying with the setting of the action, and include both short and long-term effects. *Id.* § 1508.27(a). “Intensity” refers to the severity of impact, including: impacts that may be both beneficial and adverse; unique characteristics of the geographic area, such as proximity to wetlands, wild and scenic rivers, or ecologically critical areas; the degree to which the effects on the quality of the human environment are likely to be highly controversial; the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; whether the action is related to other actions with individually insignificant but cumulatively significant impacts; the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act; and whether the action threatens a violation of federal law imposed for the protection of the environment. *See* 40 C.F.R. § 1508.27(b).

Under NEPA, to determine the proper scope of an EIS an agency “shall consider 3 types of actions,” including connected actions, cumulative actions, and similar actions. *Id.* § 1508.25. Connected actions include those that “are closely related and therefore should be discussed in the same impact statement” because they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” *Id.* § 1508.25(a)(1). Cumulative actions are those that “with other proposed actions have cumulatively significant impacts.” *Id.* 1508.25(a)(2). And similar actions “when viewed with other reasonably foreseeable or proposed agency actions have similarities that provide a basis for evaluating their environmental consequences together.” *Id.* § 1508.25(a)(3). An agency should analyze similar actions together “when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.” *Id.* In such circumstances, a Programmatic Environmental Impact Statement is necessary where “actions are ‘connected,’ ‘cumulative,’ or ‘similar,’ such that their environmental effects are best considered in a single impact statement.” *American Bird Conservancy v. Federal Communication Commission*, 516 F.3d 1027, 1032 (D.C. Cir. 2008) (quoting 40 C.F.R. § 1508.25(a)).

II. DOE and NNSA’s Plans for Expanded Plutonium Pit Production

In 2018, the Trump Administration issued a Nuclear Posture Review that, for the first time in many years, called for expanding production of nuclear weapons. *See* U.S. Dep’t of Defense, *Nuclear Posture Review*, February 2018, at 1–2.¹ Despite the fact that “[f]or decades, the United States led the world in efforts to reduce the role and number of nuclear weapons,” *id.* at 1, the 2018 Nuclear Posture Review reversed this strategy by calling for “a flexible, tailored nuclear deterrent strategy,” an apparent euphemism for the development of new nuclear weapons, *id.* at 2; *see also id.* at 63 (noting that the U.S. “has not executed a new nuclear weapon program for decades” and calling for “research and development” and “technology maturation” in order “to design and develop nuclear weapons”); *id.* at 52 (depicting a proposed increase in the nuclear weapons budget to levels not seen since the Cold War).

To support the Trump Administration’s call for new nuclear weapons, the Nuclear Posture Review announced the need to “[p]rovide the enduring capability and capacity to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030.” *Id.* at 64. The Review further stated that in order to increase production of plutonium pits, which are the core of nuclear weapons, “significant and sustained investments will be required over the coming decade.” *Id.* Indeed, the Congressional Budget Office (“CBO”) has estimated that DOE’s plan to “produce at least 80 plutonium pits per year by 2030” will cost “about \$9 billion from 2019 to 2028.” CBO, *Projected Costs of U.S. Nuclear Forces*, January 2019, at 5.² Furthermore, NNSA recently estimated that repurposing the MOX Facility at SRS for plutonium pit production will have a “lifecycle cost” of \$27.8 billion, while expanding pit production at LANL will cost between \$14.3 billion and \$18.8 billion—meaning that over the next decades this plan will likely

¹ The 2018 Nuclear Posture Review is available online at <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>

² This CBO report is available at <https://www.cbo.gov/system/files/2019-01/54914-NuclearForces.pdf>

cost taxpayers at least \$42 billion. NNSA, *Plutonium Pit Production Engineering Assessment (EA) Results*, May 2018, at 10.³

Producing plutonium pits “entails extensive processing of very hazardous materials, which typically requires a specialized facility.” CBO, *Projected Costs of U.S. Nuclear Forces*, at 8 n.13. Plutonium pit production in the United States was performed on a large scale at the Rocky Flats Plant in Colorado until 1989, when an FBI raid investigating safety and environmental violations led to the closure of that facility. See Congressional Research Service, *U.S. Nuclear Weapon “Pit” Production Options for Congress*, February 2014, at 18.⁴ DOE has declined to attempt to restart operations at Rocky Flats and has instead undertaken a “Sisyphean history” of “failed efforts to construct a building to restore pit production.” *Id.* “The United States has not had the capacity to make more than about 10 [pits per year] since 1989.” *Id.*

Currently, the United States has the capacity to produce a very limited number of plutonium pits only at the Los Alamos National Laboratory in New Mexico, a facility with a history of serious safety problems. See DOE Office of Enterprise Assessments, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, April 2019, at 1.⁵ Indeed, DOE has recognized “significant weaknesses (i.e. non-compliances with significant impact)” in LANL’s management of nuclear safety issues “over the past eleven years.” *Id.* at 2. These “significant weaknesses . . . have allowed identified problems to go uncorrected, problem recurrences to be routinely accepted, and corrective actions to often be delayed for years.” *Id.* at v. These problems led to the production of plutonium pits at LANL being shut down “for over four years.” *Id.* Moreover, DOE has recognized that despite changing the contractor responsible for managing these issues, LANL has made “only limited improvement in addressing longstanding weaknesses” and that many of these safety issues “persist, which can lead to the degradation of nuclear safety.” *Id.* Nevertheless, the Trump Administration’s plan is not only to produce plutonium pits at LANL, but to do so at a rate that has not been seen for decades. See DOE, *Final Report for the Plutonium Pit Production Analysis of Alternatives*, October 2017 at 1 (noting that DOE plans to produce 30 pits per year at LANL, but that it produced only 10 pits per year “in the early 2000s” and that no pits have been produced at LANL since 2012).⁶ DOE has acknowledged that its plan to accelerate pit production at LANL has a “high risk level,” may cause “significant unmitigated off-site consequences,” and that “[r]easonable mitigation strategies” are “unavailable.” DOE, *Engineering Assessment Report, Pu Pit Production Engineering Assessment*, April 2018, at 4-9.⁷

³ This NNSA Report is available at https://nukewatch.org/newsite/wp-content/uploads/2019/03/FINAL-Pu-Pit-Production-EA-Results-05.14.18_Unclassified.pdf

⁴ This Report is available at <https://fas.org/sgp/crs/nuke/R43406.pdf>

⁵ This DOE Report is available at <https://www.energy.gov/ea/downloads/assessment-management-nuclear-safety-issues-los-alamos-national-laboratory-april-2019>

⁶ A redacted version of this DOE Report is available at http://www.lasg.org/MPF2/documents/NNSA_PuPitAoA_Oct2017_redacted.pdf

⁷ A redacted version of this DOE Report is available at https://nukewatch.org/newsite/wp-content/uploads/2019/03/Pu-Pit-Engineering-Assessment-Report-Rev-2_20-April-2018.pdf

Because DOE does not believe that it is possible for LANL to produce plutonium pits at the rate the Trump Administration has proposed, *id.*, DOE and NNSA have also proposed to produce plutonium pits at an as-yet-incomplete Mixed Oxide Fuel Fabrication Facility (“the MOX Facility”) at the Savannah River Site in South Carolina. However, the MOX Facility was never designed for that purpose, *id.*, and has proven to be a multi-billion dollar boondoggle.⁸

Since 1991, the SRS mission has revolved principally around the storage or disposal of radioactive material, in particular plutonium from dismantled nuclear weapons. *See Complaint, United States of America v. CB&I AREVA MOX Services, LLC*, No. 1:19-cv-00444, ECF No. 1, at 8. In 1999, NNSA entered into a contract for the construction of the MOX Facility at SRS “to convert surplus nuclear weapons-grade plutonium into safe, stable fuel for civilian nuclear power generation.” *Id.* Construction began on the MOX Facility in 2007. *See* Government Accountability Office, *MOX Fuel Fabrication Facility: Briefings in Response to a Mandate in the National Defense Authorization Act for Fiscal Year 2017* (“GAO MOX Report”), November 2017, at 1.⁹ However, the MOX Facility project soon ran into dramatic delays and cost overruns. *See id.* (noting that cost estimates rose from \$3.4 billion to \$17.2 billion between 2007 and 2016). After spending at least \$3.4 billion on the MOX facility, *id.*, DOE has recently abandoned any intention to complete the MOX Facility. In November 2017, the Government Accountability Office found that despite DOE spending billions of dollars on the MOX Facility, it was at that time only roughly 30 percent complete. *Id.* at 4.¹⁰

In addition to stopping work on the MOX Facility after sinking billions of dollars into it, DOE has also recently revealed that the MOX Facility’s construction was subject to extensive fraud. Indeed, the government recently brought a False Claims Act case against the MOX Facility contractor and subcontractor, alleging that the contractors defrauded NNSA out of “millions of dollars” by submitting “fraudulent claims, supported by forged and fraudulent invoices, for construction related materials that did not exist.” *See Complaint, United States of America v. CB&I AREVA MOX Services, LLC*, No. 1:19-cv-00444, ECF No. 1, at 1–2. As such, after spending billions of taxpayer dollars, DOE now has a 30-percent-complete facility plagued by fraudulent construction practices.

Now, DOE and NNSA are considering converting the incomplete MOX Facility into a site for the production of the majority of the plutonium pits that the Trump Administration has stated are necessary. Indeed, of the 80 pits per year that DOE and NNSA say they must produce

⁸ *See, e.g.*, https://www.aikenstandard.com/news/nnsa-delivered-mox-termination-notice-this-week-construction-expected-to/article_b907332c-ce40-11e8-b971-ebc9931647b9.html (noting that the MOX Facility was “initially expected to come online in 2016 at a cost of \$4.8 billion” but that “the project’s timeline and price tag have seriously bloated” and reporting the termination of the over-budget project).

⁹ This GAO Report is available at <https://www.gao.gov/assets/690/688369.pdf>

¹⁰ DOE issued a stop work order on May 14, 2018. The State of South Carolina sought to enjoin this decision, reasoning that DOE’s intention to instead pursue a dilute-and-dispose approach to plutonium disposal violated NEPA, among other defects, but the Fourth Circuit rejected the State’s arguments. *See State of South Carolina v. United States*, No. 18-1684, ECF No. 42 (4th Cir. Jan 8, 2019).

by 2030, 50 pits would be produced at the MOX Facility. See NNSA, *Engineering Assessment Report: Pu Pit Production Engineering Assessment*, April 2018, at xi.¹¹ DOE has acknowledged the significant risks of this plan. See DOE, *Analysis of Alternatives*, at 1 (noting the “qualitative risk of reconfiguring a partially completed facility for a new mission in a new location”).

Notably, DOE and NNSA are treating the 80 pits per year as a minimum figure, meaning that the agencies would require the ability to produce more than 30 pits per year at LANL and more than 50 pits per year at SRS. See NNSA, *Pu Pit Production Engineering Assessment*, at 1-2 (“Plutonium pit production capability will be able to produce a minimum of 80 [pits per year] by 2030.” (emphasis added)); see also NNSA, *Final Report for the Plutonium Pit Production Analysis of Alternatives*, October 2017, at 1 (“The pit production requirement is an annual ‘at least’ production rate”).

Troublingly, DOE and NNSA appear to be shirking their duties under NEPA. The agencies previously acknowledged in October 2017 that any approach to meeting the Trump Administration’s goal of producing at least 80 plutonium pits per year would “require an environmental impact statement.” *Id.* at 57; see also *id.* at 60 (“all alternatives are assumed to require a full EIS”); *id.* at 65 (“All alternatives will likely require an EIS”). However, in April 2018 the NNSA stated that “only a NEPA review is required” for the conversion of the MOX Facility to plutonium pit production, without acknowledging that an EIS is clearly required for such a significant action. NNSA, *Pu Pit Production Engineering Assessment*, at 4-6. And DOE and NNSA have not acknowledged the need to prepare a Programmatic EIS to consider the entirety of the agencies’ proposed approach to meeting the Trump Administration’s expanded plutonium pit production goals. This approach flouts NEPA’s purposes and explicit requirements.

III. Analysis.

A. Repurposing the MOX Facility to Produce Plutonium Pits Requires an EIS.

NEPA requires the preparation of an EIS for any “major federal action significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(c). To determine whether impacts are significant, agencies must consider a project’s “context” and “intensity,” which is evaluated according to ten factors, 40 C.F.R. § 1508.27, any one of which may necessitate an EIS. *Ocean Advocates v. U.S. Army Corps of Eng’rs*, 402 F.3d 846, 865 (9th Cir. 2005).

To begin with, DOE’s plan to repurpose the incomplete MOX facility to produce plutonium pits is a new proposed action that has never previously been analyzed in any NEPA process. Although DOE and NNSA have prepared previous PEISs for earlier plans regarding nuclear weapons fabrication (described further below), no previous NEPA analysis has considered producing nuclear weapon components using the MOX Facility.

¹¹ This NNSA Engineering Assessment is available at https://www.lasg.org/MPF2/documents/NNSA_PuPitEA_Rev2_20April2018-redacted.pdf

Moreover, DOE and NNSA's plan to repurpose the incomplete MOX facility plainly will have significant environmental impacts and thus requires an EIS. Beginning with the context, this plan will entail spending billions of taxpayer dollars over many years to conduct highly hazardous fabrication of plutonium pits at an incomplete facility that was never designed for this purpose. Because this plan, which bears directly on the nation's national security interests, entails significant risks to the surrounding environment and local communities, consideration of this project's context plainly indicates that the plan is "significant" within the meaning of NEPA. *See* 40 C.F.R. § 1508.27(a) (requiring consideration of "contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality"). Moreover, the plan to repurpose the MOX Facility to produce plutonium pits plainly implicates many of the significance criteria in NEPA's implementing regulations, any one of which may necessitate an EIS. *See Ocean Advocates*, 402 F.3d at 865.

First, this plan may affect public health or safety, 40 C.F.R. § 1508.27(b)(2), both because the processing of plutonium for nuclear weapons "entails extensive processing of very hazardous materials," CBO, *Projected Costs of U.S. Nuclear Forces*, January 2019, at 8 n.13, and because the fact that the MOX Facility was never designed for the production of nuclear weapon components raises very important questions about whether such activities may be undertaken safely at this Facility. *See, e.g., NNSA, Pu Pit Engineering Assessment*, at 2-39 ("The significant number of samples required to support a 50 ppy plutonium pit mission . . . could increase the material at risk . . . above the current safety basis limits"). Likewise, because the release of radiological or hazardous materials from the Savannah River Site could spread for many miles, the impacts on the neighboring populations could be dire. *See, e.g., DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-374 (acknowledging that members of the public within a 50-mile radius of SRS could be affected by radiation on the site).

Second, this plan may affect "[u]nique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas." 40 C.F.R. § 1508.27(b)(3). For example, DOE's own description of the Savannah River Site notes that it includes "hundreds of individual wetland areas." DOE, *Facts from the Savannah River Site*, at 2.¹² Indeed, "[s]ome SRS surface waters are classified as . . . unique and irreplaceable on a national or eco-regional basis." DOE, *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-356. Likewise, the portions of the Savannah River Site managed by the U.S. Forest Service includes "65,000 acres" of habitat for the endangered red-cockaded woodpecker, indicating that this is an ecologically critical area. U.S. Forest Service, *Savannah River Fast Facts*.¹³

Third, this plan would be "highly controversial," 40 C.F.R. § 1508.27(b)(4), and would be "highly uncertain or involve unique or unknown risks," *id.* § 1508.27(b)(5). To begin with, the extent of work that it would take to repurpose the incomplete MOX Facility remains profoundly unclear, in part because there is a dispute about the status of the construction so far.

¹² This DOE Fact Sheet is available at https://www.srs.gov/general/news/factsheets/srs_overview.pdf

¹³ This Fact Sheet is available at <https://www.srs.gov/general/news/factsheets/usfs-sr.pdf>

Thus, the GAO found that the MOX Facility is “about 30 percent complete,” while the contractor insisted that it was 74 percent complete. GAO, *MOX Report*, at 4. Meanwhile, as noted above, the United States has recently sued the MOX Facility contractor under the False Claims Act for falsifying reports on what construction activities were actually undertaken. Under these circumstances, the plan to repurpose the MOX Facility to produce nuclear weapons is both “highly controversial” and “highly uncertain” within the meaning of NEPA’s implementing regulations. As Senator Lindsay Graham stated regarding repurposing the MOX Facility, “I have no confidence you got a plan. I think you’re making this up as you go.” Senate Appropriations Committee, Energy and Water Development Subcommittee Hearing on the Proposed NNSA Budget, April 5, 2019.

Fourth, this action “may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.” 40 C.F.R. § 1508.27(b)(8). Indeed, the counties in which the Savannah River Site is located contain numerous areas listed on the National Register of Historic Places.¹⁴ Likewise, the nearby city of Augusta, Georgia also contains numerous areas listed on the National Register of Historic Places.¹⁵ Because a release of radiological or otherwise hazardous materials from the Savannah River Site could spread for many miles, the impacts to historic places within the area that could be affected by a catastrophic accident at a repurposed MOX Facility must be considered in an EIS. *See, e.g., DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-374 (acknowledging that members of the public within a 50-mile radius of SRS could be affected by radiation on the site).¹⁶

Finally, the proposed repurposing of the MOX Facility to produce plutonium pits “may adversely affect an endangered or threatened species or its habitat that has been determined to be critical.” 40 C.F.R. § 1508.27(b)(9). SRS and the surrounding area provide habitat for numerous endangered species, including the red-cockaded woodpecker, the wood stork, the shortnose sturgeon, and several species of plants. *See, DOE, Final Complex Transformation Supplemental Programmatic Environmental Impact Statement*, at 4-356–57 (listing endangered species near SRS). A release of radiological or hazardous contaminants from a repurposed MOX Facility could have severe adverse impacts on these listed species.¹⁷

Accordingly, contrary to NNSA’s statement that “only a NEPA review is required” for the conversion of the MOX Facility to plutonium pit production. NNSA, *Pu Pit Production Engineering Assessment*, at 4-6, there can be no legitimate dispute that an EIS is necessary.

¹⁴ See <http://www.nationalregister.sc.gov/aiken/nraiken.htm> (listing historic sites in Aiken County); <http://www.nationalregister.sc.gov/barnwell/nrbarnwell.htm> (listing historic sites in Barnwell County); <http://www.nationalregister.sc.gov/allendale/nrallendale.htm> (listing historic sites in Allendale County).

¹⁵ See <https://nationalregisterofhistoricplaces.com/ga/richmond/state.html> (listing historic sites in Augusta).

¹⁶ Likewise, DOE and NNSA must undertake an analysis of impacts to historic places pursuant to the National Historic Preservation Act, which agencies typically conduct in parallel with NEPA.

¹⁷ Likewise, for this reason DOE and NNSA must undertake formal consultation with the United States Fish and Wildlife Service pursuant to section 7(a)(2) of the Endangered Species Act.

B. Expansion of Plutonium Pit Production at LANL Requires a Supplemental EIS.

Where “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts,” an agency must prepare a Supplemental EIS (“SEIS”). 40 C.F.R. § 1502.9(c)(1)(ii); 10 C.F.R. § 1021.314(a). Whether new information is sufficiently significant to necessitate an SEIS “turns on the value of the new information.” *Marsh*, 490 U.S. at 374. Where “new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.” *Id.* New information that “raise[s] substantial questions regarding the project’s impact [is] enough to require further analysis.” *League of Wilderness Defenders v. Connaughton*, 752 F.3d 755, 760 (9th Cir. 2014) (quoting *Klamath Siskiyou Wildlands Ctr. v. Boody*, 468 F.3d 549, 561–62 (9th Cir. 2006)).

DOE and NNSA appear to be moving forward with a plan to produce 30 plutonium pits per year at LANL without preparing any NEPA analysis that considers new information and changed circumstances since the agencies undertook their *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement* in 2008. However, because important new information has come to light regarding the highly questionable safety of producing plutonium pits at LANL, the preparation of an SEIS is clearly necessary.

As NNSA has recognized, “LANL is currently authorized to produce only 20 pits per year.” NNSA, *Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory*, April 2018, at Appendix B-3. This is because DOE and NNSA issued a governing Record of Decision in 2009 that authorizes production of pits “to not exceed 20 pits per year.” *Id.* at 46. And although NNSA has asserted that it previously evaluated the production of 80 pits per year in 2008, *id.*, the agency’s prior analysis did not—and could not—take into account information and changed circumstances that arose after 2008.

As DOE’s own Office of Enterprise Assessments found in 2019, the management of nuclear safety issues at LANL has been sorely lacking for many years and is not significantly improving. For example, “significant weaknesses” in the management of nuclear safety issues “have allowed identified problems to go uncorrected, problem recurrences to be routinely accepted, and corrective actions to often be delayed for years.” DOE, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, at v. These “significant weaknesses” can “allow layers of defense for nuclear safety to degrade to the extent they did leading to the pause in June 2013 of key fissile material operations in the Plutonium Facility at LANL for over four years.” *Id.*

Indeed, in 2013 the director of the LANL laboratory “paused all fissile material operations in the Plutonium Facility . . . due to systemic and recurring weaknesses in the . . . criticality safety program and conduct of operations.” *Id.* at 2. Moreover, “[d]ue to the scope and significance of these weaknesses that had been allowed to develop, the mitigation . . . took over four years to be completed for some of the key fissile material operations.” *Id.*

DOE found that LANL suffers from serious and ongoing problems in management of nuclear safety issues. In particular, DOE has found that “insufficient attention is given to ensuring timely and effective correction of nuclear safety issues.” *Id.* at 15. Likewise, “84% of the high-significance . . . issues did not have an extent-of-condition review to identify potential recurring or systemic issues”; “55% of the high-significance issues that involved nuclear safety analyses” never received documentation of their causes; and “approximately 46% of 196 high-significance issues had been closed without addressing the underlying cause of the event, and 96% of those issues lacked effectiveness evaluations.” *Id.* at 2. “Numerous examples” of insufficient management of nuclear safety issues “revealed practices that allowed nuclear safety issues to be lost, closed by transfer to unrelated issues, closed with promises of future action, or *intentionally closed without taking any corrective action.*” *Id.* at 18 (emphasis added).

And critically, DOE has found that LANL has shown “only limited improvement in addressing longstanding weaknesses” in the management of nuclear safety issues. *Id.* at iv. Ongoing “deficiencies in [issues management] metrics and assessments have allowed poor [issues management] practices to persist.” *Id.* at 9. Indeed, DOE found that “significant weaknesses” in the management of nuclear safety issues “at LANL persist, which can lead to the degradation of nuclear safety.” *Id.* at iv.

The editorial board of the Albuquerque Journal recently found that this “is a huge issue considering the lab is ramping up production on the devices that act as nuclear bomb triggers.” The editorial board stated that “[f]alling short of the bare minimum in the eyes of the DOE is a far cry from where the public expects or needs LANL to be.” It further emphasized that “[t]op brass must take the audit’s criticisms seriously and demonstrate above-and-beyond efforts” and “make safety the lab’s top mission.”¹⁸

Although NNSA prepared a Supplement Analysis (“SA”) for the ongoing operation of LANL in April 2018, which concluded that no SEIS was necessary, its discussion of the pertinent nuclear safety issues is wholly inadequate. The SA asserts that “DOE has taken actions to address the criticality safety concerns,” and that “[f]ull operations, including pit manufacturing, resumed . . . in August 2016.” NNSA, *Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory*, at 96. However, since NNSA issued that Supplement Analysis, DOE’s own Office of Enterprise Assessments has found that the deficiencies in the management of nuclear safety issues that led to the four-year shutdown at LANL are, in fact, continuing. *See supra*. Indeed, by finding that improving the management of nuclear safety issues “will be key to safely supporting increased production rates of plutonium pits through 2030,” DOE, *Assessment of the Management of Nuclear Safety Issues at the Los Alamos National Laboratory*, at v, DOE itself has revealed that the increased production of plutonium pits at LANL cannot currently be undertaken safely.

Against this backdrop of highly unreliable management of nuclear safety risks, DOE and NNSA’s counterintuitive plan to not only continue, but expand, the production of plutonium pits at LANL cannot lawfully be undertaken in the absence of an SEIS. Indeed, NNSA cannot

¹⁸ See <https://www.abqjournal.com/1316264/lanl-leaders-must-make-safety-the-labs-top-mission.html>

credibly claim to have taken any serious look under NEPA at these ongoing nuclear safety issues, because NNSA's last Supplement Analysis was issued in 2018, while DOE's findings of ongoing nuclear safety management deficiencies were issued in 2019. More critically, because NNSA's efforts to improve the management of nuclear safety issues at LANL have clearly not worked, as DOE's own analysis has found, the agencies must take the hard look that NEPA requires at these ongoing deficiencies in nuclear safety management, and at the impacts of, and alternatives to, the proposal to expand plutonium pit production. Under these circumstances, a new or supplemental EIS is clearly necessary.

C. A Programmatic EIS is Necessary to Consider These Plainly Related Activities.

As explained, NEPA requires agencies to consider multiple actions together in a single Programmatic EIS when those "actions are 'connected,' 'cumulative,' or 'similar,' such that their environmental effects are best considered in a single impact statement." *American Bird Conservancy*, 516 F.3d at 1032 (quoting 40 C.F.R. § 1508.25(a)). Here, the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS plainly fall within the ambit of "connected," "cumulative," and "similar" actions within the meaning of NEPA, meaning that they must be considered together in a single programmatic EIS.

The expansion of plutonium pit production at LANL and the repurposing of the MOX Facility to produce plutonium pits at SRS are "connected" actions under NEPA. Connected actions "are closely related and therefore should be discussed in the same impact statement" because they "[a]re interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 1508.25(a)(1). Both the proposed expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits at SRS are interdependent parts of DOE and NNSA's plan to fulfill the Trump Administration's stated goal in its 2018 Nuclear Posture Review of producing at least 80 plutonium pits per year by 2030. *See* Dep't of Defense, *Nuclear Posture Review*, at 64. Because the Administration cannot reach the Nuclear Posture Review goal without both proposed actions at LANL and SRS, and because both actions depend on the Nuclear Posture Review for their justification, these actions are "connected" under NEPA and must be considered together in a single EIS.

Likewise, both projects are "similar" because "when viewed with other reasonably foreseeable or proposed agency actions" both "have similarities that provide a basis for evaluating their environmental consequences together." 40 C.F.R. § 1508.25(a)(3). These similarities are clear. To begin with, both projects involve producing plutonium pits for nuclear weapons. Moreover, both projects are being proposed in locations where the safety of producing plutonium pits is highly questionable at best: as described above, LANL suffers from serious and ongoing deficiencies in the management of nuclear safety issues, while the MOX Facility was never designed for fabrication of plutonium pits, is still incomplete, and was the subject of fraudulent construction practices that leave the state and safety of the building highly uncertain. Finally, because both projects entail processing highly hazardous nuclear materials in facilities

with serious safety concerns, both projects are likely to have serious and similar nuclear safety issues and environmental impacts. Accordingly, both actions are “similar” under NEPA.

Furthermore, both actions also satisfy the definition of “cumulative” actions, because they will “have cumulatively significant impacts.” 40 C.F.R. § 1508.25(a)(2). A cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Id.* § 1508.7. Here, not only will the expansion of plutonium pit production at LANL and the repurposing of the incomplete MOX Facility to produce plutonium pits each have significant impacts in their own right, but each project will also likely have cumulative environmental impacts that should be taken into account in a single EIS. For example, because each site will be performing similar activities and working with similar materials, each site will likely generate wastes that DOE and NNSA will have to determine how to treat, store, or dispose of.

Accordingly, because the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS are clearly “connected,” “cumulative,” and “similar” actions, “their environmental effects are best considered in a single impact statement,” *American Bird Conservancy*, 516 F.3d at 1032, and a PEIS is the legally and practically appropriate way to accomplish this.

Not surprisingly, therefore, DOE’s own regulations require the production of a PEIS under these circumstances. DOE’s regulations mandate that “[w]hen required to support a DOE programmatic decision (40 CFR 1508.18(b)(3)), DOE shall prepare a programmatic EIS.” 10 C.F.R. § 1021.330(a). In turn, a “DOE programmatic decision” includes the “[a]doption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.” 40 C.F.R. § 1508.18(b)(3). Here, both proposed actions at LANL and SRS are “systematic and connected agency decisions” undertaken to implement the specific “executive directive” in the 2018 Nuclear Posture Review to produce at least 80 plutonium pits per year by 2030. Accordingly, DOE’s regulations mandate the preparation of a PEIS.

In addition to the need for a PEIS being clear under NEPA and its implementing regulations, DOE is currently subject to a court order in a case brought by two of the signatories to this letter that mandates the preparation of a PEIS under the current circumstances. That order establishes the following requirement:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), DOE shall prepare and circulate a Supplemental PEIS, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.

Natural Resources Defense Council v. Pena, 20 F.Supp.2d 45, 50 (D.D.C. 1998). Because DOE and NNSA are currently devoting resources to designing a pit production capability of *at least* 80 pits per year, including a plan to produce pits at SRS, this order clearly requires the agencies to undertake a Supplemental PEIS.

Indeed, in analogous circumstances, DOE and NNSA have undertaken PEISs in the past. For example, in 1996, DOE undertook a *Stockpile Stewardship and Management PEIS* to consider relocating pit production to LANL. Likewise, in 2003, DOE undertook (but never finalized) a *Modern Pit Facility Supplemental PEIS* to analyze a possible increase in the rate of plutonium pit production. Similarly, in 2006, DOE undertook a *Complex 2030 Supplemental PEIS* to consider the modernization of the U.S. nuclear weapons program. And most recently, in 2008, the agencies undertook a *Complex Transformation Supplemental PEIS* in order to analyze alternatives for the modernization of the U.S. nuclear weapons program. Because both the agencies' plans and circumstances at both LANL and SRS have changed significantly since that time—including the new plan to radically increase the level of plutonium pit production, the demonstrated and ongoing serious safety issues at LANL, and the dubious proposition to repurpose the incomplete MOX Facility at SRS—the agencies must undertake a new or supplemental PEIS now as well.

D. DOE and NNSA Must Begin the NEPA Process Now.

Because NEPA mandates that “[a]gencies shall integrate the NEPA process with other planning *at the earliest possible time*,” 40 C.F.R. § 1501.2 (emphasis added), DOE and NNSA must begin the preparation of a PEIS now. DOE and NNSA have already begun the process for deciding how to move forward with the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS, and the agencies must begin preparing a PEIS now “to ensure that planning and decisions reflect environmental values.” *Id.*¹⁹

DOE and NNSA have undertaken significant steps toward the expansion of plutonium pit production at LANL and toward the repurposing of the MOX Facility. For example, DOE has sought and obtained the concurrence of the Nuclear Weapons Council regarding the proposed actions.²⁰ Moreover, DOE and NNSA have already used an undisclosed amount of taxpayer funds to direct its contractor to undertake design and planning for the repurposing of the incomplete MOX Facility to produce plutonium pits.²¹ Although it is not entirely clear how

¹⁹ On October 31, 2018, the Nuclear Safety Organizations sent NNSA a similar letter explaining the need for a PEIS and requesting a response within 30 days. NNSA has not responded.

²⁰ See <https://dod.defense.gov/News/News-Releases/News-Release-View/Article/1518222/joint-statement-from-ellen-m-lord-and-lisa-e-gordon-hagerty-on-recapitalization/>

²¹ See https://www.aikenstandard.com/news/srns-tasked-with-initial-work-for-savannah-river-pit-production/article_e3f15ab0-15ec-11e9-805c-d36536fe2d31.html

much money is already being spent on this effort at SRS, DOE has requested that Congress allocate \$410 million toward design and planning for the repurposing of the MOX Facility.²²

Likewise, Lisa Gordon-Hagerty, the Administrator of NNSA has testified to the House Subcommittee on Energy and Water Development that “NNSA is investing in the Savannah River Plutonium Processing Facility,” and that “LANL is actively installing pit production equipment and has begun hiring to meet future work scope.” Testimony Statement of Lisa Gordon-Hagerty before House Subcommittee on Energy and Water Development, April 2, 2019 (“Gordon-Hagerty Testimony”), at 5–6. Ms. Gordon-Hagerty also testified that “[r]epurposing the [MOX] Facility and producing plutonium pits at SRS and LANL is the preferred path,” and that “[t]he time to move forward is now.” *Id.* at 5. Similarly, Peter Fanta, a deputy assistant secretary of defense for nuclear matters, stated that “[t]here is one plan,” and that NNSA must “[s]top discussing it, stop slowing it, stop looking at it again, stop looking at seven other alternatives.” See <https://www.exchangemonitor.com/dod-still-satisfied-nnsa-pit-plan-warns-civilian-agency-margin/>.

However, taking a hard look at the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility at SRS, and considering alternatives to this proposed plan, is precisely what NEPA requires. And because NEPA mandates that agencies undertake the NEPA process as early as possible in order to promote informed decision-making, DOE and NNSA must undertake a PEIS as soon as possible.

Until DOE and NNSA fully comply with NEPA through the preparation of a PEIS, any irreversible or irretrievable commitment of resources to either the expansion of pit production at LANL or to the repurposing of the MOX Facility at SRS is unlawful. Accordingly, we request that DOE and NNSA respond to this letter within 30 days to explain when the agencies intend to undertake the required PEIS for the expansion of plutonium pit production at LANL and the repurposing of the MOX Facility for plutonium pit production at SRS.

Sincerely,

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CC: Sen. Lamar Alexander, Chair, Senate Energy and Water Appropriations Subcommittee
Sen. Dianne Feinstein, Ranking Member, Senate Energy and Water Appropriations Subcomm.
Sen. Tom Udall, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Chair, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Ranking Member, Strategic Forces Subcommittee, SASC

²² DOE, *FY 2020 Congressional Budget Request*, March 2019, at 121–22, available at <https://www.energy.gov/sites/prod/files/2019/04/f62/doe-fy2020-budget-volume-1.pdf>

Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Mac Thornberry, Ranking Member, House Armed Services Committee
Rep. Jim Cooper, Chairman, Strategic Forces Subcommittee, House Armed Services Committee
Rep. Deb Haaland, House Armed Services Committee
Rep. Xochitl Torres Small, House Armed Services Committee
Rep. John Garamendi, House Armed Services Committee
Rep. Ben Ray Lujan, NM-3
Mr. Bruce Diamond, NNSA Office of the General Counsel
Mr. Charles Verdon, NNSA Deputy Administrator for Defense Programs
Mr. Brian Costner, DOE NEPA Office
Ms. Nicole Nelson-Jean, Manager, NNSA Savannah River Field Office
Mr. Steve Goodrun, NNSA Los Alamos Office

Attachment B

September 17, 2019

James Richard Perry, Secretary
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VIA ELECTRONIC MAIL

Re: The abiding need to prepare a new or supplemental Programmatic Environmental Impact Statement for expanded plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina.

We are writing on behalf of the public interest organizations the Natural Resources Defense Council, Nuclear Watch New Mexico, Savannah River Site Watch, and Tri-Valley Communities Against a Radioactive Environment to advise the Department of Energy (“DOE”) and the National Nuclear Security Administration (“NNSA”) of the continuing need to prepare a Programmatic Environmental Impact Statement (“PEIS”) for the proposal to produce plutonium pits—the cores of nuclear weapons—at both the Los Alamos National Laboratory (“LANL”) in New Mexico and the Savannah River Site (“SRS”) in South Carolina.

We sent a letter on May 17, 2019 explaining the need for a PEIS for the new proposal to produce plutonium pits at multiple sites, and explaining that DOE’s and NNSA’s failure at that time to undertake *any* NEPA process regarding this new proposal was a violation of the National Environmental Policy Act (“NEPA”). For your convenience, a copy of that letter is attached. Although NNSA failed to respond directly in writing to that letter, DOE and NNSA did apparently respond to our letter by taking some steps toward compliance with NEPA. In particular, DOE and NNSA announced on May 31, 2019 that they would prepare a site-specific Environmental Impact Statement (“EIS”) in association with the proposal to produce plutonium pits at SRS, and that they would prepare a Supplement Analysis (“SA”) to consider whether to



prepare a new or supplemental PEIS in association with the proposal to produce plutonium pits at multiple sites.¹

Since then, DOE and NNSA have issued a scoping notice for the EIS process at SRS and a Draft SA, both of which were made available for public comment. The public interest organizations represented in this letter, as well as in our previous letter, submitted comments at each available opportunity. Those comments explain in detail certain flaws in the limited analytic process that DOE and NNSA have chosen to undertake and have provided detailed suggestions for how to improve this process. For your convenience, copies of those comments are attached. We write today to reinforce the points made in these various comments and to explain why, as an overarching matter, DOE and NNSA's apparent refusal to prepare any new or supplemental programmatic environmental analysis of its indisputably programmatic decision to produce plutonium pits at multiple locations continues to violate fundamental NEPA principles.²

The NEPA process's "core focus [is] on improving agency decisionmaking," *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 769 n.2 (2004), and specifically on ensuring that agencies take a "hard look" at potential environmental impacts and alternatives "as part of the agency's process of deciding whether to pursue a particular federal action," *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council*, 462 U.S. 87, 100 (1983). As such, the NEPA process "shall serve as the means of assessing the environmental impact of proposed agency actions, *rather than justifying decisions already made*." 40 C.F.R. § 1502.2(g) (emphasis added); *see also id.* § 1502.5 (requiring that NEPA review "shall be prepared early enough *so that it can serve practically as an important contribution to the decision making process and will not be used to rationalize or justify decisions already made*" (emphasis added)). To ensure that agencies take a holistic view of their actions, NEPA mandates that any EIS must consider "connected," "cumulative," and "similar" actions. 40 C.F.R. § 1508.25(a). A PEIS is necessary where "actions are 'connected,' 'cumulative,' or 'similar,' such that their environmental effects are best considered in a single impact statement." *Am. Bird Conservancy v. Fed. Comm'n Comm'n*, 516 F.3d 1027, 1032 (D.C. Cir. 2008) (quoting 40 C.F.R. § 1508.25(a)).

DOE's and NNSA's refusal to prepare any new or supplemental PEIS for its new plan to produce plutonium pits at two locations is a profound violation of these fundamental NEPA principles. To begin with, the Draft SA and the proposed EIS presume that plutonium pit production will occur at two sites, and particularly at the two sites at LANL and SRS. As such, DOE and NNSA have entirely failed to consider alternatives to the proposal to produce plutonium pits at multiple locations. For example, since the Trump Administration's 2018 Nuclear Posture Review concluded that the United States must produce at least 80 pits annually,

¹ See Notice of Intent to Prepare an Environmental Impact Statement for Plutonium Pit Production at the Savannah River Site, 84 Fed. Reg. 26849 (June 10, 2019) (describing the notice as having been signed May 31, 2019).

² We respectfully request that NNSA take this letter into consideration as it decides whether to prepare a new or supplemental PEIS, and to include this letter in the administrative record for any final decision that the agency makes.

no NEPA process has considered whether plutonium pit production could be achieved more safely and with fewer environmental impacts at a single location, or even at multiple locations that are closer to one another than LANL and SRS, which are separated by over a thousand miles. Although NNSA has evidently undertaken some internal decision-making process regarding these questions, it has avoided doing so through the NEPA process that Congress specifically designed for this purpose. Likewise, because this agency decision-making has occurred largely internally, DOE and NNSA have cut the public out of the process for deciding to produce plutonium pits at multiple locations, despite the fact that informed public comment is one of NEPA's key objectives.

Instead of conducting any objective NEPA analysis for the decision to produce plutonium pits at multiple locations, or considering any alternatives to this decision in the NEPA framework, DOE and NNSA have instead decided to prepare an SA to determine whether a new or supplemental PEIS is appropriate. Moreover, the agencies' analysis in their Draft SA reveals that the agencies are not aiming to utilize the NEPA process to inform a pending decision, but instead are impermissibly using the Draft SA to justify a decision that has already been made. Thus, the Draft SA merely considers some of the impacts of producing plutonium pits at LANL and SRS, but fails to actually consider any alternatives to utilizing multiple sites to produce pits. As such, the agencies' Draft SA inappropriately turns the NEPA process on its head: rather than serving to inform the decision to produce plutonium pits at multiple sites, the agencies instead are apparently making that decision first and preparing an ostensible NEPA analysis after. This leap-before-you-look process is exactly the opposite of what NEPA requires.

Indeed, as is explained in the attached comments submitted on the Draft SA, the agencies have framed the entire inquiry of the Draft SA incorrectly, again revealing the impermissibly *post hoc* nature of the agencies' ostensible effort to comply with NEPA. NEPA's implementing regulations require agencies to prepare supplemental environmental impact statement ("SEIS") where "[t]he agency makes substantial changes in the proposed action that are relevant to environmental concerns; or [t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c)(1); *see also* 10 C.F.R. § 1021.314 (DOE regulations echoing this requirement). However, the Draft SA does not even attempt to grapple with these questions. Instead, the Draft SA focuses on a conceptually distinct inquiry: namely, whether "the potential impacts of the proposed action exceed those in the Complex Transformation SPEIS." Draft SA at 26. In other words, rather than taking a hard look at the nature of the changes in the plutonium pit production program, or at new information that bears on the risks and environmental impacts of the agencies' new proposal, DOE and NNSA are instead merely inquiring whether the impacts from producing plutonium pits at multiple sites are "bounded" by the impacts considered in a previous analysis. *See, e.g.*, Draft SA at 29–36 (asserting that various types of impacts are "bounded" by analysis in the 2008 Complex Transformation SPEIS).

DOE's and NNSA's reliance on a "bounding" analysis in this instance is entirely inappropriate—as DOE's own policies explain. Neither NEPA itself, nor its implementing

regulations, nor DOE's own NEPA policies countenance such reliance on a bounding analysis for the instant situation. As DOE itself has recognized, *"bounding analyses should not be used where more accurate and detailed assessment is possible and would better serve the purposes of NEPA."*³ Likewise, DOE's own policies recognize that *"[i]t is never appropriate to 'bound' the environmental impacts of potential future actions (not yet proposed) and argue later that additional NEPA analysis is unnecessary because the impacts have been bounded by the original analysis."*⁴

The reliance on a "bounding" analysis here is also a violation of fundamental NEPA principles because it wrongly leads NNSA to ignore or discount the significantly changed circumstances and important new information that necessitates preparation of a new or supplemental PEIS here. No previous analysis "bounds" or even remotely contemplated the major federal actions at issue here. The comments submitted on the Draft SA, and attached and incorporated by reference here, detail numerous changed circumstances and new information that, under basic NEPA principles, require a new or supplemental PEIS. For brevity's sake, this letter does not reproduce all of those changed circumstances and new information. However, as an example, the fact that DOE and NNSA have conceded that they must prepare an EIS for the plan to produce plutonium pits at the "repurposed" Mixed Oxide Fuel Fabrication Facility (MFFF) at SRS is itself a sufficient indication of a profoundly changed circumstance that warrants preparation of a new or supplemental PEIS.

By conceding that an EIS is necessary for repurposing the MFFF to produce plutonium pits—a process for which that facility was never designed, and which is especially hazardous at that facility given that it was never completed and was subject to extensive construction-related fraud—DOE and NNSA have recognized that the proposal to produce plutonium pits at that site entails significant environmental impacts that have never previously been analyzed. As such, this development constitutes a significant changed circumstance from anything NNSA previously considered in any PEIS. Indeed, NNSA leaves no room to doubt that this new circumstance is itself "significant" within the meaning of NEPA, as the Draft SA itself describes the cancellation of the MFFF as a "significant change." Accordingly, even setting aside the numerous other changed circumstances and the plethora of new information described in the attached comments, the proposal to produce plutonium pits at SRS as well as LANL by itself is sufficient to require the preparation of a new or supplemental PEIS.⁵

³ *Mini-guidance Articles from Lessons Learned Quarterly Reports, December 1994 to September 2005*, p. 2-4, USDOE Office of NEPA Policy and Compliance, October 2005, <https://www.energy.gov/sites/prod/files/miniguide-20110511.pdf> (emphasis added).

⁴ *Id.* (emphasis added).

⁵ Although the Draft SA misleadingly asserts that NNSA previously analyzed an alternative that involved producing plutonium pits using the MFFF infrastructure, in fact the agency's 2008 Complex Transformation PEIS mentioned this prospect only cursorily and in passing, failing to take the "hard look" that NEPA requires. Moreover, since NNSA issued the 2008 Complex Transformation PEIS, the MFFF has encountered highly significant obstacles that bear directly on the viability of, and environmental impacts from, using this facility for the highly hazardous process of producing plutonium pits. Indeed, these obstacles were so significant that NNSA recently cancelled the

Finally, in addition to a new or supplemental PEIS being clearly necessary under NEPA's implementing regulations and DOE's own regulations (as described in the attached comments), as a separate matter DOE and NNSA remain subject to a court order that mandates the preparation of a new PEIS under these circumstances. That order establishes that:

Prior to taking any action that would commit DOE resources to detailed engineering design, testing, procurement, or installment of pit production capability for a capacity in excess of the level that has been analyzed in the SSM PEIS (the capacity analyzed in the SSM PEIS is the fabrication at LANL of 50 pits per year under routine conditions, and 80 pits per year under multiple shift operations), *DOE shall prepare and circulate a Supplemental PEIS*, in accordance with DOE NEPA regulation 10 C.F.R. § 1021.314, *analyzing the reasonably foreseeable environmental impacts of and alternatives to operating such an enhanced capacity, and issue a Record of Decision based thereon.*

Nat. Res. Def. Council v. Pena, 20 F. Supp. 2d 45, 50 (D.D.C. 1998) (emphasis added). DOE and NNSA's proposal to produce at least 80 pits per year, and to do so at multiple sites, is plainly "in excess of the level that has been analyzed" previously. *Id.* Accordingly, the plain terms of this court order require the agencies to prepare a new or supplemental PEIS for this decision. We remind DOE and NNSA that the Natural Resources Defense Council and Tri Valley Communities Against a Radioactive Environment were parties to this court order and advise the agencies that these entities remain ready to enforce this order if necessary.

At bottom, it appears that DOE and NNSA are attempting to circumvent NEPA by impermissibly separating analysis of proposed activities at LANL and SRS into separate environmental reviews, when in fact a programmatic review is necessary for this plainly programmatic action. Moreover, it appears that the agencies are motivated mainly by haste, because they remain uncertain about their logistical ability to achieve their desired level of pit production by 2030. However, we advise the agencies that timely compliance with NEPA is the best means for the agencies to keep these projects on track, as a failure to rigorously comply with NEPA may necessitate litigation, including if necessary motions for injunctive relief, all of which would likely increase the expense of DOE's and NNSA's proposed actions and extend their timelines further. Accordingly, we strongly encourage DOE and NNSA to come into compliance with NEPA by preparing a new or supplemental PEIS for its proposals regarding plutonium pit production, and to do so immediately. If the agencies continue on their current trajectory, we will have no

completion of the MFFF altogether and brought a lawsuit against the facility's contractor to seek damages associated with construction-related fraud. These developments plainly reveal that the situation surrounding the MFFF facility has changed in significant ways since 2008. In reality, the Complex Transformation PEIS plainly did not consider any impacts associated with the profoundly changed circumstances surrounding the MFFF—namely, the fact that it was fraught with construction fraud and abandoned in a partially completed state.

choice but to evaluate all our options to enforce compliance with federal environmental laws.

Sincerely,

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CC: Sen. Lamar Alexander, Chair, Senate Energy and Water Appropriations Subcommittee
Sen. Dianne Feinstein, Ranking Member, Senate Energy and Water Appropriations Subcommittee
Sen. Tom Udall, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Chair, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Ranking Member, Strategic Forces Subcommittee, SASC
Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Mac Thornberry, Ranking Member, House Armed Services Committee
Rep. Jim Cooper, Chairman, Strategic Forces Subcommittee, House Armed Services Committee
Rep. Deb Haaland, House Armed Services Committee
Rep. Xochitl Torres Small, House Armed Services Committee
Rep. John Garamendi, House Armed Services Committee
Rep. Ben Ray Lujan, NM-3
Mr. Bruce Diamond, NNSA Office of the General Counsel
Mr. Charles Verdon, NNSA Deputy Administrator for Defense Programs
Mr. Brian Costner, DOE NEPA Office
Ms. Nicole Nelson-Jean, Manager, NNSA Savannah River Field Office
Mr. Steve Goodrun, NNSA Los Alamos Office

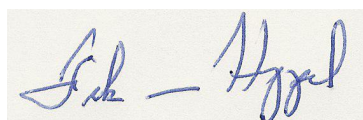
Attachment C

19 May 2020

Ms. Jennifer Nelson, NEPA Document Manager
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Re: “Draft EIS for Plutonium Pit Production at the SRS in South Carolina”

Comments on National Nuclear Security Administration’s *Draft Environmental Impact Statement for Plutonium Pit Production at the Savannah River Site in South Carolina*, DOE/EIS-0541.



Frank N. von Hippel, Senior Research Physicist and
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Program on Science and Global Security
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Draft EIS is posted here on NNSA’s website:

<https://www.energy.gov/nepa/downloads/doeeis-0541-draft-environmental-impact-statement>

Summary

Irrespective of its other merits or demerits, the *Draft EIS* does not provide a rationale for urgently building pit-production capacity at the Savannah River Site (SRS) in parallel to establishing a pit-production capacity at the Los Alamos National Laboratory (LANL).

Technically, my comments would support the “no-action” alternative but they are really an argument for deferring the decision on an SRS pit-production facility for a decade.

A decade delay would:

1. Make it possible to see whether the production line at LANL – presumably the model for the production line at SRS – works or needs to be redesigned.
2. Provide an opportunity for pit experts at LANL and Livermore National Laboratory (LLNL), peer-reviewed by the JASON group, to determine a new lower bound on the functional life of the remarkably durable pits in the current stockpile.
3. Make it possible to settle the national policy debate over scrapping US intercontinental ballistic missiles (ICBMs), which would make it unnecessary to replace the W78 ICBM warhead.

¹ Affiliation for identification only.

4. Provide time for a decision on whether to replace the W76 and W88 submarine-launched ballistic missile (SLBM) warheads and, if so, determine whether the new warheads could be made with refurbished stored pits or require the manufacture of new pits.
5. Allow a broader-scope and deeper review in a Programmatic Environmental Impact Statement of the tradeoffs associated with pit production and reuse before finalizing the site-specific NEPA documents.

The discussion below therefore explains the following assertions:

1. *The pit production facility at Los Alamos National Laboratory (LANL) would, in effect, serve as a pilot plant for the proposed pit-production facility at the Savannah River Site. The LANL design must therefore be shown to work to establish confidence in the scaled-up version proposed for SRS.*
2. *The JASON 2019 review of pit longevity found that NNSA has not adequately sustained the research program that a 2007 JASON review report concluded had established that most of the pits in the existing US warhead stockpile could be expected to be functional for at least a century, i.e. for at least another 50 years. NNSA recently committed to resource that program more adequately so that it can be determined if the pits are likely to continue to be functional for significantly longer than a century.*
3. *The need to manufacture more pits of existing or new types has not been settled.*
4. *A Programmatic EIS is required.*

1. The LANL Pit Production Facility is a Pilot for the SRS Facility

The pits in the current US nuclear stockpile were almost all produced at the Rocky Flats Plant in Colorado, which operated from 1952 till 1989 and, in its later decades, produced about 1,000 pits per year.² That plant was shut down permanently in 1992 because of its releases of hazardous materials into the environment.³

In 1993, DOE asked LANL to establish a pit manufacturing capability at its PF-4 plutonium facility and, in 1996, tasked it to produce 31 “war reserve” W88 pits to fill an order that had not been completed because of the shutdown of Rocky Flats. It took the PF-4 facility 16 years, until 2012, to fabricate the pits: eleven in 2007, and a declining number annually thereafter.⁴

The plan was to transition to the production of W87 pits for the US Minuteman III intercontinental ballistic missile but pit production was shut down by safety problems in 2013.⁵ Pit production at PF-4 is still shut down and NNSA’s budget submission for fiscal year 2021 states that it is engaged in

² NNSA, “Plutonium Pit Production,” April 2019, <https://www.energy.gov/sites/prod/files/2019/05/f62/2019-05-13-FACTSHEET-plutonium-pits.pdf>.

³ Dana Coffield, “Judge Upholds Plea-Bargain on Rocky Flats; Rockwell To Pay \$18.5 Million Fine” (Associated Press, 1 June 1992) <https://apnews.com/7b90ebb526dc79de86f4123a6b1fa979>.

⁴ Bradford G. Storey, *Pit Manufacturing Fiscal Year 2012 Program Report to the University of California* (LANL, 2012) Table 1, https://www.lasg.org/MPF2/LA-UR-12-25400_Pit_manuf_rpt_UC_FY2012.pdf.

⁵ R. Jeffrey Smith and Patrick Malone, “Safety problems at a Los Alamos laboratory delay U.S. nuclear warhead testing and production,” *Science*, 30 June 2017, <https://www.sciencemag.org/news/2017/06/safety-problems-los-alamos-laboratory-delay-us-nuclear-warhead-testing-and-production>.

“activities to hire, train, qualify, and retain required pit production personnel, recapitalization of equipment needed to restore Plutonium Facility (PF)-4’s ability to produce War Reserve (WR) [pits,] towards producing the first WR pit during 2023 [and] manage capital acquisitions to increase production capability of PF-4 to produce 10 pits per year.”⁶

NNSA’s goal is to produce 30 pits in 2026. The cost of the planned upgrades to PF-4 is estimated at \$1.75 billion through FY2025 with the total cost to be determined.⁷

Given that LANL’s PF-4 facility, the location of the nation’s current pit production capabilities, has produced only 30 pits in a quarter century and is struggling to reestablish production by 2026, one wonders who is going to design the plutonium-pit production facility at SRS and train its workers? It would appear more prudent to let LANL prove its equipment and personnel-training abilities at Los Alamos first rather than stretch it thinner by establishing a parallel effort at SRS, which has no pit production experience whatsoever.

2. The alternative of pit reuse

Delaying the SRS pit production facility by refurbishing and reusing existing pits during the life extension of existing warheads and the production of replacement warheads beyond 2030 is dismissed by a vague statement in the draft EIS (at Vol. 1, section 2.3.4):

“NNSA currently stages plutonium pits at Pantex. Like the pits in the active stockpile, those pits are aging and would not mitigate plutonium aging risks or enable NNSA to implement enhanced safety features to pits to meet NNSA and DoD requirements. Consequently, only reusing pits was eliminated from detailed analysis.”

A more substantive analysis is required – preferably in a Programmatic Environmental Impact Statement that would cover the contributions of the Kansas City Plant and LLNL as well as SRS, LANL and Pantex. Some relevant considerations are sketched here.

As already noted, almost all the pits currently in the US operational nuclear-warhead stockpile were produced between 1978 and 1989, which makes the oldest pits about 40 years old.⁸

The question is, how much longer will they last?

The 2005 Defense Authorization Act directed NNSA’s Administrator to commission an independent review of the efforts at LANL and LLNL to estimate pit lifetimes. The review was carried out by the JASON group of independent consultants and an unclassified summary of its findings was released in early 2007.⁹

The laboratories had been assessing the effects of aging effects on the functionality of US pits. They also had been doing accelerated-aging experiments on new samples of the plutonium alloy used in US pits by spiking them with Pu-238, which decays by alpha emission with a half-life of 88 years vs. 24,000 years for the dominant isotope in weapon-grade plutonium, Pu-239.

⁶ Department of Energy *FY 2021 Congressional Budget Request*. Vol 1. “National Nuclear Security Administration,” p. 160.

⁷ *Ibid.* pp. 195, 195.

⁸ Steve Fetter and Frank von Hippel, “Does the United States Need a New Plutonium-Pit Facility?” *Arms Control Today*, May 2004, Table 1, <https://www.armscontrol.org/act/2004-05/features/does-united-states-need-new-plutonium-pit-facility>.

⁹ JASON, *Pit Lifetime* (MITRE Corporation, 2007) <https://fas.org/irp/agency/dod/jason/pit.pdf>.

The summary conclusion of the 2007 JASON report was,

“We judge that the Los Alamos/Livermore assessment provides a scientifically valid framework for evaluating pit lifetimes. The assessment demonstrates that there is no degradation in performance of primaries of stockpile systems due to plutonium aging that would be cause for near-term concern regarding their safety and reliability. Most primary types have credible minimum lifetimes in excess of 100 years as regards aging of plutonium; those with assessed minimum lifetimes of 100 years or less have clear mitigation paths that are proposed and/or being implemented.”

The JASON report also recommended additional research (pp. 17-18):

“to gain experience with Pu that has suffered the equivalent of a century or more of aging (i.e., with accelerated aging), thereby allowing an interpolation rather than an extrapolation in estimating performance changes and degradation due to aging. In particular, one wants to know the modes of failure that will be among the first to appear, because these can inform the stockpile surveillance program in order to make it most sensitive to aging-induced degradation [and] ongoing study of the current accelerated-aging Pu samples, which are spiked with the rapidly-decaying ²³⁸Pu, as well as production of samples that have been aged by alternative means. In all of these cases, the objective is to get the equivalent of multi-century experience on aging phenomena, associated with decay (e.g., radiation damage) as well as with activated processes such as annealing.”¹⁰

At least some work on accelerated aging did continue and, in 2012, the Lawrence Livermore National Laboratory (LLNL) reported

“no unexpected aging issues are appearing in plutonium that has been accelerated to an equivalent of ~ 150 years of age.”¹¹

The deputy program leader for enhanced surveillance of pit aging at Livermore was quoted as saying,

"In the near term, the nation can save tens of billions of dollars that might be required to build a new production facility,"

In March 2018, the Senate, in its report on the Energy and Water Appropriations Act for FY2019 directed the NNSA administrator to contract with JASON to do an update on its 2007 report and

“assess the efforts of the NNSA to understand plutonium aging and the lifetime of plutonium pits in nuclear weapons [and] include recommendations of the study for improving the knowledge, understanding, and application of the fundamental and applied sciences related to the study of plutonium aging and pit lifetimes, an estimate of minimum and likely lifetimes for pits in current warheads, and the feasibility of reusing pits in modified nuclear weapons. The report shall be submitted in unclassified form but may include a classified annex.”¹²

The Senate also instructed that the NNSA “Administrator shall make available all information that is necessary to successfully complete a meaningful study on a timely basis.”

JASON submitted a “letter report” on 23 November 2019 that informed Congress that¹³

¹⁰ Not mentioned in the published JASON reports is the possibility that older retired pits may be available all the way back to the 1940s that could provide additional data on plutonium aging out to 75 years.

¹¹ “Plutonium at 150 years,” (Lawrence Livermore National Laboratory, 14 December 2012) <https://www.llnl.gov/news/plutonium-150-years>.

¹² Senate Report, *Energy and Water Development Appropriations Bill, 2019*, p. 104, <https://www.congress.gov/115/crpt/srpt258/CRPT-115srpt258.pdf>.

¹³ JASON letter report, 23 November 2019, <https://fas.org/irp/agency/dod/jason/pit-aging.pdf>.

“in general, studies on Pu aging and its impacts on the performance of nuclear-weapon primaries have not been sufficiently prioritized over the past decade. A focused program of experiments, theory, and simulations is required to determine the timescales over which Pu aging may lead to an unacceptable degradation of primary performance.”

The JASON letter also suggests that, contrary to Congress’s instruction, NNSA did not cooperate adequately with the review:

“The labs briefly presented their program to address Pu aging to JASON. The plan seemed sensible, but a detailed JASON assessment would require additional information about the program as well as technical details.”

Laudably, NNSA was embarrassed by this fiasco and, on 6 April 2020, Administrator Lisa E. Gordon-Hagerty informed the Chairman of the Senate Armed Services Committee Subcommittee on Strategic Forces that NNSA planned to fund a second phase of the JASON study during the summer of 2020 to¹⁴

“Assess the need for the full study, and if deemed necessary and timely, perform a more detailed, multi-year JASON study.”

The letter also stated that

“NNSA has launched an enhanced program focused on understanding the potential effects of plutonium radioactive decay, or aging, on pit performance.

Therefore, within a decade, important new information on pit aging should be available to inform a decision on whether a second pit production facility will be required.

3. The need to produce new pits for new warheads

In addition to its concern about possible aging effects in the plutonium of the legacy pits, NNSA argues that the new facility is required “for producing pits with enhanced safety features to meet NNSA and DoD requirements” (Vol. 1, Sec. 1.3.2). There is no elaboration on this claim in the Draft EIS, but I am able provide some information because I was involved in this discussion almost 30 years ago, during the launch of the Stockpile Stewardship Program by the Clinton Administration.¹⁵

At the time, the weapon labs were proposing to replace the W78 ICBM warhead and the W76 and W88 submarine-launched ballistic missile (SLBM) warheads with warheads containing insensitive high explosive (IHE). That proposal has been sustained over the decades since through a number of incarnations, including proposals for warheads that would be “interoperable” between the ICBMs and SLBMs, but actually would have different variants for the ICBMs and SLBMs because of different fuses, reentry vehicles, etc., the benefit being a reduction in the size of the reserve warhead stockpile.¹⁶

The main argument, however, was for insensitive high explosive.

¹⁴ Lisa E. Gordon Haggerty to Senator Deb Fischer, 6 April 2020, <https://fas.org/irp/agency/dod/jason/pit-aging.pdf>.

¹⁵ Frank von Hippel, “The Decision to End U.S. Nuclear Testing,” *Arms Control Today*, December 2019, <https://www.armscontrol.org/act/2019-12/features/decision-end-us-nuclear-testing>.

¹⁶ Lisbeth Gronlund, *Bad Math on New Nuclear Weapons: The Costs of the 3+2 Plan Outweigh Its Benefits* (Union of Concerned Scientists, 2015), <https://www.ucsusa.org/sites/default/files/attach/2015/11/Bad-Math-Nuclear-Weapons-3-Plus-2.pdf>.

The purpose of IHE is not to reduce the probability of an accidental nuclear explosion. Other elements of the safety design are supposed to do that, and, thus far, no warhead accident has resulted in a nuclear yield. The benefit from the use of IHE would be to reduce the number of accidents in which the chemical explosive around the pit detonates and disperses plutonium.¹⁷ There were many such accidents involving aircraft-carried warheads prior to the decision in 1968 not to fly nuclear-armed aircraft in peacetime.¹⁸ The Navy has had no such accidents with SLBM warheads, however, and therefore has in the past not been willing to invest in adapting new IHE warheads to its SLBMs, including flight tests.

It appears, however, that the Navy has finally acquiesced or been overruled on this matter and the plan is to replace its two SLBM warheads, the W76 and W88, with new IHE warheads.

As I understand it, the current proposal is to build two new IHE warheads: the W87-1, which would replace the W-78 on the “Ground-Based Strategic Deterrent” (GBSD), the successor to the Minuteman III missile and potentially also the W-88 the high-yield warhead on the Trident II submarine-launched ballistic missile. A second warhead, sometimes referred to as the W93, would replace the W76.¹⁹ Recent news reports indicate that the US is coordinating with the UK on the W93, since the warhead on the UK’s SLBMs is closely related to the W76 and the US and UK SLBMs come from a shared pool of missiles.²⁰

W87-1. The pit of the W87-1 would be identical to the pit of the W87-0, a warhead originally developed for the MX ICBM. W87-0s are currently deployed on the Minuteman III, and the plan is to use both W87-0s and W87-1s on the GBSD.²¹ The 400 Minuteman IIIs are to be replaced one-for-one with GBSDs, which is, like the Minuteman III, to be deployed with only a single warhead per missile.

DOD reportedly has 540 W87-0s in stock with 200 deployed on the Minuteman III along with 200 W78s.²² Therefore, the W78s, could be replaced with stored W87-0s.

In fact, as the *Draft EIS* notes, this same point was made during the EIS scoping process:

“There is a straight-forward alternative available right now that would lead to all the warheads on U.S. land-based missiles using insensitive explosives: that is to replace the W78s with W87 warheads currently in storage.” (I, Table 1-1)

¹⁷ S.D. Drell, John Foster and Charles Townes, *Nuclear Weapons Safety: Report of the Panel on Nuclear Weapons Safety* of the House Committee on Armed Services, 1990, <https://fas.org/nuke/guide/usa/drell-safety.pdf>.

¹⁸ Department of Defense, *Narrative Summaries of Accidents Involving U.S. Nuclear Weapons, 1950-1980*, <https://nsarchive.files.wordpress.com/2010/04/635.pdf>.

¹⁹ DOD’s *Nuclear Weapons Matters Handbook 2020*, Figure 4.2, shows the W78 being replaced by the W87-1 beginning around 2030. The W87 and W88 are shown as being replaced beginning sometime around 2035-40, and the W76 is shown as being replaced beginning sometime around 2040-55. Their replacements are designated only as FBW (Future Ballistic Warheads), <https://www.acq.osd.mil/ncbdp/nm/nmhb/chapters/chapter4.htm>.

²⁰ “Planned W93 Warhead Will Contribute to new U.K. Nuke, DOD Officials Say,” *Defense Daily*, 13 February 2020, <https://www.defensedaily.com/planned-w93-warhead-will-contribute-new-u-k-uke-dod-officials-say/nuclear-modernization/>; Andrew Chuter, “Britain confirms new nuclear warhead project after US officials spill the beans,” *Defense News*, 25 February 2020, <https://www.defensenews.com/global/europe/2020/02/25/britain-confirms-new-nuclear-warhead-project-after-us-officials-spill-the-beans/>; Dan Leone,

²¹ *NNSA Has Taken Steps to Prepare to Restart a Program to Replace the W78 Warhead Capability* (US Government Accountability Office, 2018) Footnote 9, <https://www.gao.gov/assets/700/695759.pdf>.

²² Hans M. Kristensen and Matt Korda, “United States nuclear forces, 2020,” *Bulletin of the Atomic Scientists*, 2020, Vol. 76, NO. 1, 46–60, Table 1, note d, <https://doi.org/10.1080/00963402.2019.1701286>.

Although the *Draft EIS* states in Vol. 1, p.14 that “[c]omments were considered in preparing this Draft EIS, I do not see any response to this comment.

DOD prefers to have two types of warheads available for each missile in case one type develops a problem but, because the W87-1 would have the same “physics package” as the W87-0, it would provide much less diversity than having a different warhead type.

It is possible also that DOD wishes to preserve the option of loading more warheads onto the GBSD in case of a breakdown in nuclear arms control with Russia. In the Clinton Administration’s Nuclear Posture Review, this was called the “warhead upload hedge”²³ To get three W87s on a GBSD would require a larger-diameter third stage than the Minuteman III has. Northrup-Grumman’s GBSD appears to have such a larger-diameter third stage.²⁴

To fully load up every deployed GBSD with three warheads would require 1200 warheads, which would require more W87-1s and therefore more pits. No realistic circumstance that would require uploading the US ICBMs again has been suggested, however. In fact, the downloading to one warhead each was done to make the deterrent relationship with Russia more stable. Destroying one US warhead in a first strike would require more than one Russian warhead. Furthermore, in 2013, the Joint Chiefs reportedly informed President Obama that they could cover all essential targets in potential adversary nations with one third fewer warheads than the 1550 counted warheads allowed by New START.²⁵

Also, many respected defense experts, including former Secretary of Defense Perry, argue that the US should abandon fixed land-based ICBMs because they are targetable, which has resulted in Strategic Command keeping them in a dangerous launch-on-warning posture.²⁶

The *Draft EIS* is silent on these critical considerations.

W93. Relatively little firm information has been made public about the design of the proposed W93. NNSA’s *Fiscal Year 2020 Stockpile Stewardship and Management Plan* describes “the Next Navy Warhead,” as “not yet an established program of record.”²⁷

An anonymous “senior defense official” has asserted, however, that the W93 would be “previously nuclear-tested designs, it’s not going to require any nuclear testing.”²⁸ This must mean that a previously tested IHE primary would be used.

²³ US Department of Defense, “Nuclear Posture Review,” 19, <https://fas.org/nuke/guide/usa/doctrine/dod/npr-slides-1994.pdf>

²⁴ This was pointed out by Hans Kristensen, 17 September 2019, <https://twitter.com/nukestrat/status/1173971761634926592>; see also the Northrup-Grumman cutaway, <https://news.northropgrumman.com/news/features/northrop-grumman-celebrates-60-years-supporting-air-forces-intercontinental-ballistic-missile-mission>.

²⁵ David Sanger, “Obama to Renew Drive for Cuts in Nuclear Arms,” *New York Times*, 10 February 2013, <https://www.nytimes.com/2013/02/11/us/politics/obama-to-renew-drive-for-cuts-in-nuclear-arms.html>. New START counting rules count each strategic nuclear bomber as a single warhead even though they could each carry many.

²⁶ William Perry, “Why It’s Safe to Scrap America’s ICBMs,” *New York Times*, 30 September 2016, <https://www.nytimes.com/2016/09/30/opinion/why-its-safe-to-scrap-americas-icbms.html>.

²⁷ *Fiscal Year 2020 Stockpile Stewardship and Management Plan* (NNSA, 2019) p. 2-37, footnote 1, https://www.energy.gov/sites/prod/files/2019/08/f65/FY2020_SSMP.pdf.

²⁸ Patrick Tucker, “A New Nuclear Warhead? STRATCOM Chief Can’t Answer Yes or No,” *Defense One*, 27 February 2020, <https://www.defenseone.com/politics/2020/02/new-nuclear-warhead-stratcom-chief-cant-answer-yes-or-no/163395/>.

In 1990, in hearings before the Senate Appropriations Committee's Subcommittee on Energy and Water, DOE's then Deputy Assistant Secretary of Energy for Military Applications listed all US nuclear weapons with insensitive high explosive, including those that had been produced and deployed and some that were tested but not deployed as a result of the end of the Cold War:²⁹

- B61-3, -4, -6, -8, -9, -10 tactical and B61-7 strategic bombs
- [Deleted]
- W80-0, -1 sea- and air-launched cruise missile warheads,
- B83 and B83-ALT 904 strategic bombs,
- W-84 warheads for the ground-launched cruise missile,
- W-85 warheads for the Pershing II intermediate-range ballistic missile,
- W87-0, -ALT 323, -1, ICBM warheads
- W89 SRAM II warhead (cancelled in Phase 3 development³⁰)
- B90 NSB, -NDB strike and depth bombs (cancelled in Phase 3 development³¹)
- W91 warhead for the short-range (air-to-ground) attack missile, tactical, SRAM-T and for the follow-on to the Lance tactical missile warhead³² (cancelled in Phase 3 development³³).

If pits are used from warheads that were produced and retired, there will be no need to make new pits. If pits are selected from warheads that were tested but not produced or were not produced in sufficient numbers, then new pits will have to be produced. However, the production of pits that may or may not be needed for a warhead whose design has not yet been decided should not be used as a justification for urgently expanding US pit-production capacity beyond the currently planned expansion at LANL.

4. Need for a Programmatic EIS on Pit Production

The above issues should be dealt with in the Final EIS for Plutonium at SRS. They also require, however, a Programmatic EIS on the proposal for pit production, inspection, lifetime estimation, refurbishment and reuse in NNSA's larger complex, including the Kansas City Plant and LLNL as well as LANL, Pantex and SRS.

²⁹ Senate Appropriations Committee Subcommittee on Energy and Water Development, *Hearing on H.R. 5019, An Act Making Appropriations for Energy and Water Development for the Fiscal Year Ending September 30, 1991, and for Other Purposes*, p. 303.

³⁰ <https://en.wikipedia.org/wiki/W89>; development phases are described in <https://www.energy.gov/sites/prod/files/2018/06/f53/6x%20process.pdf>.

³¹ https://en.wikipedia.org/wiki/B90_nuclear_bomb

³² House Appropriations Committee Subcommittee on Energy and Water Development, Hearings, Part 6, 12 March 1990, p. 584.

³³ <https://en.wikipedia.org/wiki/W91>.

October 23, 2020

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VIA ELECTRONIC MAIL

Re: The continuing need to prepare a Programmatic Environmental Impact Statement in connection with plans to expand plutonium pit production at the Los Alamos National Laboratory in New Mexico and the Savannah River Site in South Carolina.

On behalf of the public interest organizations Nuclear Watch New Mexico, Savannah River Site Watch, the Natural Resources Defense Council, and Tri-Valley Communities Against a Radioactive Environment, we are writing to once again reiterate our objections to the Department of Energy's ("DOE") and the National Nuclear Security Administration's ("NNSA") issuance of the *Final Environmental Impact Statement for Plutonium Pit Production at the Savannah River Site in South Carolina* ("FEIS").¹

The above organizations have submitted formal comments in four different National Environmental Policy Act ("NEPA") processes related to NNSA's planned expansion of plutonium pit production: NNSA's Supplement Analysis of the 2008 Complex Transformation Supplemental Programmatic Environmental Impact Statement ("2008 CT SPEIS"); the Supplement Analysis for the 2008 Los Alamos National Laboratory ("LANL") Site-Wide Environmental Impact Statement; scoping comments for the Savannah River Site ("SRS") EIS; and comments on the draft SRS EIS. These comments have repeatedly stressed the fact that DOE's and NNSA's two-site approach to expanding plutonium pit production constitute a radically different programmatic decision from any approach analyzed in the 2008 CT SPEIS,

¹ NNSA's *Notice of Availability of Final Environmental Impact Statement for Plutonium Pit Production at the Savannah River Site in South Carolina* was published in the Federal Register on September 30, 2020 (available at <https://www.federalregister.gov/documents/2020/09/30/2020-21606/notice-of-availability-of-final-environmental-impact-statement-for-plutonium-pit-production-at-the>). NNSA must wait 30 days before publishing a Record of Decision ("ROD"). 10 C.F.R. § 1021.315(a). These comments, submitted well before the issuance of any ROD, must be taken into consideration by the agencies and included in any administrative record in any litigation regarding the FEIS.

entail interconnected actions with significantly different environmental impacts, and require analysis in a new or supplemental Programmatic Environmental Impact Statement (“PEIS”).

We incorporate all four sets of comments by reference here. In brief, a few of their overarching points were that a new or supplemental PEIS on expanded plutonium pit production is required because:

- There is clearly new information and changed circumstances since the 2008 Complex Transformation SPEIS.
- NNSA’s reliance on “bounding” in Supplement Analyses is a violation of fundamental NEPA principles because it wrongly leads the agency to ignore or discount the significantly changed circumstances and important new information that necessitate preparation of a new or supplemental PEIS.
- The 2008 Complex Transformation SPEIS never contemplated and analyzed simultaneous production at two sites, as NNSA now plans for the Los Alamos National Laboratory (LANL) and the Savannah River Site.

In addition, we are submitting for the record three new issues that have arisen since the comment period for the draft SRS EIS expired on June 2, 2020, which are sufficiently interconnected to the proposed production of plutonium pits at SRS that they require analysis in this NEPA process. These new developments are:

1) The uncertain disposition of future radioactive transuranic wastes from expanded plutonium pit production.

As a DOE official is reported to have said, “From an NNSA perspective, with an enduring mission, we are going to continue to have a need to dispose of transuranic waste past 2050... Far and away the biggest challenge for NNSA is to make sure that the disposal system for transuranic waste is robust enough to not become a choke point for our mission.”²

The remaining capacity of the nation’s only repository for TRU wastes, the Waste Isolation Pilot Plant (WIPP) in southern New Mexico, is already oversubscribed. NNSA claims that half of WIPP’s future capacity will be reserved for future pit production wastes.³ However, numerous recent developments cast significant doubt on this claim. First, WIPP is currently permitted by the New Mexico Environment Department to operate only until 2024. Second, despite WIPP’s limited capacity, DOE has recently decided to send an additional 7.1 metric tons of excess

² *TRU Waste ‘Far and Away’ Largest Challenge for NNSA Pit Mission, Official Says* Exchange Monitor, September 10, 2020, <https://www.exchangemonitor.com/pit-waste-far-away-biggest-challenge-nnsa-pit-mission-official-says/>

³ See Final SA of the Complex Transformation SPEIS, p.65, <https://www.energy.gov/sites/prod/files/2020/01/f70/final-supplement-analysis-eis-0236-s4-sa-02-complex-transformation-12-2019.pdf>

plutonium for disposal,⁴ which could be followed by significantly more. Third, a pending lawsuit challenges DOE's proposal to recalculate its existing and future TRU waste inventory at WIPP to allow substantially more waste to be disposed at the site; if the Court holds DOE to its original accounting methodology, this lawsuit would result in a roughly 30% reduction in DOE's projected capacity to store wastes at WIPP. *See Nuclear Waste Partnership, et al. v. Concerned Citizens for Nuclear Safety et al.*, No. A-1-CA-37894, N.M. Ct. App. (Filed Feb. 13, 2019). Fourth, DOE has attempted to dispose of other forms of currently unapproved wastes at WIPP, such as tank "heel" wastes at Hanford,⁵ and may well be proposing to send additional wastes to WIPP in the near future.⁶ In sum, it is not clear that DOE and NNSA have any viable, long-term method for disposing of TRU wastes from future expanded plutonium pit production. Because this issue affects pit production at both LANL and SRS, as well as much of the remainder of DOE's and NNSA's nuclear missions, this issue clearly requires nation-wide programmatic review.

2) LANL facilities do not appropriately analyze energetic chemical reaction hazards involving transuranic waste.

The Defense Nuclear Facilities Safety Board, whose access to nuclear facilities DOE has repeatedly tried to restrict, recently reported:

The Board's staff team reviewed the PF-4, CMR, TWF, and Area G safety bases and concluded that the hazard and accident analyses do not appropriately analyze energetic chemical reaction hazards involving transuranic waste. As a result, LANL facilities may not have appropriate controls to protect workers and the public.⁷

More alarmingly, the Safety Board actually postulated potentially lethal radioactive doses of 760 rem⁸ to workers at PF-4 (the site of future expanded plutonium pit production) and other LANL

⁴ Amended Record of Decision (AROD) for the *Final Surplus Plutonium Disposition Environmental Impact Statement* (Final SPD EIS) (DOE/EIS-0283), NNSA, August 28, 2020, <https://www.federalregister.gov/documents/2020/08/28/2020-19023/surplus-plutonium-disposition>

⁵ *See* John Fleck, Albuquerque Journal, *DOE wants to send Hanford waste to WIPP*, March 7, 2013, <https://www.abqjournal.com/175560/doe-wants-to-send-hanford-waste-to-wipp.html>; Department of Energy, *DOE Identifies its Preferred Alternative for Certain Hanford Tank Wastes*, March 11, 2013, <https://www.energy.gov/nepa/articles/doe-identifies-its-preferred-alternative-certain-hanford-tank-wastes>

⁶ In a recent presentation, DOE indicated that it will soon begin a NEPA process for disposal of 34 metric tons of excess plutonium from the Savannah River Site in South Carolina, which will very likely be sent to WIPP in light of the lack of any other facility capable of handling such wastes.

⁷ *POTENTIAL ENERGETIC CHEMICAL REACTION EVENTS INVOLVING TRANSURANIC WASTE AT LOS ALAMOS NATIONAL LABORATORY*, DNFSB, September, 2020, Conclusions, p. 17, <https://www.dnfsb.gov/documents/reports/technical-reports/potential-energetic-chemical-reaction-events-involving>

⁸ The Nuclear Regulatory Commission's definition of a lethal radioactive dose is "The dose of radiation expected to cause death to 50 percent of an exposed population within 30 days (LD 50/30). Typically, the LD 50/30 is in the range from 400 to 450 rem (4 to 5 sieverts) received over a very short period." <https://www.nrc.gov/reading-rm/basic-ref/glossary/lethal-dose-ld.html>

facilities, and a public dose of 24 rem from PF-4.⁹ The independent Safety Board’s calculations of potential doses to workers and the public are orders of magnitude above any potential risks NNSA has examined or disclosed in any of its NEPA analyses related to expanded plutonium pit production.

The fact that the Safety Board has identified these serious deficiencies in analysis and transparency at LANL—a facility at which DOE and NNSA have considerably more experience with plutonium pit production than SRS—seriously calls into question whether DOE and NNSA have been as rigorous or transparent as NEPA demands with regard to similar risks associated with transuranic waste at SRS. This is especially the case in light of the fact that NNSA’s proposed activities at SRS involve repurposing a facility that was never completed and that was subject to construction fraud, which itself calls into question the facility’s safety. Moreover, because this risk is associated with transuranic waste, which will be produced at both LANL and SRS, and because the agencies do not have any coherent, long-term plan for disposal of such waste (as described above), this new information constitutes a significant new development with programmatic implications, which warrants analysis in a new or supplemental PEIS.

3) NNSA does not have an integrated schedule for expanded plutonium pit production.

The Government Accountability Office (“GAO”) has recently reported:

We were unable to fully assess the extent to which the two pit production facilities will be ready to produce pits for the W87-1 because NNSA’s plutonium program—which is managing the facility readiness efforts—has not yet completed an integrated schedule for the overall pit production effort. An integrated schedule is important, according to best practices, because it integrates the planned work, resources, and budget. An NNSA official stated that the program was building a schedule, but could not provide documentation that it would meet best practices. A schedule consistent with best practices would provide NNSA with better assurance that it will have adequate pits to meet planned W87-1 production.¹⁰

In something of an understatement GAO also reported:

NNSA’s past performance, agency documents, and an independent study suggest that achieving and sustaining production of sufficient pits per year may be challenging. Specifically:

- As we have previously reported, NNSA has been unable to plan for and complete major construction projects on time. It has spent billions of dollars designing and partially constructing several one-of-a-kind major capital asset projects (i.e., facilities with a cost greater than \$750 million), only to reassess and, in some cases, ultimately cancel the projects. We have reported on improvements in recent years

⁹ Table 1. *Postulated Unmitigated Dose Consequences for an 80 PE-Ci Container*, *ibid.*, p. 10.

¹⁰ *NNSA Should Further Develop Cost, Schedule, and Risk Information for the W87-1 Warhead Program*, GAO, September 2020, “What GAO Found,” <https://www.gao.gov/assets/710/709253.pdf>

in the execution of ongoing major construction projects, but few new major projects have been started recently.

- In the last 2 decades, LANL has twice had to suspend laboratory-wide operations after the discovery of significant safety issues. Specifically, from July 2004 through May 2005, LANL suspended operations to address pervasive safety issues. From 2013 through 2016, LANL had to pause operations at PF-4 because of concerns with the criticality safety program. A recurrence of such issues prior to the SRS facility becoming operational could affect pit production.
- A 2018 LANL study found that LANL is “marginally capable” of meeting NNSA’s plan to ramp up pit production to 30 pits per year by 2026 and sustaining that rate thereafter.
- NNSA’s October 2017 AOA [Analysis of Alternatives] to examine options for reestablishing a pit production capability stated that establishing pit production under any of the alternatives that NNSA considered, including using the facility at SRS, is unlikely to be achievable by 2030 even under the most optimistic circumstances.
- An independent March 2019 study by the Institute for Defense Analyses found that repurposing the SRS facility to produce pits by 2030 would be unprecedented—and could not find an instance where an NNSA project that cost over \$700 million was completed in less than 16 years. The study concluded that no available production option considered by NNSA—including its plan to split production between LANL and SRS—could be expected to provide 80 pits per year by 2030.¹¹

In short, the GAO found that DOE and NNSA have a history of seriously deficient performance when it comes to costly and complex projects such as the current plan to expand plutonium pit production. This history highlights the need for strict adherence to the requirements of NEPA. As our comments and our clients’ comments have previously stressed, the NEPA process provides a valuable mechanism for agencies to engage in a coherent, transparent planning process, which would be especially valuable here because it would allow DOE and NNSA to explore programmatic alternatives—which the agency has never done—that may have better prospects for being viable, affordable, and safe. Additionally, NNSA’s failure to comply with NEPA’s requirements could lead to significant delays associated with litigation and the consequent vacatur of agency decisions, which could further exacerbate the types of costs and delays recently highlighted by the GAO.

CONCLUSION

As discussed above, pervasive problems with the disposal of transuranic wastes, NNSA’s failure to integrate planned work, resources, and budget for producing W87-1 pits, and the unlikelihood

¹¹ Ibid., pp. 29-31 (footnotes omitted)

of the agency meeting declared production targets, all strongly buttress the need for a new or supplemental nation-wide PEIS on expanded plutonium pit production.

In closing, we strongly urge NNSA to fully comply with its NEPA obligations before issuing its Record of Decision for its *Final Environmental Impact Statement for Plutonium Pit Production at the Savannah River Site in South Carolina*. Additionally, at a minimum, the comments raised and documents cited in this letter must be taken into consideration when formulating any Record of Decision for activities at SRS.

Sincerely,

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CC: Sen. Lamar Alexander, Chair, Senate Energy and Water Appropriations Subcommittee
Sen. Dianne Feinstein, Ranking Member, Senate Energy and Water Appropriations Subcomm.
Sen. Tom Udall, Senate Energy and Water Appropriations Subcommittee
Sen. Deb Fischer, Chair, Strategic Forces Subcommittee, Senate Armed Services Committee
Sen. Martin Heinrich, Ranking Member, Strategic Forces Subcommittee, SASC
Sen. Lindsay Graham, South Carolina
Rep. Adam Smith, Chair, House Armed Services Committee
Rep. Mac Thornberry, Ranking Member, House Armed Services Committee
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Attachment:

**Defense Nuclear Facilities Safety Board
September 2020 Report**

Thomas A. Summers, Acting Chairman
Jessie H. Roberson
Joyce L. Connery

**DEFENSE NUCLEAR FACILITIES
SAFETY BOARD**

Washington, DC 20004-2901



September 24, 2020

The Honorable Dan Brouillette
Secretary of Energy
US Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Secretary Brouillette:

The Defense Nuclear Facilities Safety Board has reviewed transuranic waste storage, handling, and processing across Los Alamos National Laboratory facilities. The Board has found that safety bases for both National Nuclear Security Administration and Environmental Management facilities at Los Alamos National Laboratory do not consistently or appropriately consider a potential energetic chemical reaction involving transuranic waste. Examples include:

- **Hazard analyses** lack systematic evaluations of the chemical compatibility of transuranic waste streams. These analyses are needed to fully identify potential chemical reaction hazards associated with waste constituents.
- **Accident analyses** are not bounding, assume inappropriate initial conditions, and do not defensibly estimate the quantity of radioactive material that may be released due to an energetic chemical reaction. As such, additional credited safety controls may be necessary to protect workers and the public.
- Some facilities store transuranic waste without any engineered controls beyond the waste container. The radiological release events that occurred at the Waste Isolation Pilot Plant and Idaho National Laboratory have demonstrated the importance of incorporating **multiple layers of protection** to reduce the consequences of an accident.

The attached technical report further details these topics. The concerns mirror those outlined in the Board's letter dated January 29, 2020, regarding needed revisions to DOE Standard 5506, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*, and highlighted in the Board's June 20, 2019, public hearing.

Pursuant to 42 USC §2286b(d), the Board requests that DOE provide a report within 120 days of receipt of this letter that describes (1) whether the hazards associated with the current transuranic waste container population at Los Alamos National Laboratory are

consistently and adequately controlled and DOE's basis for this position, and (2) whether the revision to DOE Standard 5506 will address the broader implications of these concerns, as they are applicable to other DOE sites.

Yours truly,

Thomas A. Summers

Thomas A. Summers
Acting Chairman

Enclosure

c: Mr. Kirk Lachman
Mr. Michael Weis
Mr. Joe Olencz

**POTENTIAL ENERGETIC CHEMICAL REACTION
EVENTS INVOLVING TRANSURANIC WASTE AT
LOS ALAMOS NATIONAL LABORATORY**

**Defense Nuclear Facilities Safety Board
Technical Report**



September 2020

POTENTIAL ENERGETIC CHEMICAL REACTION EVENTS INVOLVING TRANSURANIC WASTE AT LOS ALAMOS NATIONAL LABORATORY



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EXECUTIVE SUMMARY

The Department of Energy (DOE) recently experienced two events—one in February 2014 at the Waste Isolation Pilot Plant (WIPP) and another in April 2018 at the Idaho National Laboratory (INL)—in which waste drums released radiological materials due to energetic chemical reactions involving the waste. As a result, the Defense Nuclear Facilities Safety Board (Board) evaluated how DOE analyzes hazards and implements controls at facilities that generate, process, and store nuclear waste. These activities most recently culminated in a letter to the Secretary of Energy dated January 29, 2020, regarding areas of concern in DOE Standard 5506-2007, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*. That letter built upon several efforts, including the Board’s public hearing on June 20, 2019, and the Board’s Technical Report 43, *Deficiencies in DOE Standard 5506-2007, Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*, dated March 15, 2018.

These Board products identified a few common themes, including: the need for chemical compatibility evaluations for waste containers stored at waste generator sites that have not yet been certified for shipment to WIPP; the need to develop a defensible release fraction for energetic chemical reaction events based on the amount of material released in recent radiological release events; the need for improvements to control strategies to protect against energetic chemical reactions; and the need to revise DOE Standard 5506 to address these deficiencies.

This technical report provides a site-specific case study on the treatment of energetic chemical reaction hazards in the safety bases for facilities that generate and store transuranic waste at Los Alamos National Laboratory (LANL). These facilities include the Plutonium Facility (PF-4), the Transuranic Waste Facility (TWF), and the Chemistry and Metallurgy Research Facility (CMR)—all operated by Triad National Security, LLC (Triad)—and Area G operated by Newport News Nuclear BWXT-Los Alamos, LLC (N3B). The Board’s staff team found that the safety bases for these facilities do not appropriately analyze the hazards from potential energetic chemical reaction events involving transuranic waste.

Some LANL defense nuclear facilities assume inappropriate initial conditions in their accident analyses and do not conservatively estimate the quantity of radioactive material that may be released from an energetic chemical reaction event. As a result, LANL facility safety bases do not contain a bounding analysis that accounts for (1) the types of potential chemicals that could be present in waste drums or (2) the amount of radiological material that could be released from an energetic chemical reaction event. Accordingly, the safety bases may not identify adequate safety controls to protect workers and the public from this type of hazard. Many of these identified concerns stem from inadequate requirements and guidance in DOE Standard 5506. DOE is currently revising this standard.

The staff team identified the following areas of concern with LANL facility safety bases:

Hazard Analyses Lack Systematic Chemical Compatibility Evaluations. In order to fully analyze the hazards from energetic chemical reactions, the Board’s staff team has concluded that waste generator sites should incorporate two separate types of evaluations into

facility safety bases: (1) a general analysis that assumes that an energetic chemical reaction is possible within waste, without necessarily identifying any specific chemical reaction, and (2) a systematic evaluation of waste streams to identify specific chemical incompatibilities (i.e., a systematic chemical compatibility evaluation).

LANL safety bases include a general analysis. A general analysis is helpful for deriving controls that provide defense-in-depth against unanticipated chemical reactions. As illustrated by DOE's recent events, it is important to defend against unexpected chemical reactions. However, while it is important, a general analysis is not sufficient. The general approach does not lend itself to the creation of robust control sets, including measures for preventing specific chemical interactions, or measures for identifying containers that are particularly at risk of such interactions. Accordingly, a more systematic and detailed approach is also needed to fully analyze energetic chemical reaction hazards and to assign effective controls. While some LANL safety bases currently identify the hazards posed by a specific chemical reaction, LANL safety bases do not systematically evaluate the waste streams to identify a wider spectrum of possible reactions.

DOE requires systematic chemical compatibility evaluations for waste certification prior to accepting containers for disposal at WIPP. However, DOE standards and directives do not explicitly require similar evaluations for waste while it is stored at generator sites. Performing systematic chemical compatibility evaluations at waste generator sites is needed to develop prevention strategies, such as waste compatibility controls. This evaluation could also identify containers at higher risk of undergoing an energetic chemical reaction, allowing such containers to be stored in locations with a more robust control set. There may also be an opportunity to integrate the evaluations required for WIPP into the LANL safety bases to ensure this same level of protection is provided at the point of waste generation.

Some Accident Analyses Assume Inappropriate Initial Conditions and do not Defensibly Estimate Radioactive Material Releases. DOE determined that the amount of radioactive material released from the WIPP accident was significantly higher than the amount DOE standards would have predicted. DOE did not analyze the INL event to determine the amount of radioactive material released, but it also appears to have been higher than the amount that DOE standards would have predicted. DOE has not yet provided complex-wide direction regarding release fractions to its contractors that is informed by the WIPP or INL events. As a result, LANL safety bases do not analyze hazards associated with energetic chemical reactions consistently across facilities:

- The **PF-4** and **CMR** safety bases use a release fraction of 0.07 when analyzing the consequences from an energetic chemical reaction. While this value is less than the 0.205 value that a DOE office derived after the WIPP event, it provides a quantitative estimate for the derivation of safety controls that is more than an order of magnitude higher than other LANL facilities. The PF-4 and CMR safety bases apply this analysis to one specific chemical incompatibility based on the waste constituents of the WIPP event (interactions between nitric acid and polysaccharides). They do not expand the analysis to include other incompatibilities. As demonstrated by the INL

event, reactions beyond nitric acid and polysaccharides can lead to significant releases of radioactive materials.

- The **TWF** safety basis uses a release fraction of 0.002 when analyzing the consequences from an energetic chemical reaction event, which is 35 times lower than what is used by PF-4 and CMR. The safety basis inappropriately relies on the waste acceptance criteria to justify the use of a lower release fraction.
- The **Area G** safety basis does not analyze an energetic chemical reaction event resulting in the release of a significant amount of radioactive material. The closest accident type analyzed is a flammable gas deflagration with a release fraction of 0.00054, which is roughly 130 times lower than what is used by PF-4 and CMR. The staff team notes that about 1,500 Area G containers have not undergone a chemical compatibility evaluation, and 2,000 containers do not meet WIPP's waste acceptance criteria and will require remediation. The Area G safety basis is also outdated and was developed in accordance with a DOE standard that requires less rigor for safety bases. N3B has no documented near-term plans to upgrade the safety basis to follow modern DOE requirements.

There is substantial commonality in the waste constituents across LANL facilities; thus the differences in accident types and release fractions are not technically defensible. Further, the appropriate use of elevated release fractions may drive the need for additional safety controls at some of these facilities. The Board's staff team performed an evaluation of the existing inventory at LANL and determined that on the order of 100 transuranic waste containers could release sufficient material to result in a dose consequence that challenges DOE's Evaluation Guideline if an energetic chemical reaction with a release fraction of 0.07 were to occur within those drums. Containers with low risk of undergoing an energetic chemical reaction were excluded from the Board's staff team's evaluation.

Some Facilities Rely Primarily on the Waste Container to Provide Safety. The radiological release events that occurred at WIPP and INL demonstrated the importance of incorporating multiple layers of protection. Some LANL facilities, such as PF-4 and CMR, provide multiple layers of protection including a confinement ventilation system and a fire suppression system to mitigate the consequences of a radiological release event. Other LANL facilities, such as the outdoor transuranic waste storage pads at PF-4 and the fabric domes at Area G, lack these safety systems.

Although preferred, the Board's staff team does not believe that LANL needs to store all transuranic waste containers in facilities with a confinement ventilation system or fire suppression system. Rather, LANL could preferentially store higher-risk waste containers (e.g., poorly characterized waste, waste with high quantities of material-at-risk, waste that has not undergone a chemical compatibility evaluation, or waste with incompatible chemical constituents) in locations with more robust control sets and judiciously apply other types of controls, such as overpack containers, lid restraints, and detection capabilities.

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BACKGROUND AND ANALYSIS

Two recent events in the Department of Energy's (DOE) nuclear weapons complex have illustrated the complexities inherent in chemical interactions involving radioactive waste. In both events, unexpected energetic chemical reactions¹ within the waste resulted in drum breaches and significant releases of radioactive material from the drums.

The first event occurred in February 2014 at the Waste Isolation Pilot Plant (WIPP), where DOE permanently disposes transuranic waste. At WIPP, energetic chemical reactions caused the over-pressurization² of a drum, leading to a release of radiological material. This drum was generated at Los Alamos National Laboratory (LANL). Prior to shipment to WIPP, this drum passed chemical compatibility screenings and was incorrectly classified as not ignitable (wastes that can readily catch fire and sustain combustion) [1 – 3]. DOE also determined that the amount of material released during the WIPP event far exceeded what DOE standards would have predicted [1].

The second event occurred in April 2018 at the Idaho National Laboratory (INL), which stores and repackages legacy waste. During this event, reactions occurred in four drums that were inside the Accelerated Retrieval Project V facility. The drums contained recently repackaged legacy waste; INL personnel had relatively little information on the chemical composition of the waste in those specific drums.

The INL contractor-led investigation of the INL event [4, 5] identified several chemical reactions that may have been involved with the release event. First, uranium in the waste underwent oxidation, releasing heat. The increased temperature drove secondary reactions, including the generation of methane from a reaction between beryllium carbide and water. Pressure inside the four drums increased to the point that the drum lids were forcefully ejected, resulting in the spread of radiological material across the facility.

The Need for Chemical Compatibility Evaluations—After the WIPP event, DOE strengthened the process for evaluating potential chemical reaction hazards associated with waste prepared for disposal at WIPP [6 – 8]. This evaluation process is necessary to identify and help prevent energetic chemical reactions that could be caused by the range of possible chemical combinations associated with each waste stream. Personnel of the National Transuranic Program (NTP), whose mission is to ensure that waste shipped to WIPP meets the WIPP waste acceptance criteria, perform this chemical compatibility evaluation. Waste containers may remain at the generator sites indefinitely before NTP personnel perform their evaluation.

Prior to the INL event, a (previous) contractor at INL had performed its own chemical compatibility evaluation of wastes at INL [9, 10] and NTP had yet to perform its analysis of the drums involved in the event. While it is positive that the local contractor performed an evaluation, the evaluation was inadequate and did not identify the hazards involved in the event. Beryllium carbide, which may have been an accident contributor, was not on the list of potential chemicals in the contractor's evaluation.

¹ Appendix A: *Glossary and Additional Information* defines the term “energetic chemical reaction.”

² Appendix A: *Glossary and Additional Information* defines the term “over-pressurization.”

While other forms of beryllium were listed, the contractor excluded beryllium from further analysis on the grounds that it was only present in “trace” quantities.

These facts demonstrate that conservative decision-making is needed when there is limited knowledge of waste composition, and that “trace” chemicals can play a large role in energetic chemical reactions. Further, the contractor’s evaluation identified hazards posed by the oxidation of uranium [9], but site personnel incorrectly assumed that the hazard did not extend to the form of uranium found in the event drums [4, 11].

Overall, both the WIPP and INL events show that it is not only important for sites to perform chemical compatibility evaluations to identify and reduce the likelihood of potential incompatibilities, but that these evaluations must account for uncertainties in waste composition and chemicals thought to be present in small quantities.

Improvements Needed in DOE Directives—DOE Standard 5506-2007, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities* [12], does not explicitly require waste generator sites to perform chemical compatibility evaluations on drums in storage before they enter the certification process for shipment to WIPP. As a result, waste containers can be stored for several years before any chemical compatibility evaluation is performed. The Board’s staff believes that this approach is inconsistent with DOE Standard 3009-94, *Preparation Guide for U. S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*, which “requires evaluation of the complete spectrum of hazards and accidents” [13].

DOE Standard 3009-2014, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis* [14], requires analysts to evaluate events if they have occurred previously within a nonreactor nuclear facility. Specifically, the standard states:

*An operational event is not considered plausible if it is either: A process deviation that consists of a sequence of many unlikely human actions or errors for which there is no reason or motive. In evaluating this criterion, a wide range of possible motives, short of intent to cause harm, should be considered. **Necessarily, no such sequence of events may ever have actually happened in any nonreactor nuclear facility.*** [Emphasis added]

As documented throughout this report, LANL facilities do not perform systematic chemical compatibility evaluations and some facilities do not consider that a WIPP or INL type event that releases a large fraction of material is plausible. Accordingly, DOE Standard 5506 should clarify that (1) waste cannot be stored indefinitely without a chemical compatibility evaluation and (2) facility safety bases should evaluate energetic chemical reactions that release a large fraction of material.

Defense Nuclear Facilities Safety Board Activity—As a result of the INL and WIPP events, the Defense Nuclear Facilities Safety Board (Board) has been evaluating how DOE analyzes hazards and implements controls at facilities that generate, process, and store nuclear waste. The Board held a public hearing and sent multiple letters and a technical report to DOE regarding transuranic waste safety, which include:

- Board letter to DOE dated May 29, 2020, regarding the WIPP documented safety analysis [15].
- Board letter to DOE dated January 29, 2020, regarding areas of concerns with DOE Standard 5506-2007 [16].
- Public hearing on safety management of waste storage and processing in the defense nuclear facilities complex held June 20, 2019 [17].
- Board letter to DOE dated March 12, 2019, regarding flammable gas hazards in waste containers [11].
- Technical Report 43 dated March 15, 2018, which identifies deficiencies found in DOE Standard 5506-2007 [18].

These Board products identified a few common themes, including: the need for chemical compatibility evaluations for waste containers that have not yet been certified for WIPP but remain at generator sites; the need to develop a defensible release fraction for energetic chemical reaction events based on the amount of material released in recent radiological release events; the need for improvements to control strategies to protect against energetic chemical reactions; and the need to revise DOE Standard 5506 to address these deficiencies.

Staff Review Scope and Strategy—The staff team reviewed the safety bases for Area G [19, 20], the Transuranic Waste Facility (TWF) [21, 22], the Plutonium Facility (PF-4) [23, 24], and the Chemistry and Metallurgy Research Facility (CMR) [25, 26]. These safety bases were developed based on the requirements and guidance documented in DOE Standard 5506 and DOE Standard 3009. DOE Standard 5506 supplements DOE Standard 3009 and is used to help support safety basis development for transuranic waste facilities.

The staff team conducted onsite discussions with personnel from the LANL management and operating contractor, Triad National Security, LLC (Triad); the Los Alamos Legacy Cleanup contractor, Newport News Nuclear BWXT-Los Alamos, LLC (N3B); the National Nuclear Security Administration's Los Alamos Field Office (NA-LA); and DOE's Environmental Management Los Alamos Field Office (EM-LA) during the week of November 18, 2019. Triad manages TWF, PF-4, and CMR for NA-LA; and N3B manages Area G for EM-LA.

This report provides a site-specific case study on how energetic chemical reaction hazards involving transuranic waste³ are analyzed and controlled at PF-4, CMR, TWF, and Area G. PF-4 and CMR generate transuranic waste during normal operations. This waste can be stored at PF-4, CMR, and TWF. Area G stores a variety of transuranic waste above-ground and underground, but is currently not receiving additional transuranic waste. The underground waste is outside of the scope of this report.

³ Energetic chemical reactions can occur in other types of waste, such as low-level waste, but the focus of this report is on transuranic waste.

INCOMPLETE HAZARD ANALYSES FOR TRANSURANIC WASTE

In order to fully analyze the hazards from energetic chemical reactions, the Board's staff team has concluded that waste generator sites should incorporate two separate types of evaluations into facility safety bases: (1) a general analysis that assumes that an energetic chemical reaction is possible within waste, without necessarily identifying any specific chemical reaction, and (2) a systematic evaluation of waste streams to identify specific chemical incompatibilities (i.e., a systematic chemical compatibility evaluation), similar to what is performed for waste being shipped to WIPP.

A general analysis is needed to derive controls that provide defense-in-depth against unanticipated reactions. The general analysis is particularly important when there is poor characterization data for a waste container and a specific chemical compatibility analysis cannot be adequately performed. Under very limited circumstances (e.g., all containers are grouted or are inert when exposed to a variety of environments), an energetic chemical reaction may not be plausible. In this situation, the safety basis should document the basis for ruling out the hazard.

A systematic chemical compatibility evaluation is needed to identify specific chemical reaction hazards that may be present in existing and new waste in order to develop a complete accident analysis and assign effective controls. This type of analysis is required by WIPP before accepting waste; however, waste can be stored at a generator site for an indefinite period of time without performing such an evaluation. In order to ensure appropriate controls are identified, this analysis should be included as part of facility safety bases. This would allow for the implementation of prevention strategies, such as waste compatibility controls, and for containers at higher risk of undergoing an energetic chemical reaction to be identified and stored in locations with more robust controls. If performed adequately, this evaluation could help prevent future accidents similar to those that transpired at WIPP and INL. A systematic evaluation performed by a waste generator could use the WIPP-approved chemical compatibility evaluation method [6, 8], which is derived from a methodology published by the Environmental Protection Agency [7], or a DOE-approved alternative that is similarly rigorous.

The chemical compatibility evaluations should be able to identify a broad set of adverse conditions, such as generation of heat, gases, corrosive vapors, and shock-sensitive materials. Ideally, an evaluation would consider not just interactions between different chemicals within the waste itself, but also reactions involving the container, air, and moisture. Another consideration is that waste may change over time as it reacts or degrades. Chemicals (including those thought to be only present in trace amounts) should only be excluded from evaluation with technical justification.

Previous Board communications to DOE [11, 16, 17, 18] identified weaknesses in DOE Standard 5506 regarding the evaluation of potential energetic chemical reaction hazards. Specifically, DOE Standard 5506 does not include a process for analyzing energetic chemical reaction hazards, does not provide technically justified release fractions for this accident, and does not include an energetic chemical reaction event in its list of the "minimum set of accident events" required for evaluation in facility safety bases. Accordingly, DOE Standard 5506 does

not ensure an appropriate and consistent evaluation of chemical reaction hazards across DOE's defense nuclear weapons complex.

LANL facility safety bases include general chemical hazard analyses in facility safety bases, but some safety bases underestimate the amount of material that could be released (refer to the *Inadequate Accident Analyses of Energetic Chemical Reactions* section for more information). Further, while some LANL safety bases identify a specific chemical reaction hazard, LANL safety bases do not systematically evaluate the full spectrum of chemical incompatibilities that could be present in a waste stream. Not analyzing the full suite of potential hazards and accidents is inconsistent with DOE standards and directives [13, 14] and may lead to an inadequate control set to protect workers and the public.

Specific Reaction Hazards at LANL—The hazard analyses within LANL facility safety bases were developed using simplistic screening methods and do not include systematic chemical compatibility evaluations. Recently, Triad has begun to take a more direct approach toward chemical compatibility hazards in some facilities. Triad declared potential inadequacies of the safety analysis (PISA) at CMR and PF-4 concerning the hazard of an autocatalytic exothermic reaction (a specific type of energetic chemical reaction). Triad declared these PISAs based on information in two reports [27, 28] documenting incompatibilities between polysaccharides (e.g., cheesecloth and starch-based kitty litter) with nitric acid and metal nitrate salts. These types of waste constituents contributed to the WIPP radioactive material release event.

In response to the PISAs, Triad implemented a control that prohibits the commingling of polysaccharides and nitric acid. Triad's analysis and subsequent control of this specific chemical incompatibility is a positive development. However, Triad should expand its evaluation to include other potential chemical incompatibilities (including interactions with elements in trace quantities) that could lead to energetic chemical reactions. As demonstrated by the INL event, reactions beyond nitric acid and polysaccharides can lead to significant releases of radioactive materials.

N3B did not identify any specific chemical incompatibilities (including interactions between polysaccharides and nitric acid) that could lead to an energetic chemical reaction in Area G's hazard analysis. Accordingly, N3B's approach is inappropriate and inconsistent with other LANL facilities that store waste with similar constituents.

Leveraging Existing Initiatives—NTP has established chemical compatibility evaluations for waste streams at LANL. NTP performs these evaluations as part of its process to determine whether waste meets the waste acceptance criteria for WIPP [6]. NTP personnel review records of individual waste containers to ensure that the chemical constituents are included in the established chemical compatibility evaluation for a given waste stream. However, NTP's evaluations are only intended to ensure safety at WIPP, and there are many containers at LANL that NTP has not yet evaluated. Specifically, N3B personnel stated that more than 1,500 containers stored at Area G have not undergone a chemical compatibility evaluation. Triad and N3B could leverage existing NTP evaluations and analyses to help them formally identify chemical compatibility hazards within LANL waste to support facility safety bases.

For example, NTP's chemical compatibility evaluation of a waste stream at PF-4 [29] identified the presence of several chemical constituents that are incompatible and could result in hazards such as explosions or fires, or the generation of flammable gases. NTP notes that spent anion exchange resins in nitrated form are a potential hazard and need to be rendered nonreactive (i.e., cemented) in order to comply with the WIPP waste acceptance criteria. While LANL typically cements spent ion exchange resins, there is no analysis or derived control in the safety basis that requires LANL to cement these resins. Without properly analyzing this hazard or deriving an appropriate control, LANL may inadvertently create incompatible waste.

Work Control Processes and Training—Triad personnel are developing a step in their work control processes to assess waste generation using analysts who are trained and qualified to identify chemical compatibility hazards. These analysts perform visual inspections of waste as it is being packaged to ensure no prohibited items are present, record waste information on a questionnaire, maintain waste stream records, ensure waste items are characterized, and support NTP's evaluation of waste. While this represents a positive step, the Board's staff team identified two areas that can be improved: (1) Triad could structure work control processes to ensure that newly generated waste containers are covered by the analysis and controls within the safety basis, and (2) Triad could strengthen the questionnaire that waste analysts use when they visually inspect materials before they are containerized and officially declared to be waste by tying the questionnaire to chemical compatibility evaluations.

N3B recently developed a chemical compatibility evaluation procedure [30], which is a positive step. However, N3B has not yet developed implementation guidance for this procedure. Further, N3B personnel do not have direct access to all information regarding the above-ground inventory of waste stored at Area G. Instead, they rely on processes defined by a series of agreements [31, 32] that require Triad to transmit waste information to N3B upon request. The lack of direct access to information makes it more difficult for N3B personnel to proactively perform adequate chemical compatibility evaluations of existing waste.

Hazard Analyses Summary. To fully evaluate the hazards from energetic chemical reactions, waste generator sites should incorporate both general chemical hazard analyses and systematic chemical compatibility evaluations of their waste into facility safety bases. The staff team identified that LANL facility safety bases include general chemical hazard analyses in facility safety bases, but some safety bases underestimate the amount of material that is released, as discussed in the *Inadequate Accident Analyses of Energetic Chemical Reactions* section of this report. Further, while some safety bases identify a specific chemical reaction hazard, LANL safety bases do not systematically evaluate the chemical compatibility of an entire waste stream.

A systematic chemical compatibility evaluation is needed in order to develop prevention strategies, such as waste compatibility controls. This evaluation could also identify containers at higher risk of undergoing an energetic chemical reaction that may need to be stored in locations with a more robust control set. Triad and N3B could integrate existing NTP chemical compatibility evaluations into LANL safety bases to ensure that the same level of protection provided at WIPP is also provided at the point of waste generation. Further, N3B should seek to gain direct access to all information regarding the above-ground inventory at Area G.

INADEQUATE ACCIDENT ANALYSES OF ENERGETIC CHEMICAL REACTIONS

The purpose of a hazard analysis is to consider all possible hazards and accidents and to qualitatively assess the consequences. From this analysis, a subset of accidents that can cause high consequences to members of the public are identified. These events are called “design basis accidents” (for new facilities) or “evaluation basis accidents” (for existing facilities) and the consequences are calculated as part of a safety basis’ accident analysis [13, 14]. If the safety basis determines that no accidents lead to potentially high consequences, then an accident analysis is not needed.

Some LANL defense nuclear facilities assume inappropriate initial conditions in their accident analyses and do not conservatively estimate the quantity of radioactive material that may be released from an energetic chemical reaction event. As a result, LANL facility safety bases do not contain a bounding analysis that accounts for (1) the types of potential chemicals that could be present in waste drums or (2) the amount of radiological material that could be released from an energetic chemical reaction event. Accordingly, the safety bases may not identify adequate safety controls to protect workers and the public from this type of hazard.

DOE found that a large fraction of waste was released from the drum involved in the energetic chemical reaction event at WIPP [1]. DOE did not analyze the INL event to determine the amount of radioactive material released, but it also appears to have been higher than the amount that DOE standards would have predicted. Until recently, LANL facilities did not analyze an energetic event with a large release fraction in their accident analyses, even though LANL generated the waste drum that caused the WIPP event. Some LANL facilities have recently started addressing this through PISAs, and some have not. None of the facilities at LANL are using the effective release fraction of 0.205 that the Carlsbad Field Office derived after the WIPP event [33], but some are using 0.07. While the 0.07 value used at some LANL facilities is less than the 0.205 value DOE derived for the WIPP accident, it provides a quantitative estimate for the derivation of safety controls that is more than an order of magnitude higher than what is used at other LANL facilities. The Board has previously communicated with DOE regarding the need to develop a defensible release fraction for energetic chemical reactions [11, 16, 17, 18].

Plutonium Facility—As noted above, Triad personnel declared a PISA based on information contained in two reports [27, 28] that documented the possibility of reactive materials (materials unstable under normal conditions that may cause an explosion or violent reaction [2, 3]) being stored together that could lead to an autocatalytic thermal runaway reaction. One report, DWT-RPT-005, *Safety Evaluation of Nitric Acid Reactions with Polysaccharides*, states, “given the degree of uncertainty that encompasses many aspects of the TRU waste process amid the history of recorded events...it is not sufficiently conservative to state unequivocally that an autocatalytic cycle will be prevented in a TRU waste drum (i.e., a potential hazard to the generator site exists).”

The PF-4 safety basis did not previously analyze this type of hazard. Accordingly, Triad developed an evaluation of the safety of the situation (ESS) [34] that included this new accident scenario. This ESS analyzed data in DOE Handbook 3010-94, *Airborne Release Fractions/Rates*

and Respirable Fractions for Nonreactor Nuclear Facilities [35], and concluded that modeling the event as an over-pressurization event, where a container holding dispersible powder (e.g., powders, granules, soil/gravel, or sand-like materials) ruptures at a pressure greater than 25 psig, bounds other release mechanisms. This release mechanism has an effective release fraction of 0.07.

Chemistry and Metallurgy Research Facility—Initially, CMR personnel evaluated the information from the two reports [27, 28] that describe interactions between polysaccharides, nitric acid, and metal nitrate salts and concluded that this information did not constitute a PISA. However after subsequent analysis, CMR personnel declared a PISA [36] and included a new hazard scenario in the safety basis that is identical to the PF-4 scenario described above.

Area G—The Area G safety basis does not analyze an energetic chemical reaction event that causes a significant release of radioactive material. The closest accident type analyzed in the Area G safety basis is a flammable gas deflagration⁴ event involving combustible materials. During discussions with the Board’s staff team, Area G safety basis personnel stated that an energetic chemical reaction that causes an accident with a release fraction of 0.07 is not credible due to the constituents of Area G waste. The Board’s staff team has not seen sufficient evidence that supports this conclusion and is concerned that the Area G safety basis may not adequately analyze this credible hazard. Further, much of the waste currently stored at Area G originated from CMR and PF-4, and the CMR and PF-4 safety bases both analyze an event with significantly higher release fractions.

According to N3B personnel, approximately 2,000 Area G containers do not meet WIPP’s waste acceptance criteria and will require remediation prior to shipment to WIPP. Many of these containers hold prohibited items; several hundred have reactive or ignitable waste characteristics [37]. Of note, NTP issued multiple nonconformance reports for existing waste containers at Area G that cannot be verified to preclude incompatible mixtures of organics and oxidizers. WIPP refused to accept these containers because their contents may be susceptible to energetic chemical reactions and propagating fires. For example, container 69506 is believed to contain 3 kilograms of organic kitty litter and 3 ounces of neutralized nitric acid containing metal nitrates [38]. Organic kitty litter and neutralized nitric acid containing metal nitrates were the main constituents in the energetic chemical reaction that caused the WIPP release event. It is important to note that the quantities of potentially incompatible materials in container 69506 are significantly less than the drum that caused the WIPP event and present a lower risk than the WIPP event drum. N3B personnel reviewed container 69506 [39] and determined that the hazard presented by this drum is “fully bounded by analyses within the Area G BIO [basis for interim operation].” However, as noted throughout this report, the Board’s staff team has concerns with the technical basis used to support the analysis in the Area G BIO.

N3B’s approach to not analyze an energetic chemical reaction event that causes a significant release of radioactive material is inconsistent with modern DOE directives. Specifically, DOE Standard 3009-2014 [14] allows analysts to exclude events that are not plausible; however, they must analyze an event if it has occurred previously within a nonreactor nuclear facility.

⁴ Appendix A: *Glossary and Additional Information* defines the term “deflagration.”

The Area G safety basis is outdated and relies on DOE Standard 3011-2002, *Guidance for Preparation of Basis for Interim Operation (BIO) Documents* [40], which was developed for limited life facilities and requires significantly less rigor compared to DOE Standard 3009-2014. DOE Standard 3011 categorizes a limited life facility as “a facility with an approved deactivation plan calling for cessation of operation within a stated period (i.e., 5 years or less).” Area G will be operational for more than five years, and should not rely on a standard that provides less rigor than DOE Standard 3009.

N3B is currently updating its safety basis using an outdated version of DOE Standard 3011 and has no documented near-term plans to upgrade the safety basis to follow modern DOE requirements (i.e., DOE Standard 3009-2014). The current and planned update of the Area G safety basis may not provide the same level of protection as a modern safety basis. EM-LA and N3B have not generated a gap analysis to quantify the difference in the level of safety between using the two DOE standards.

Transuranic Waste Facility—TWF’s safety basis analyzes an over-pressurization event in which a container holding dispersible powder ruptures at a pressure less than 25 psig. The TWF safety basis does not analyze a more severe over-pressurization event leading to the release of radioactive material as an evaluation basis accident. The safety basis [21, 22] states that such an event is precluded by the Material-at-Risk (MAR) Hazardous Chemical Constituents specific administrative control (SAC), which restricts TWF from accepting certain wastes. Successful implementation of this control is an initial condition in TWF’s safety analysis.

While the chemical constituents SAC is an important control that can help prevent an energetic chemical reaction event, a safety basis should not treat this SAC as an initial condition that prevents analyzing the full suite of hazards. Relying on this initial condition circumvents the control selection process. Therefore, the Board’s staff team is concerned that additional controls at TWF may be warranted.

DOE Standard 3009 normally does not allow analysts to credit administrative controls as an initial condition in the accident analysis. While the standard allows some exceptions, these are typically for controls that specify radiological inventories or concentrations. Radiological inventories can be measured and are needed to define meaningful accident scenarios. Identifying the presence of chemically reactive waste is more difficult, requires extensive analysis and evaluation, and is vulnerable to error or misjudgment.

Further, it is not prudent to assume that the waste generation facility correctly identifies all potential incompatibilities, as the identification process is difficult and susceptible to human error. In some cases, the documentation for the waste may be incomplete, making it difficult to perform a systematic evaluation. In recent years, LANL waste generation facilities have taken steps to improve this documentation, but older wastes may retain some vulnerability. Even if the composition of the waste is well understood, analysts at the generation facility may incorrectly conclude that a given waste type is not reactive.

Based on the information presented above, the staff team has concluded that the approach used by Triad at TWF to credit the chemical constituents SAC as an initial condition is

inappropriate. In order to ensure that the hazard and accident analyses are thorough and address the “complete spectrum of hazards and accidents” [13], the safety basis should include a chemical reaction event that causes a drum over-pressurization greater than 25 psig, similar to the event analyzed at PF-4 and CMR.

Radiological Dose Consequences. As noted above, LANL facility safety bases use inconsistent, and in some cases inappropriate, effective release fractions when calculating the radiological dose consequences from accidents involving reactive waste. To illustrate these differences, the Board’s staff team calculated the theoretical dose consequences for PF-4, CMR, TWF, and Area G using the effective release fractions listed in each safety basis and a common quantity of MAR. The staff team used 80 plutonium-239 equivalent curies (PE-Ci) for this analysis because it is the maximum quantity of MAR that WIPP will accept under its waste acceptance criteria for a direct-loaded standard 55-gallon drum [6]. Some LANL facilities have transuranic waste containers with greater amounts of MAR; others have no containers as high as 80 PE-Ci. The Board’s staff team then calculated what the consequences would be if TWF and Area G used the same effective release fraction as PF-4 and CMR. Table 1 summarizes the results of this analysis. Appendix B provides a full description of the methodology used to develop Table 1.

Table 1. *Postulated Unmitigated Dose Consequences for an 80 PE-Ci Container*

Responsible Organizations	NA-LA & Triad		EM-LA & N3B
Facility	PF-4 & CMR	TWF	Area G
Accident Mechanism*	Over-pressurization > 25 psig	Over-pressurization < 25 psig	Flammable gas deflagration
Assumed Material Type*	Dispersible Powders	Dispersible Powders	Combustible Materials
Release Fraction*	.07	0.002	0.00054
Collocated Worker Dose (rem TED [†]) [Using Release Fraction from Safety Basis]	760	22	5.9
Collocated Worker Dose (rem TED) [Using Release Fraction = 0.07]	Same as above [‡]	760	760
Public Dose (rem TED) [Using Release Fraction from Safety Basis]	PF-4: 24 CMR: 53	0.94	2.3
Public Dose (rem TED) [Using Release Fraction = 0.07]	Same as above [‡]	33	300

* As assumed in facility safety bases.

[†] Total effective dose.

[‡] PF-4 and CMR already use an effective release fraction of 0.07 in their safety bases.

As shown in Table 1, PF-4 and CMR used a significantly higher effective release fraction compared to what TWF and Area G used to calculate the dose consequences from an energetic chemical reaction event leading to the release of radioactive material.

TWF relies on an initial condition SAC to limit the severity of this event. As noted earlier, the Board’s staff team has concluded that this approach is inappropriate. If TWF

modeled this event in a manner similar to PF-4 and CMR, the theoretical dose consequences to the public would be 33 rem TED, and the dose consequences to the worker would be 760 rem TED. These values exceed DOE's Evaluation Guideline of 25 rem to the public and DOE's limit of 100 rem to the collocated worker [13, 14]. Consequently, TWF may need to implement additional controls to protect workers and the public.

The Area G safety basis models energetic chemical reaction events as a flammable gas deflagration involving combustible materials. Modeling this accident as a deflagration involving combustible materials underestimates the amount of material that may be released during an energetic chemical reaction and is inconsistent with the approach used by other LANL facilities, which store waste containers with similar contents. Use of an effective release fraction equivalent to what is used at PF-4 and CMR would increase the theoretical radiological dose consequences at Area G by more than a factor of 100. Specifically, the dose consequences to the public would increase to 300 rem TED, and the dose consequences to the worker would increase to 760 rem TED. These calculated consequences also exceed DOE's thresholds for identifying safety controls to protect the public and workers [13, 14].

Facility Inventory. The radiological dose consequences to the public, as listed in Table 1, are based on theoretical transuranic waste containers containing 80 PE-Ci of material. The majority of the transuranic waste containers stored at LANL contain significantly smaller quantities of MAR. Accordingly, the staff team reviewed transuranic waste container inventories at LANL facilities to determine how many containers could release sufficient material to result in an estimated dose consequence that challenges the Evaluation Guideline based on an analysis that uses an effective release fraction of 0.07. DOE Standard 3009-2014 defines a challenge to the Evaluation Guideline as "unmitigated off-site doses between 5 rem and 25 rem" and sets these as the criteria between which "SC [safety class] controls should be considered...."

To estimate how many containers present the potential for an elevated release fraction, the Board's staff team evaluated waste drums from waste streams that contain combustible waste, and excluded: containers with cemented waste (regardless of MAR content); containers with remediated and unremediated nitrate salt wastes that have been rendered non-reactive; containers buried underground; waste contained in a pipe overpack container or a standard waste box; and containers that NTP has certified for shipment to WIPP. The basis for these exclusions are: (1) the risk of a cemented drum undergoing an energetic release is sufficiently low, and cemented waste is not readily dispersible; (2) the remediated and unremediated nitrate salt waste containers have been treated with inerting material to render the waste non-reactive, which prevents this type of accident; (3) transuranic waste drums that are buried underground pose a significantly lower risk of airborne release to workers and members of the public; (4) overpacking provides additional protection that could reduce the consequences; and (5) the NTP analysis provides an extra layer of assurance that reduces the likelihood of this event.

Based on these exclusions, the staff team estimates that on the order of 100 transuranic waste containers stored at LANL could release sufficient material to result in a dose consequence estimate that challenges the Evaluation Guideline [13, 14] if an energetic reaction with a release fraction of 0.07 occurred within those drums. The Board's staff team concludes that there is insufficient detail in the safety bases to rule out the possibility of this type of accident, and

additional evaluation may be warranted. Such an evaluation may conclude that these drums are non-reactive and that the existing control set is adequate to protect the public or the worker. Alternatively, LANL may determine that some containers present an elevated risk and implement additional controls.

It is important to note that even drums that do not have the potential to release sufficient material to result in a dose consequence that challenges DOE's Evaluation Guideline need multiple layers of controls to prevent or mitigate a release of radioactive material, consistent with DOE directives. This defense-in-depth concept is described in the *Facility Safety Posture and Control Strategy* section of this report.

Accident Analyses Summary. All transuranic waste generation and storage facilities at LANL should evaluate an energetic chemical reaction event that occurs within a waste container as an evaluation basis accident because of the complex chemical behavior exhibited by some waste (as demonstrated by the INL and WIPP events) and the existence of waste stored at LANL that exhibits reactive or ignitable characteristics.

DOE has not provided updated direction to reflect the consequences from an energetic chemical reaction event. As a result, LANL safety bases do not analyze hazards associated with energetic chemical reactions appropriately or consistently across facilities. PF-4 and CMR use a release fraction value of 0.07, TWF uses a value of 0.002, and Area G uses a value of 0.0054. There is substantial commonality in the waste constituents across all of these facilities; thus the differences in accident types and release fractions are not technically defensible. The appropriate use of elevated release fractions may drive the need for additional safety controls at some of these LANL facilities.

The Board's staff team performed an evaluation of the existing transuranic waste inventory at LANL (excluding containers with low risk of undergoing an energetic chemical reaction) and determined that on the order of 100 containers could release sufficient material to result in a dose consequence that challenges DOE's Evaluation Guideline [13, 14] if an energetic reaction with a release fraction of 0.07 occurred within those drums.

FACILITY SAFETY POSTURE AND CONTROL STRATEGY

Many transuranic waste generation and storage facilities rely on administrative controls as their first line of defense to prevent energetic chemical reactions from occurring within waste containers. These controls typically include waste acceptance criteria or other similar controls that prevent the commingling of specific reactive materials in a waste drum. While these administrative controls are important, their implementation relies on human performance, which adds uncertainty and reduces reliability.

DOE recognizes the importance of not relying on a single control to prevent or mitigate specific accidents and incorporates this “defense-in-depth” concept into its safety directives. As described in DOE Standard 3009-2014, “Defense-in-depth is a fundamental approach to hazard control for nuclear facilities that is based on several layers of protection to prevent the release of radioactive or other hazardous materials to the environment. These protective layers are generally redundant and independent of each other to compensate for unavoidable human and mechanical failures so that no single layer, no matter how robust, is exclusively relied upon.” The standard requires that the “identification of hazard controls shall incorporate a defense-in-depth approach that builds layers of defense against release of radioactive or other hazardous materials so that no layer by itself, no matter how effective, is completely relied upon.”

The radiological releases at WIPP and INL demonstrated the importance of incorporating multiple layers of protection to mitigate the dose consequences from an energetic chemical reaction. WIPP and INL relied on layers of protection, including confinement ventilation, to reduce the radiological dose consequences to workers and the public. Not all facilities in DOE’s nuclear weapons complex have layers of controls to protect against energetic chemical reactions that may occur in waste containers. The Board has previously communicated with DOE regarding the need for improvements to control strategies to protect against this type of event [11, 16, 17].

The safety posture varies among LANL facilities that store transuranic waste. Some LANL facilities have established a robust control set with multiple engineered controls, whereas others rely solely on the waste containers. Table 2 summarizes the most applicable controls available at each facility to detect a release and to mitigate the dose consequences from an energetic chemical reaction event inside a waste container. The staff team notes that in addition to the controls listed in Table 2, LANL facilities overpack some drums and TWF imposes a waste acceptance criteria via a SAC, which would help mitigate or prevent the consequences of an energetic chemical reaction.

Among the controls listed in Table 2, confinement ventilation would provide the most protection for the collocated worker and the public against energetic chemical reaction events. A fire suppression system may provide some protection against fires that could initiate an energetic chemical reaction event or take place after an energetic chemical reaction event occurs. Detection of a release of radioactive material is important to allow for the timely initiation of emergency response. Detection would also help protect workers from inadvertently entering an area where a release occurred, especially in situations where there may not be obvious visual indications of a release. However, detection capabilities, such as continuous air monitors, must

be appropriately sited, may not be effective in all situations, and should not be relied on as a primary control for mitigation. Additional controls such as overpack containers could help reduce the consequences of a release. Lid restraints and blast shields could also be employed to protect the facility worker from the physical impacts of this event.

Table 2. *Controls at LANL Transuranic Waste Storage Facilities*

Control		NA-LA & Triad				EM-LA & N3B
		PF-4		CMR	TWF	Area G
		Outdoor Pads	Inside			
Mitigation	Confinement Ventilation	No	Yes	Yes	No	No
	Fire Suppression	No	Yes	Yes	Yes	Varies*
Detection	Continuous Air Monitoring	No	Yes	Yes	No	No
	Frequency of Contamination Surveys During Storage	None	Monthly	Monthly	Quarterly	Weekly

* Several Area G storage domes have general service fire suppression capabilities.

CMR and Indoor Storage at PF-4—Transuranic waste containers can be stored inside the PF-4 and CMR buildings. These buildings provide a more robust storage area for transuranic waste compared to other facilities at LANL. LANL established many of the engineered controls available at CMR and PF-4 to mitigate the potential consequences due to other hazards. However, these controls are also effective at mitigating the radiological consequences from an energetic chemical reaction event.

Outdoor Storage at PF-4—Transuranic waste can be stored at two outdoor locations in Technical Area 55 outside PF-4: the high-efficiency neutron counter (HENC) pad (Figure 1) and the hazardous waste pad. Each waste pad can store up to 10.26 kg plutonium-239 equivalent waste for an indefinite period of time. As Table 2 and Figure 1 illustrate, the outdoor storage pads at PF-4 do not provide layers of controls to detect or mitigate the dose consequences from a release of radioactive material.



Figure 1. *LANL's HENC Pad Located Outside PF-4*

Transuranic Waste Facility—TWF stores, characterizes, and performs intra-site shipping of newly generated transuranic waste. This facility, which began operations in late 2017, stores waste inside multiple buildings. Each building has a fire suppression system that could help mitigate the dose consequences from an energetic chemical reaction, however the buildings do not have continuous air monitoring or a confinement ventilation system.

Area G—Area G does not have multiple layers of protection to prevent or mitigate a chemical reaction event. Area G stores transuranic waste in domes that typically consist of an aluminum frame with a fabric shell (Figure 2). While several storage domes have general service fire suppression capabilities, the Area G safety basis allows transuranic waste to be stored in domes that lack a fire suppression system. Area G personnel perform weekly radioactive contamination monitoring; however, the storage domes do not have continuous air monitors. Further, Area G personnel recently rolled back the Area G radiological buffer area, and associated radiological work permits no longer require workers to perform a radiological survey prior to exiting Area G.



Figure 2. *Area G Dome 49*

Facility Safety Posture and Control Strategy Summary. Some LANL facilities do not provide multiple layers of protection to prevent or mitigate the consequences of an energetic chemical reaction in a waste container. Given the complex chemical behavior exhibited by some waste (as demonstrated by the INL and WIPP events), additional controls beyond the waste container may be necessary to ensure the protection of workers and the public.

Although preferred, the Board's staff team does not believe that LANL needs to store all transuranic waste containers in facilities with confinement ventilation or fire suppression systems. Rather, LANL could preferentially store higher-risk waste containers (e.g., poorly characterized waste, waste with high quantities of MAR, waste that has not undergone a chemical compatibility evaluation, or waste with incompatible chemical constituents) in locations with more robust control sets. Further, other types of controls, such as overpack containers, lid restraints, blast shields, and detection capabilities could be used to mitigate the consequences of such an event. At a minimum, LANL should evaluate the existing control sets at all transuranic waste storage and generation facilities to determine if the facilities have adequate controls in place to protect workers and the public from energetic chemical reaction events that may occur in transuranic waste containers.

CONCLUSIONS

An energetic chemical reaction event, similar to those that occurred at WIPP and INL, can occur at transuranic waste generation, storage, or processing facilities due to the complex behavior exhibited by waste chemical constituents. Accordingly, each waste generation facility should appropriately analyze such an event in its hazard and accident analyses. From these analyses, the facility can then implement adequate controls, including multiple layers to provide defense-in-depth, to protect workers and the public.

The Board's staff team reviewed the PF-4, CMR, TWF, and Area G safety bases and concluded that the hazard and accident analyses do not appropriately analyze energetic chemical reaction hazards involving transuranic waste. As a result, LANL facilities may not have appropriate controls to protect workers and the public. Further, DOE directives do not provide adequate guidance and requirements for analyzing and controlling energetic chemical reaction events at waste generator sites. DOE should consider addressing this gap as it revises DOE Standard 5506.

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APPENDIX A—Glossary and Additional Information

Deflagration. A type of explosion involving the ignition and combustion of a flammable gas or vapor. Nuclear waste often emits hydrogen, but other gases or vapors can also present a hazard. A deflagration can occur if the flammable gas is present in a sufficient concentration together with sufficient oxygen or other oxidizer and an ignition source. The flame propagates rapidly, but at less than the speed of sound. There are many possible sources of the flammable gas or vapor, such as radiolysis, chemical reactions, microbial activity, evaporation of solvents, and leaks of stored gas.

Energetic chemical reaction. A chemical reaction with the potential to cause adverse effects due to the release of heat or gases. Possible adverse effects include fires in process areas or over-pressurization of waste containers.

Over-pressurization. Any event that causes the pressure inside a waste container to increase to the point that the container fails in some way, leading to a release of radiological material. DOE Standard 5505-2007, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*, states that the “pressure buildup may be due to radiolysis..., thermal expansion of material/gases inside the container, or chemical reactions inside the container.” While a deflagration can also cause the over-pressurization of a container, DOE Standard 5506-2007 treats deflagrations as a distinct type of accident.

APPENDIX B—Radiological Dose Consequences across LANL Facilities

Background and Objective. The safety bases for facilities that store transuranic waste at Los Alamos National Laboratory (LANL) calculate the radiological dose consequences from energetic events involving reactive waste differently. Specifically, the Plutonium Facility (PF-4) and the Chemistry and Metallurgy Research Facility (CMR) model this event as an over-pressurization event, where a container holding dispersible powder (e.g., powders, granules, soil/gravel, or sand-like materials) ruptures at a pressure greater than 25 psig. The Transuranic Waste Facility (TWF) models this event as an over-pressurization where a container holding dispersible powder ruptures at a pressure less than 25 psig. Area G models this event as a flammable gas deflagration involving a drum containing combustible waste. While a deflagration can also cause the over-pressurization of a container, DOE Standard 5506-2007, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities* [B-1], treats deflagrations as a distinct type of accident. The different models result in effective release fractions that vary by more than a factor of 100, which directly affects the radiological dose consequence calculations. This can have a major impact on the resulting control set used to protect workers and the public.

The objectives of this calculation are to: (1) show how different LANL facilities calculate the radiological dose consequences from accidents involving reactive waste, and (2) show how changes in the effective release fraction for reactive waste accidents impact the calculated dose consequences in LANL safety analyses. To illustrate these differences, the Defense Nuclear Facilities Safety Board's (Board) staff team calculated the radiological dose consequences for PF-4, CMR, TWF, and Area G using the same quantity of material-at-risk (MAR). The staff team then calculated what the consequences would be if TWF and Area G used the same effective release fraction as PF-4 and CMR.

The staff team used facility-specific relative airborne concentration values to calculate the radiological dose consequences to the public. This parameter, χ/Q' , represents the dilution of the radioactive plume via dispersion and deposition as it travels from the facility during an accident. The χ/Q' value differs for each facility as it depends on the distance between the release point and the site boundary, and other factors. The staff team used the Department of Energy (DOE) default χ/Q' value to calculate the consequences to the collocated worker. The collocated worker consequences are calculated at 100 m from the release point, regardless of where the facility is located. The staff team selected this value to highlight the impact that the effective release fraction has on the calculated dose consequences without introducing additional variables.

Limitations. The staff team's calculation uses the methodologies and assumptions made in the facility-specific safety bases, except as noted below. In order to compare dose consequences consistently across facilities, the staff team used ground-level release conditions when selecting facility-specific χ/Q' values. The staff team did not evaluate whether the assumptions used to calculate the χ/Q' values were technically justified.

Assumptions and Input Parameters. A list of assumptions and input parameters that the staff team used to support this calculation appear below. This section is split into two parts: (1) Common Parameters across LANL Facilities, and (2) Facility Specific Parameters and Parameters used for Comparison Purposes.

Common Parameters across LANL Facilities.

Material-at-Risk:

80 Plutonium-239 Equivalent Curies (PE-Ci)

Basis: The staff team selected this value because it is the maximum amount of MAR that the Waste Isolation Pilot Plant (WIPP) will accept under its waste acceptance criteria (WAC) for a direct loaded standard 55-gallon drum [B-2]. Note: some LANL facilities have transuranic waste containers with greater quantities of MAR; others have no containers as high as 80 PE-Ci.

Relative Airborne Concentration (χ/Q') [Collocated Worker]:

3.5E-03 s/m³

Basis: DOE uses this default χ/Q' value to calculate the radiological dose consequences to the collocated worker [B-3]. Note: the facility-specific collocated worker χ/Q' value may differ per facility; however, for comparison purposes, the staff team selected the DOE default value.

Leak Path Factor (LPF):

1

Basis: DOE uses this LPF, as documented in DOE Standard 3009-2014 [B-3] and DOE Standard 3009-94 [B-4].

Dose Conversion Factor (DCF):

1.85E+08 rem/PE-Ci [public]

1.18E+08 rem/PE-Ci [collocated worker]

Basis: DOE Standard 3009-2014 states that DCFs (or dose coefficients) published by the International Commission on Radiological Protection (ICRP) “shall be used.” In particular, the standard specifies the use of ICRP Publication 68 for estimates of worker dose [B-5], and Publication 72 for dose to the public [B-6].

ICRP presents different DCF values for different lung clearance types (F, M,

and S). Different chemical forms of the radionuclides are assigned to different types, depending on their behavior inside the body. The choice of clearance type should be consistent with the assumptions for MAR. In this staff calculation, MAR is expressed in terms of PE-Ci, as defined in Appendix B of the WIPP WAC [B-2]. The WAC states that the PE-Ci concept is based on plutonium-239 with “a weekly [W] pulmonary clearance class.” The WAC uses an older system of conversion factors; according to the ICRP [B-5], clearance types F, M, and S correspond “broadly” to the older classes D, W, and Y, respectively. The staff team thus selected dose conversion factors for type M Pu-239.

For the worker, ICRP 68 tabulates factors for different particle sizes: 1 micron and 5 microns, activity mean aerodynamic diameter. ICRP 68 recommends the 5 micron value as a default [B-5]. Accordingly, the staff team selected the 5 micron value as a default.

Based on the discussion above, the staff team selected the following values from the relevant ICRP publications:

- For the public, 5.0E-05 Sieverts (Sv)/Becquerel (Bq).
- For the worker, 3.2E-05 Sv/Bq.

To be consistent with the units used in this calculation, the staff team converted these coefficients to units of rem/curie as follows:

$$\left(5.0\text{E-}05 \frac{\text{Sv}}{\text{Bq}}\right) \times \left(100 \frac{\text{rem}}{\text{Sv}}\right) \times \left(3.7\text{E+}10 \frac{\text{Bq}}{\text{Ci}}\right) = 1.85\text{E+}08 \frac{\text{rem}}{\text{Ci}} \text{ (for public)}$$

$$\left(3.2\text{E-}05 \frac{\text{Sv}}{\text{Bq}}\right) \times \left(100 \frac{\text{rem}}{\text{Sv}}\right) \times \left(3.7\text{E+}10 \frac{\text{Bq}}{\text{Ci}}\right) = 1.18\text{E+}08 \frac{\text{rem}}{\text{Ci}} \text{ (for worker)}$$

Breathing Rate (BR):

$$3.3\text{E-}04 \text{ m}^3/\text{s}$$

Basis: Area G [B-7], TWF [B-8], PF-4 [B-9], and CMR [B-10] safety bases use a breathing rate of 3.3E-04 m³/s. DOE Standard 3009-2014 and DOE Standard 5506-2007 also list this as the default breathing rate.

Facility Specific Parameters and Parameters used for Comparison Purposes.

Area G:

Relative Airborne Concentration (χ/Q') [Public]:

$$8.66\text{E-}04 \text{ s/m}^3$$

Basis: The Area G safety basis uses this value for a release from TA-54-033. The staff team selected the “spill release.” This value corresponds to a release that does not credit plume meander, which is consistent with the release methodology used at other LANL facilities. See page 3-78 of the Area G Basis for Interim Operation [B-7].

Effective Release Fraction – Deflagration [ARF×RF×DR]:

5.4E-04

Basis: DOE Standard 5506, Appendix B, page 51, lists this value as the overall effective release fraction for a flammable gas deflagration event involving a drum containing combustible waste. The effective release fraction is a combination of the airborne release fraction (ARF), the respirable fraction (RF), and the damage ratio (DR). The Area G safety basis also uses this combined value for the deflagration event scenario, see page 3-157 [B-7].

Effective Release Fraction – Pressurized Release >25 psig [ARF×RF×DR]:

7.0E-02

Basis: PF-4 and CMR use this effective release fraction value for accidents involving a drum containing dispersible powder that could undergo a runaway exothermic reaction (the technical basis for this value is defined in the PF-4 and CMR sections below). The staff team used this value with Area G specific parameters for comparison purposes to determine the consequences to workers and the public if a similar accident occurred at Area G.

TWF:

Relative Airborne Concentration (χ/Q') [Public]:

9.59E-05 s/m³

Basis: The TWF safety basis uses this value to determine the potential dose consequences to the public. See page 3-80 [B-8].

Effective Release Fraction – Pressurized Release <25 psig [ARF×RF×DR]:

2.0E-03

Basis: The TWF safety basis states, “For internal pressure mechanisms causing a failure of a container associated with Event 12 [a waste over-pressurization event] from DOE-STD-5506-2007, the ARF × RF value from DOE-HDBK-3010-94 for pressurized releases less than 25 psig is the most appropriate value to use; the ARF value for this event is 5E-03 and the RF is 0.4, for a combined ARF × RF

value of 2E-03.” See page 3-78 [B-8]. This effective release fraction value is for “powders, granules, soil/gravel, or sand-like materials.”

Effective Release Fraction – Pressurized Release >25 psig [ARF_xRF_xDR]:

7.0E-02

Basis: PF-4 and CMR use this effective release fraction value for accidents involving a drum containing dispersible powder that could undergo a runaway exothermic reaction (the technical basis for this value is defined in the PF-4 and CMR sections below). The staff team used this value with TWF specific parameters for comparison purposes to determine what the consequences to workers and the public would be if TWF modeled a similar accident.

PF-4:

Relative Airborne Concentration (χ/Q') [Public]:

7.13E-05 s/m³

Basis: The PF-4 documented safety analysis (DSA) uses this χ/Q' value for ground-level releases, see page 3-127 [B-9]. Note: an elevated release provides a more conservative χ/Q' ; however, for comparison to other facilities, the staff team selected the ground-level release value.

Effective Release Fraction – Pressurized Release >25 psig [ARF_xRF_xDR]:

7.0E-02

Basis: The PF-4 evaluation of the safety of the situation (ESS) [B-11] identifies an ARF_xRF value of 7.0E-02 for a runaway exothermic reaction in a drum. The ESS indicates that DOE Standard 5506 does not list effective release fraction values for this type of event. Instead, the ESS uses an effective release fraction value from related phenomena. Specifically, the ESS uses a value of 0.07, which is based on the pressurized venting of dispersible powders (e.g., soil/gravel, powder, granules) at pressures greater than 25 psig, and is consistent with DOE Handbook 3010 [B-12].

CMR:

Relative Airborne Concentration (χ/Q') [Public]:

1.55E-04 s/m³

Basis: The atmospheric dispersion calculation [B-13] used to support the CMR DSA uses this χ/Q' value for ground-level releases. Note: an elevated release

provides a more conservative χ/Q' ; however, for comparison to other facilities, the staff team selected a ground-level release.

Effective Release Fraction – Pressurized Release >25 psig [ARF \times RF \times DR]:

7.0E-02

Basis: CMR safety basis personnel declared a potential inadequacy of the safety analysis (PISA) [B-14] and developed a subsequent ESS [B-15]. The PISA concluded that the CMR safety basis did not include an evaluation of an autocatalytic chemical reaction in a transuranic waste container and that the consequences from such an event could exceed what was previously analyzed. The ESS indicates that DOE Standard 5506 does not list effective release fraction values for this type of event. Instead, the ESS uses an effective release fraction value from related phenomena. Specifically, the ESS uses a value of 0.07, which is based on the pressurized venting of dispersible powders (e.g., soil/gravel, powder, granules) at pressures greater than 25 psig, and is consistent with DOE Handbook 3010 [B-12].

Analytical Methods and Computations. As described in DOE Standard 3009-14 and in DOE Standard 5506-2007, the radiological dose is calculated as follows:

$$\begin{aligned} \text{Source Term (ST)} &= MAR \times DR \times ARF \times RF \times LPF \\ \text{Dose} &= ST \times \frac{\chi}{Q'} \times DCF \times BR \end{aligned}$$

Area G Deflagration:

$$\begin{aligned} ST &= MAR \times DR \times ARF \times RF \times LPF \\ ST &= (80 \text{ PE-Ci}) \times (1) \times (5.4\text{E-}04) \times (1) \\ &= 4.3\text{E-}02 \text{ PE-Ci} \end{aligned}$$

$$\text{Dose} = ST \times \frac{\chi}{Q'} \times DCF \times BR$$

Public Dose

$$\begin{aligned} &= (4.3\text{E-}02 \text{ PE-Ci}) \times \left(8.66\text{E-}04 \frac{\text{s}}{\text{m}^3}\right) \times \left(1.85\text{E+}08 \frac{\text{rem}}{\text{PE-Ci}}\right) \times \left(3.3\text{E-}04 \frac{\text{m}^3}{\text{s}}\right) \\ &= 2.3 \text{ rem} \end{aligned}$$

Collocated Worker Dose

$$\begin{aligned} &= (4.3\text{E-}02 \text{ PE-Ci}) \times \left(3.5\text{E-}03 \frac{\text{s}}{\text{m}^3}\right) \times \left(1.18\text{E+}08 \frac{\text{rem}}{\text{PE-Ci}}\right) \times \left(3.3\text{E-}04 \frac{\text{m}^3}{\text{s}}\right) \\ &= 5.9 \text{ rem} \end{aligned}$$

Area G Pressurized Release >25 psig:

$$\begin{aligned} ST &= MAR \times DR \times ARF \times RF \times LPF \\ ST &= (80 \text{ PE-Ci}) \times (1) \times (7.0\text{E-}02) \times (1) \\ &= 5.6 \text{ PE-Ci} \end{aligned}$$

$$Dose = ST \times \frac{\chi}{Q'} \times DCF \times BR$$

Public Dose

$$\begin{aligned} &= (5.6 \text{ PE-Ci}) \times \left(8.66\text{E-}04 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.85\text{E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3\text{E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 300 \text{ rem} \end{aligned}$$

Collocated Worker Dose

$$\begin{aligned} &= (5.6 \text{ PE-Ci}) \times \left(3.5\text{E-}03 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.18\text{E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3\text{E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 760 \text{ rem} \end{aligned}$$

TWF Pressurized Release <25 psig:

$$\begin{aligned} ST &= MAR \times DR \times ARF \times RF \times LPF \\ ST &= (80 \text{ PE-Ci}) \times (1) \times 2\text{E-}03 \times (1) \\ &= 1.6\text{E-}01 \text{ PE-Ci} \end{aligned}$$

$$Dose = ST \times \frac{\chi}{Q'} \times DCF \times BR$$

Public Dose

$$\begin{aligned} &= (1.6\text{E-}01 \text{ PE-Ci}) \times \left(9.59\text{E-}05 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.85\text{E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3\text{E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 0.94 \text{ rem} \end{aligned}$$

Collocated Worker Dose

$$\begin{aligned} &= (1.6\text{E-}01 \text{ PE-Ci}) \times \left(3.5\text{E-}03 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.18\text{E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3\text{E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 22 \text{ rem} \end{aligned}$$

TWF Pressurized Release >25 psig:

$$\begin{aligned} ST &= MAR \times DR \times ARF \times RF \times LPF \\ ST &= (80 \text{ PE-Ci}) \times (1) \times (7.0 \text{ E-}02) \times (1) \\ &= 5.6 \text{ PE-Ci} \end{aligned}$$

$$Dose = ST \times \frac{\chi}{Q'} \times DCF \times BR$$

Public Dose

$$\begin{aligned} &= (5.6 \text{ PE-Ci}) \times \left(9.59 \text{ E-}05 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.85 \text{ E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3 \text{ E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 33 \text{ rem} \end{aligned}$$

Collocated Worker Dose

$$\begin{aligned} &= (5.6 \text{ PE-Ci}) \times \left(3.5 \text{ E-}03 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.18 \text{ E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3 \text{ E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 760 \text{ rem} \end{aligned}$$

PF-4 Pressurized Release >25 psig:

$$\begin{aligned} ST &= MAR \times DR \times ARF \times RF \times LPF \\ ST &= (80 \text{ PE-Ci}) \times (1) \times (7.0 \text{ E-}02) \times (1) \\ &= 5.6 \text{ PE-Ci} \end{aligned}$$

$$Dose = ST \times \frac{\chi}{Q'} \times DCF \times BR$$

Public Dose

$$\begin{aligned} &= (5.6 \text{ PE-Ci}) \times \left(7.13 \text{ E-}05 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.85 \text{ E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3 \text{ E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 24 \text{ rem} \end{aligned}$$

Collocated Worker Dose

$$\begin{aligned} &= (5.6 \text{ PE-Ci}) \times \left(3.5 \text{ E-}03 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.18 \text{ E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3 \text{ E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 760 \text{ rem} \end{aligned}$$

CMR Pressurized Release >25 psig:

$$\begin{aligned} ST &= MAR \times DR \times ARF \times RF \times LPF \\ ST &= (80 \text{ PE-Ci}) \times (1) \times (7.0\text{E-}02) \times (1) \\ &= 5.6 \text{ PE-Ci} \end{aligned}$$

$$Dose = ST \times \frac{\chi}{Q'} \times DCF \times BR$$

Public Dose

$$\begin{aligned} &= (5.6 \text{ PE-Ci}) \times \left(1.55\text{E-}04 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.85\text{E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3\text{E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 53 \text{ rem} \end{aligned}$$

Collocated Worker Dose

$$\begin{aligned} &= (5.6 \text{ PE-Ci}) \times \left(3.5\text{E-}03 \frac{\text{s}}{\text{m}^3} \right) \times \left(1.18\text{E+}08 \frac{\text{rem}}{\text{PE-Ci}} \right) \times \left(3.3\text{E-}04 \frac{\text{m}^3}{\text{s}} \right) \\ &= 760 \text{ rem} \end{aligned}$$

Results and Conclusions. Table B-1 illustrates that LANL facilities calculate the consequences from energetic chemical reactions differently from each other. Specifically, PF-4 and CMR model this event as an over-pressurization in which a container holding dispersible powder (e.g., powders, granules, soil/gravel, or sand-like materials) ruptures at a pressure greater than 25 psig. TWF models this event as an over-pressurization in which a container holding dispersible powder ruptures at a pressure less than 25 psig. Area G models this event as a flammable gas deflagration involving a drum containing combustible waste. If Area G and TWF modeled this type of event consistently with PF-4 and CMR, the calculated radiological dose consequences could exceed the evaluation guideline of 25 rem to the public and the DOE limit of 100 rem to the collocated worker. As a result, these facilities may require additional controls to protect workers and the public. Note: The staff team did not evaluate whether the assumptions used to calculate the facility-specific or DOE-default χ/Q' values, which are used in the final dose consequence calculation, were technically justified.

Table B-1. *Postulated Unmitigated Dose Consequences for an 80 PE-Ci Container*

Responsible Organizations	NA-LA & Triad		EM-LA & N3B
Facility	PF-4 & CMR	TWF	Area G
Accident Mechanism*	Over-pressurization > 25 psig	Over-pressurization < 25 psig	Flammable gas deflagration
Assumed Material Type*	Dispersible Powders	Dispersible Powders	Combustible Materials
Release Fraction*	.07	0.002	0.00054
Collocated Worker Dose (rem TED [†]) [Using Release Fraction from Safety Basis]	760	22	5.9
Collocated Worker Dose (rem TED) [Using Release Fraction = 0.07]	Same as above [‡]	760	760
Public Dose (rem TED) [Using Release Fraction from Safety Basis]	PF-4: 24 CMR: 53	0.94	2.3
Public Dose (rem TED) [Using Release Fraction = 0.07]	Same as above [‡]	33	300

* As assumed in facility safety bases.

[†] Total effective dose.

[‡] PF-4 and CMR already use an effective release fraction of 0.07 in their safety bases.

Appendix B References

- [B-1] Department of Energy, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*, DOE-STD-5506-2007, April 2007.
- [B-2] Department of Energy, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, Revision 9, October 18, 2018.
- [B-3] Department of Energy, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*, DOE-STD-3009-2014, November 2014.
- [B-4] Department of Energy, *Preparation Guide for U. S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*, DOE-STD-3009-94, Change Notice 3, March 2006.
- [B-5] International Commission on Radiological Protection, *Dose Coefficients for Intakes of Radionuclides by Workers*, ICRP Publication 68, 1994.
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- [B-8] Los Alamos National Laboratory, *Transuranic Waste Facility (TWF) Documented Safety Analysis*, DSA-TWF-001-R2.3, October 30, 2018.
- [B-9] Los Alamos National Laboratory, *TA-55 Documented Safety Analysis*, TA55-DSA-2018-R0, August 6, 2018.
- [B-10] Los Alamos National Laboratory, *Chemistry and Metallurgy Research Facility Documented Safety Analysis*, CMR-DSA-001-R9, January 7, 2020.
- [B-11] Los Alamos National Laboratory, *Evaluation of the Safety of the Situation TA-55 Nitric Acid and Polysaccharide Interaction*, ESS-TA55-130-R1, October 4, 2019.
- [B-12] Department of Energy, *Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities*, DOE-HDBK-3010-94, Change Notice 1, Washington DC, March 2000, Reaffirmed 2013.
- [B-13] Los Alamos National Laboratory, *Chemistry and Metallurgy Research (CMR) Building Atmospheric Dispersion Parameter – 2012, 2014, 2015, 2017, 2018 CY Meteorological Data*, SBD-CALC-CMR-133, November 2019.

[B-14] Los Alamos National Laboratory, *CMR Nitric Acid and Polyol Interaction: Further Information Bounding Respirable Release Parameter*, NI-CMR-3103, December 13, 2019.

[B-15] Los Alamos National Laboratory, *Evaluation of the Safety of the Situation CMR Nitric Acid and Polysaccharide Interaction*, ESS-CMR-136, January 23, 2020.