Blue Ridge Environmental Defense League

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May 18, 2020

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RE: DOE/EIS-0541: Draft EIS for Plutonium Pit Production at Savannah River Site
85 FR 18947

Dear Ms. Nelson:

On behalf of the Blue Ridge Environmental Defense League and its members in South Carolina and Georgia, I submit the following comments. These written remarks will supplement those made orally at the virtual public hearing held on April 30, 2020. For the reasons detailed below, we advocate the No Action Alternative.

Overview

Pursuant to the National Nuclear Security Administration's Notice of Intent signed on May 31, 2019 and noticed in the Federal Register published on April 3, 2020 (85 FRN 18947), the US Department of Energy National Nuclear Security Administration has prepared a draft environmental impact statement (EIS) that evaluates the potential environmental impacts of "producing a minimum of 50 war reserve pits per year at SRS and developing the ability to implement a short-term surge capacity to enable NNSA to meet the requirements of producing pits at a rate of not less than 80 war reserve pits per year beginning during 2030 for the nuclear weapons stockpile." The April 3rd notice references the 2018 Nuclear Posture Review which states that the United States would pursue initiatives to "ensure the necessary capability, capacity, and responsiveness of the nuclear weapons infrastructure…including providing the enduring capability and capacity to produce no fewer than 80 plutonium pits per year by 2030."

Comments

The Manufacture of New Atomic Weapons is Illegal and Counterproductive

International treaty obligations and U.S. law prohibit further development of atomic weapons. The Nuclear Non-proliferation Treaty (NPT) compels the United States to end nuclear weapons development. The preamble to the treaty is unequivocal in its purpose:

> Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear disarmament…to seek to achieve the discontinuance of all test

> explosions of nuclear weapons…the establishment and maintenance of international peace and security are to be promoted with the least diversion for armaments of the world's human and economic resources.

The Nuclear Non-proliferation Treaty specifically requires that:

> Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.[1]

Plutonium pit production would take us in the opposite direction, making good faith negotiations impossible. In 2006 the Defense Science Board issued a report which sought to justify an expanded nuclear weapons production complex:

> Nuclear capabilities remain an essential element of U.S. national security strategy and defense posture. The knowledge needed to create the power and destructive potential of nuclear weapons is widespread and is a continuing fact of life. Global abolition of these capabilities is a naïve hope. Consequently, the effective implementation of U.S. national security strategy in the 21st century requires nuclear capabilities adequate to the task of continuing deterrence in a dynamic world where the emergence of new and diverse threats makes the deterrence task more complex and less certain.[2]

In the 2018 Nuclear Posture Review, the policy argument turns up again, this time with a commitment to reignite the Cold War:

> We must look reality in the eye and see the world as it is, not as we wish it to be…. To this end, this review confirms the findings of previous NPRs that the nuclear triad…is the most cost-effective and strategically sound means of ensuring nuclear deterrence….To remain effective, however, we must recapitalize our Cold War legacy nuclear forces.[3]

The NPT does not seek to abolish "knowledge needed to create the power and destructive potential of nuclear weapons," and world leaders are no more naïve today than they were in 1969. Moreover, a posture review does not alter the facts or supersede the law. The 180 nations who have signed the treaty understand it and are watching what we do. Perilous and uncertain times call for leadership, not an arms race. The United States of America cannot hold the high moral standard in one hand while keeping the other hand behind its back with fingers crossed.

[1] Article VI, Treaty on the Non-Proliferation of Nuclear Weapons
[2] Report of the Defense Science Board Task Force on Nuclear Capabilities Report Summary, Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics, Washington, DC, December 2006
[3] 2018 Nuclear Posture Review, Secretary's Preface, page II

There is No Demonstrated Need for New Nuclear Weapons

The NNSA's plutonium warhead project was labeled a national security imperative in the 2018 Nuclear Posture Review, issued by the Secretary of Defense. The Review attempts to justify a renewed nuclear weapons arsenal based on the perception of threats presented by Russia, China and North Korea. [4] The facts, however, indicate that the Review is a back-engineered exercise in mendacity. The information in Table A reveals that in annual spending, military aircraft and naval carriers the United States is far and away the leading military power in the world. In other important areas—in nuclear warheads compared to Russia, in submarines compared to China—we are close to parity, or far ahead.

Table A. Military Comparisons of USA, Russia and China

	United States	Russia	China
Annual Military Budget (dollars)	$610 billion	$66 billion	$228 billion
Gross Domestic Product (GDP)	$19,667 billion	$1,541 billion	$12,000 billion
Mil. Budget as percent of GDP	3.1%	4.3%	1.9%
Nuclear Weapons (warheads)	7200	7500	260
Total aircraft	12,304	4,441	4,182
Total Naval Vessels	437	314	780
Aircraft Carriers	20	1	2
Submarines	71	59	76
Land Forces (tanks)	6,393	20,050	7,760
Active Personnel	1,281,900	771,000	2,300,000

These data from wikipedia.org, cia.gov, icanw.org, government websites and press releases, accessed 7/14/2019 at https://armedforces.eu/USA

The Nuclear Posture Review states that after the Cold War, "Russia initially followed America's lead and made similarly sharp reductions in its strategic nuclear forces." [5] This, at least, is true. Moreover, it points the way as to how responsible leadership exercised in concert with other nations can reduce the need for armaments.

The Nuclear Posture Review is a Fig Leaf

The NNSA National Nuclear Security Administration has been given a dangerous new mission based not on need but on hubris.

> "Let it be an arms race," the president in waiting was reported to have told Mika Brzezinski, co-host of MSNBC's Morning Joe programme, in an early phone call on Friday. According to Brzezinski he went on to say: "We will outmatch them at every pass and outlast them all." The incendiary comment followed a tweet on Thursday in which Trump threatened to preside over a major ramping

[4] Office of the Secretary of Defense Jim Mattis, Nuclear Posture Review, February 2018, available at: https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF

[5] 2018 Nuclear Posture Review, Secretary's Preface, page I

> up of the US nuclear arsenal. "The United States must greatly strengthen and expand its nuclear capability until such time as the world comes to its senses regarding nukes," he wrote. The volley of remarks had Trump aides scrambling into damage limitation mode, but their efforts were powerless to neutralise the shock waves of alarm and bewilderment provoked by the president-elect's remarks. They appeared to fly in the face of 35 years of bipartisan US policy geared towards reducing the number of nuclear weapons around the world. Nuclear arms specialists were quick to cry foul. "It is irresponsible and reckless for the president elect to be articulating future US nuclear policy in a tweet and on a morning news show," said Daryl Kimball, executive director of the independent Arms Control Association.[6]

One month after this statement, on January 27, 2017, the President directed the Department of Defense to conduct a Nuclear Posture Review. The 2018 NPR parroted the president, calling for a new arms race with the manufacture of no fewer than 80 plutonium warhead pits per year by 2030 at SRS. The basis for the Review is suspect because it was prompted by a decision made in the first few days of the new Administration, not on new information.

Half-century of Radioactive Contamination at SRS Has Not Been Properly Assessed

The Center for Biological Monitoring compiles information about source points of anthropogenic radioactivity. It found:

> The report, *Plutonium: The First Fifty Years*,[7] focuses on the U.S. Government production, acquisition, and utilization of plutonium during the past fifty years and the Nuclear Materials Management and Safeguards System (NMMSS) which is used to track and account for this plutonium. Information in the NMMSS has changed over the years reflecting improved measurement technologies and increased accounting requirements. This appendix addresses the plutonium in waste that the Department manages. Plutonium in waste is not included in the DOE/DoD 99.5 MT plutonium inventory as presented earlier in this report. In addition, this appendix explains the differences between quantities of plutonium in "normal operating losses" and the "waste" accounts within the NMMSS. It also presents how data from the NMMSS compare to other Departmental materials inventory systems that track plutonium in waste.
>
> Section 10.3 of this report identifies the amount of plutonium in a NMMSS category referred to as "normal operating losses" (NOL). Plutonium that is technically or economically unrecoverable and intentionally sent to waste is referred to as NOL and removed from the DOE/DoD plutonium inventory. The

[6] "'Let it be an arms race' Donald Trump appears to double down on nuclear expansion." *The Guardian,* published December 24, 2016 and accessed 7/23/2019 at https://www.theguardian.com/us-news/2016/dec/23/donald-trump-nuclear-weapons-arms-race

[7] *Plutonium: The First 50 Years* is posted at Federation of American Scientists website at https://fas.org/sgp/othergov/doe/pu50ye.html

> DOE/DoD plutonium inventory requires strict safeguards and security. The plutonium in waste is not subject to the same degree of rigorous safeguards and security as the DOE/DoD plutonium inventory….Because the NMMSS was originally designed for nuclear materials safeguards purposes, there was no need to reconcile the NOL quantities with the later quantities recorded in the NMMSS waste accounts for materials management purposes. The 0.5 MT difference in NMMSS between the NOL estimate of 3.4 MT and the 3.9 MT "waste" estimate is attributable to two primary causes.

Military weapons production produced 111 metric tons of ^{239}Pu between 1944 and 1994. Omitted from the above DOE/DOD analysis was a complete inventory of various isotopes of plutonium and their disposition. Further, RADNET Reports:[8]

> Additional hints about the widespread, uncontained disposal of radioactive wastes of every type and description can be gleaned from many of the U.S. military source point citations; the question now is what is the location and what are the quantities of other isotopes characterizing reprocessed spent fuel including ^{238}Pu, ^{241}Pu and ^{242}Pu which have been produced as waste during the production of more than 30,000 nuclear weapons? When will the Department of Energy reconcile the ORNL Integrated Database (IDB) with the report Plutonium: The First 50 Years issued in February of this year? The necessity for this reconciliation is noted at the end of the report on page 79: "The Department has formed a working group to analyze NMMSS, IDB, and other Departmental tracking systems and to make recommendations on the appropriateness of integrating the various inventory systems or developing a new tracking system for all forms of plutonium."

The damage done by the Cold War has a long half-life, a toxic legacy which should not be visited on future generations living in the Central Savannah River Area.

Atomic Weapons Testing Would Go Hand-in-hand with New Warheads

The 2018 Nuclear Posture Review poses the conditions for future atomic weapons testing: "The United States will not resume nuclear explosive testing unless necessary to ensure the safety and effectiveness of the U.S. nuclear arsenal…."[9] [emphasis added]

NNSA omitted this in the draft EIS.

Radioactive and Toxic Emissions: Air and Water

A category of large volume air pollutants listed in the federal Clean Air Act as "criteria pollutants" are typically emitted by the burning of fossil fuels: coal, oil and gas. The

[8] "RADNET: Information about source points of anthropogenic radioactivity," published by Center for Biological Monitoring, Hulls Cove, ME. Accessed 7/20/2019 at http://www.davistownmuseum.org/cbm/Rad8b.html#THE PLUTONIUM ENIGMA
[9] 2018 Nuclear Posture Review, Executive Summary, page XVII

following table lists criteria pollutants emitted annually from SRS as reported by the Westinghouse Savannah River Company:

Table B. SRS Criteria Air Pollutant Annual Emissions (pounds)[10]

Air Pollutant	2002	2003	2004
Sulfur dioxide	1,116,000	1,072,000	4,300,000
Total suspended particulates	430,000	604,000	964,000
PM10	197,200	236,000	378,000
Carbon monoxide	2,440,000	4,580,000	1,964,000
Volatile organic compounds	159,800	186,600	1,088,000
Nitrogen dioxide	612,000	532,000	8,480,000
Lead	694	1,116	316
Hydrogen fluoride	252	228	278

There is a large amount of air pollution which has had negative effects on air quality and public health in the region.

Table C. SRS Annual Emissions of TCE and other Toxic Air Pollutants (Pounds)[11]

Pollutant	2002	2003	2004
Acetaldehyde	538	268	10,580
Benzene	9,720	1,798	5,980
1,3 Butadiene	149	74	3,000
Carbon disulfide	3	9	328
Carbon tetrachloride	14	144	12,320
Chloroform	5,040	23,000	3,080
Chromium	<1	<1	3,700
Formaldehyde	1,336	742	24,400
Hexane	1,494	1,502	4,840
Hydrochloric acid	568	442	3,340
Hydrogen sulfide	12,100	12,420	n/d
Methanol	1,766	2,120	1,974
Methylene chloride	1,800	1,790	109,600
Nickel	132	137	2,560
Nitric acid	14,100	12,100	39,400
Ozone	n/d	n/d	10,160
Phosphoric acid	199	7,420	61
Sodium hydroxide	2,540	2,540	2,860
Styrene	5	4	4
Tetrachloroethylene	31,400	21,200	1,110,000
Toluene	8,420	8,260	15,780
1,1,1 Trichloroethane	22,000	19,300	9,880
Trichloroethylene (TCE)	11,840	9,300	312,000
Xylene	6,220	5,860	5,480

(n/d = no data)

Between 2000 and 2002, the Georgia Environmental Protection Department found radioactive tritium, hydrogen-3, many times above background levels within a 400 square mile area around the SRS reservation. The agency concluded that most of this pollution

[10] *Sow the Wind–Toxic Air Pollution from the Savannah River Site*, Table 7, available at http://www.bredl.org/pdf2/SOW_THE_WIND_2008.pdf
[11] *Id.*, Table 6

was the result of airborne radionuclides. For example, milk had up to 3 times the tritium expected; air, soil and water pollution was detected up to 5 times above background level; and vegetation was found to contain as much as 13 times the background level.[12]

Emissions of radionuclides include primarily H-3, C-14, K-85, and I-129/131/133. Additional radionuclide particulate emissions include Cs-137, Sr-89/90, Pu-241, and Tc-99. Hydrogen-3 (tritium) is typically the major radionuclide quantity emitted and is also considered to have the principal impact on human health.[13]

The SRS Legacy of Illness and Death

In 2012, a research report authored by Joseph J. Mangano, MPH MBA,[14] found major air pollution sources presented a threat to human health both onsite and offsite. The three main findings were that during the ATSDR's PHA "current exposures" period: radioactivity increased, radiosensitive disease rates increased and excess deaths occurred. According to Mangano's assessment:[15]

1. From the late 1990s to the 2000s (when EM activities reached full capacity), emissions and environmental concentrations of radioactivity in or near SRS increased for 71% (45 of 63 types) of measures with complete data. With nuclear weapons manufacturing at an end and environmental remediation attempting to reduce radioactivity, this finding differs from the expectation that levels would steadily decrease over time.
2. In the five counties within 25 miles of SRS, with a current population of 417,000, rate increases in 96% (46 of 48) of radiosensitive diseases or causes of death exceeded that of the U.S. In 20, the increase was statistically significant. The categories included were those affecting the fetus (infant deaths, fetal deaths, low weight births); cancer among children and the very elderly; radiosensitive cancers (thyroid, female breast, and leukemia); and those conditions in which previous articles had detected a risk among SRS workers (leukemia, lymphoma, lung cancer, myeloma, and non-cancerous lung diseases).
3. Approximately 2,000 "excess" deaths and cases of disease occurred in the five counties during the latest nine-year period.

The amount of airborne and radioactive pollution from SRS is massive. It is greater than the liquid releases to streams and groundwater by at least an order of magnitude. The relative impact of air pollution on surrounding communities is less well understood than

[12] Georgia Environmental Radiation Surveillance Report 2000 – 2002, Section D, available at: http://www.gaepd.org/Documents/radrpt2002.html
[13] Westinghouse Savannah River Co., Environmental Reports for 2001 and 2005, WSRC-TR-2001-00474, WSRC-TR-2006-00007
[14] Mangano is the Executive Director of the Radiation and Public Health Project and has published numerous professional articles and books, including *Low Level Radiation and Immune System Disorders: An Atomic Era Legacy*, which examined the connection between radiation exposure and current widespread health problems.
[15] "Assessing Changes in Environmental Radioactivity and Health Near the Savannah River Site," Mangano, JJ, 2/22/12, available at http://www.bredl.org/pdf3/FINAL_CIF_Report.pdf

water pollution impacts because actual studies of air contaminants are relatively few in number.

Conclusion

Pursuant to the National Environmental Policy Act—Section 102 42 U.S.C. 4332—DOE/NNSA must take a systematic, interdisciplinary approach to environmental impact on the human environment. The draft EIS posits two alternatives: 1) Proposed Action to repurpose the mixed oxide fuel fabrication facility into the Savannah River Plutonium Processing Facility to produce a minimum of 50 pits per year; and 2) No Action Alternative. Alternative number two is the only acceptable option. The April 3rd Federal Register states: "Plutonium pits are critical components of every nuclear weapon, with nearly all current stockpile pits having been produced from 1978-1989. Today, the United States' capability to produce plutonium pits is limited." Good. This condition is in accord with the Nuclear Non-proliferation Treaty. It is a logical, humane end of the 20th Century's nuclear arms race.

There is an imperative preventing new warhead production: the specter of environmental injustice overshadows SRS. This injustice extends broadly to commercial nuclear plants, uranium mines, fuel enrichment and fabrication plants, waste sites and renascent nuclear weapons production. This injustice affects families living near radioactive facilities. Recent studies indicate that there is nuclear related environmental injustice, particularly in the southeastern United States. Is this ongoing inequality deliberate? Or have the habits and patterns of the past become so much a part of the landscape that the fiction of a colorblind society can be maintained even while injustice persists? Government officials must take steps to eliminate this toxic legacy before further contamination occurs and public health is damaged.

Respectfully submitted,

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