Ms. Casey Deering, Director
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Office of Defense Programs
National Nuclear Security Administration
Via email only to casey.deering@nnsa.doe.gov

Mr. John Weckerle
U.S. Department of Energy
NEPA Compliance Officer,
National Nuclear Security
Administration, Office of General Counsel
Via email only to john.weckerle@nnsa.doe.gov

RE: Objections to Amended Record of Decision for the Installation and Operation of
Depleted Uranium Hexafluoride Conversion Facility at Portsmouth, Ohio Site, and
Petition for Supplemental Final Environmental Impact Statement

Dear Ms. Deering and Mr. Weckerle:

Veterans For Peace, Beyond Nuclear, Sierra Club Nuclear Free Committee, Nuclear
Information Resource Service, Sierra Club Nuclear Free Campaign, Alaska's Big Village
Network, Citizens for Alternatives to Chemical Contamination, Citizens’ Environmental
Coalition, Citizens' Resistance at Fermi 2, Coalition for a Nuclear Free Great Lakes, Council on
Intelligent Energy & Conservation Policy, Don't Waste Michigan, Ecological Options Network,
Erwin Citizens Awareness Network, Inc., Friends of Bruce, Hudson River Sloop Clearwater,
Inc., Indian Point Safe Energy Coalition, Full Circle EcoHouse of Prayer, Great Lakes
Environmental Alliance, Lone Tree Council, Mid-Missouri Peaceworks, Nuclear Age Peace
Foundation, Nuclear Energy Information Service, Nuclear Issues Study Group, The Nuclear
Resister, Nuclear Watch South, Nukewatch, Oak Ridge Environmental Peace Alliance,
Physicians for Social Responsibility- Los Angeles, Portsmouth-Piketon Residents for
Environmental Safety and Security/National Nuclear Workers for Justice, San Clemente Green,
Stop the Algonquin Pipeline Expansion, Sustainable Energy and Economic Development
Coalition, Tri-Valley Communities Against a Radioactive Environment, and Uranium Watch
hereby demand that the U.S. Department of Energy, National Nuclear Security Administration
(“DOE/NNSA”) immediately suspend plans to produce depleted uranium (“DU”) as a
commodity for use in machine gun ammunition, tank artillery shells, bunker-buster bomb
components and armor for military vehicles, and further, that DOE/NNSA formally supplement
the “Final Environmental Impact Statement for Construction and Operation of a Depleted
Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site” (“FEIS”)
(DOE/EIS–0360) and consider permanent abandonment of all military applications of DU.
I. BACKGROUND

In the January 23, 2020 Federal Register (85 FR 3903), DOE/NNSA published an “Amended Record of Decision for the Installation and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site” (“Amended ROD”). By the Amended ROD, the agency announced that it was altering the July 27, 2004, ROD (announced in 69 FR 44649). In the 2004 FEIS, DOE/NNSA analyzed the potential environmental impacts from the construction, operation, maintenance, and decontamination and decommissioning of the proposed depleted uranium hexafluoride (DUF₆) conversion facility at three alternative locations within the Portsmouth site, and selected Alternative Location A to construct and operate three process lines. The Amended ROD is supposed to manifest DOE/NNSA’s decision to add a fourth processing line, but it approves a process product neither mentioned nor analyzed in the 2004 FEIS. This fourth line “is in response to the government’s need to meet high purity depleted uranium (HPDU) demand to execute DOE/NNSA mission requirements.”1 Further, “[t]he process will be altered slightly to produce DUF₄ that will be provided to a commercial vendor for additional processing.”2 The decision to again produce Depleted Uranium (“DU”) specifically for weapons and armoring of military assault vehicles is highly controversial because of its implications for environmental sustainability, public and troop health, and international law.

II. BACKGROUND OF THE AMENDED ROD

The Portsmouth conversion facility historically was developed “. . . to process the DUF₆ stored in cylinders into a more stable chemical form (UOₓ),”3 which is echoed in the abstract to the FEIS. However, the Amended ROD involves a different process product and justification from that stated in the FEIS: a fourth line will produce DUF₄, which ostensibly “. . . supports DOE’s continuing need to convert its inventory of DUF₆ to a more stable chemical form. . . .”4 But the anticipated DUF₄ would be no more stable, chemically, than DUF₆;5 this supposed justification has no scientific basis and is merely an unsupported comment within a public notice. It contradicts the FEIS without providing any justification.

In reality, ROD amendment will allow “the production of DUF₄ that can be provided to a commercial vendor for later conversion into metallic depleted uranium for government use.”6 This opaquey-worded Amended Record of Decision effectively relaunches Federal Government production of Depleted Uranium as a commodity for use in machine-gun ammunition, for

185 FR 3904.
2Id.
3Id.
485 FR 3905.
685 FR 3905.
hardening nuclear and/or conventional “bunker buster” bombs\(^7\) to be used in Iran and elsewhere in U.S. wars, and for armoring tanks and other U.S. combat assault vehicles.

This quiet resumption of DU production for American military purposes poses grave environmental, foreign policy and public health portents. Consequently, the ROD cannot be treated as an unquestionable bureaucratic fiat. DOE/NNSA pledged in 2004 in the Request for Proposals for the 2004 EIS “that if the selected conversion technology would generate a previously unconsidered product (e.g., depleted uranium tetrafluoride [UF\(_4\)], \( \text{DOE would review the potential environmental impacts as part of the site-specific NEPA review.} \)\(^8\) DOE/NNSA itself promised serious NEPA scrutiny would precede any ROD amendment.

Furthermore, the ROD for the 2004 FEIS is already undergoing amendment by DOE/NNSA right now in a separate Supplemental EIS proceeding. In 2018, DOE/NNSA circulated a “Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE’s Inventory of Depleted Uranium Hexafluoride”\(^9\) (“Draft SEIS”). That proceeding remains open and undecided and addresses a related aspect of the proposed Amended ROD. The 2018 SEIS proceeding states as its purpose:

. . . to identify and analyze alternatives for the disposition of DU oxide. \( \text{If a beneficial use cannot be found for the DU oxide, all or a portion of the inventory may need to be disposed of.} \) The proposed scope of this DU Oxide SEIS includes an analysis of the potential impacts from three Action Alternatives and a No Action Alternative (in accordance with 40 CFR § 1502.14). Under the Action Alternatives, DU oxide would be disposed of at one or more of the three disposal facilities: (1) the EnergySolutions LLC site near Clive, Utah; (2) the Nevada National Security Site (NNSS) in Nye County, Nevada; and (3) the Waste Control Specialists, LLC (WCS) site near Andrews, Texas. Under the No Action Alternative, transportation and disposal would not occur, and DU oxide containers would remain in storage at Paducah and Portsmouth. All other aspects of the DUF\(_6\) conversion activities remain as described previously in the 2004 EISs and RODs and are not within the scope of this DU Oxide SEIS.\(^{10}\)

\(^7\)Yeung Sik Yuen, Y.K.J. “Human rights and weapons of mass destruction, or with indiscriminate effect, or of a nature to cause superfluous injury or unnecessary suffering,” United Nations Economic and Social Council, E/CN.4/Sub.2/2002/38, p. 22 ¶ 73 (27 June 2002), https://digitallibrary.un.org纪录/468757/files/E_CN.4_Sub.2_2002_38-EN.pdf (“The B61-11 is reported to have a specially hardened nose of depleted uranium. The new case design allows soil penetration of some 25 feet upon which the nuclear bomb would detonate. The Pentagon now wants a bomb four times heavier than the actual 1,200-lb B61-11 for deeper penetration.”).


Despite the fact of this open, ongoing SEIS proceeding, DOE/NNSA curiously did not mention its existence in the January 23, 2020 FR notice. Yet DOE/NNSA states in the January notice, “The resulting product, DUF₄, will be provided to a commercial vendor for additional processing. This operation avoids having to provide for subsequent disposition of the UOₓ and provides a strategic commodity that can be used in NNSA programs.”¹¹ (Emphasis added). DOE/NNSA is misleading the public by once again repurposing DU from nuclear waste into beneficial use as ordnance, with little fanfare at all. There is a major cost difference between disposing of DU as low-level radioactive waste at a cost of hundreds of millions of dollars at one of the three nuclear waste facilities studied in the SEIS, versus commodifying DU for sale or donation to munitions makers and armormers.

The public interest in having the benefit of critical information disclosures and investigation required by NEPA is repudiated by the proposed Amended ROD. A process that conceals the identification and discussion of environmental, public health and foreign policy effects to facilitate the continued production of DU as a controversial “strategic commodity” violates NEPA.

III. MULTIPLE ENVIRONMENTAL IMPACTS MUST BE INVESTIGATED AND DISCLOSED IN A SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Multiple environmental impacts must be investigated, disclosed and considered pursuant to the National Environmental Policy Act prior to deciding whether or not to amend the ROD. Important but as yet unconsidered areas of environmental impacts are discussed below.

A. DU’s Use In Munitions Causes Significant Environmental Impacts

DOE/NNSA admits, using coded language, that it will construct the fourth, DUF₄, process line as a new manufacturing source of DU for military applications. The military intent is evident from DOE/NNSA’s “strategic commodity” reference as well as the aim of producing “DUF₄ that can be provided to a commercial vendor for later conversion into metallic depleted uranium for government use.”¹²

Three main reasons DU is used in munitions are:

- DU exists in large quantities (700,000 metric tons in the U.S.) and is an inevitable and voluminous byproduct of enriching uranium for weapons and electric power;
- Its use in munitions relieves the Federal Government of its fiscal and legal responsibility to properly store DU; and
- Its extreme density (1.7 times that of lead), pyrophoricity (burns when it fragments), and resistance to deformation (when alloyed with a small amount of titanium) enable it to effectively penetrate tank armor and, less-armored vehicles and building structures.

¹¹85 FR 3905.
¹²85 FR 3905.
ammunition is shot from large caliber tank guns and small caliber machine guns mounted on aircraft, tanks, and fighting vehicles.

The impact of DU ammunition against a hard target, especially at the point of penetration of armor, creates a fire and fine DU dust that contaminates the impact site, causing unknown amounts of DU dust to drift downwind. U.S. test data demonstrates that, normally, about 20 percent of a DU penetrator is aerosolized on impact with a tank.\textsuperscript{13} The impact of one 120 mm DU tank round can typically create approximately 950 g of DU dust.\textsuperscript{14} From a single burst of 30 mm DU-tipped ammunition by an A-10 “Warthog” assault plane, between five and 16 DU bullets will likely hit the target, creating 300 to 960 g of aerosol.\textsuperscript{15} The potential for airborne DU to travel is likely underestimated. DU aerosol particles were discovered in 1979 by workers at the Knolls Atomic Laboratory north of Albany, New York, who found DU contaminants on their own air filters 42 km from a factory (that of the National Lead Industries (NL)) which was reported to have been manufacturing DU ordnance and counterweights.\textsuperscript{16}

Although prolonged external exposure to DU metal can be hazardous, DU also has great potential to cause health effects when it enters the body by such exposure routes as:

- Injection of fragments through wounds;
- Inhalation of DU dust;
- Ingestion of DU directly or in contaminated food, soil and water;
- Wound contamination by DU dust; and
- Dermal absorption through external exposure to DU metal.

According to the U.S. Army Environmental Policy Institute:

\textsuperscript{13}U.S. Army testing found normally 10-35\% (but up to 70\%) of the round oxidizes into dust upon impact with a hard target. Twenty percent is commonly used to determine the amounts of dust created by an impact. The Office of the Special Assistant to the Deputy Secretary of Defense for Gulf War Illnesses, Depleted Uranium in the Gulf (II) (Washington, DC, 2000) 203.

\textsuperscript{14}The 120 mm M829A2 tank round contains a DU penetrator weighing 4.74 kg. Bernard Rostker, letter to Dan Fahey, Technical Response to FOIA Case Number 97-F-1524, Question Eleven, 11 February 1998.

\textsuperscript{15}United Nations Environment Programme/United Nations Centre for Human Settlements (Habitat), Balkans Task Force, Depleted Uranium in Kosovo, Post-Conflict Environmental Assessment, (Geneva, March 2001) 10. A typical combat load for an A-10 is 1,100 rounds of 30 mm ammunition mixed at a ratio of 5 depleted uranium rounds to one high explosive round. The Office of the Special Assistant to the Deputy Secretary of Defense for Gulf War Illnesses, Depleted Uranium in the Gulf (II) (Washington, DC, 2000), 104.


\textsuperscript{17}World Health Organization, “Depleted Uranium: Sources, Exposure and Health Effects” (Geneva, 2001) at 84.
If DU enters the body, it has the potential to generate significant medical consequences. The risks associated with DU in the body are both chemical and radiological. Small particles generated in fires or during the impact of penetrators on armor may enter the body by inhalation, ingestion (for example, by ingesting contaminated food or water), and by deposition in open wounds. During combat, soldiers may be wounded by metal fragments that contain DU. The solubility of the DU-containing material in bodily fluids is the primary determinate of the rate at which the uranium moves from the site of internalization [lung for inhalation, gastrointestinal (GI) tract for ingestion, or the injury site for wound contamination and injection], into the bloodstream and then to the organs. In most instances solubility also determines how quickly the body eliminates uranium in urine or feces.18

Complicating the picture is the quandary of “clean” and “dirty”19 DU. It was widely believed that the DU in U.S. munitions in the Balkans war was clean (i.e., not tainted with other isotopes), obtained as a byproduct of the extraction of Uranium-235 from ore to make nuclear fuel or nuclear weapons. But DU is more commonly “dirty,” as the waste left over when fuel has been subjected to a nuclear reaction becomes contaminated with traces of much more dangerous isotopes such as plutonium20 and other highly radioactive particles. Trace isotopes that have been observed in DU in the United States are typically of anthropogenic origin, include Plutonium-238 (238Pu), Plutonium-239 (239Pu), Plutonium-240 (240Pu), Americium-241 (241Am), Neptunium-237 (237Np) and Technetium-99 (99Tc).21

DOE/NNSA, itself, is holding “dirty” DU at the Portsmouth reservation. Some 1,200 metric tons of DUF₄ sold by DOE to International Isotopes, Inc. in 2010 never left Piketon because of its contamination with transuranics and post-fission isotopes.22 Because there are inconsistencies in isotopic content among different batches of DU, detailed sampling and analysis of the huge inventory of DUF₆, and disclosure of the likely extent of contamination, coupled with identification of decaying and potentially problematic storage cylinders at Portsmouth (to prioritize the need for stabilization and safety measures), would necessarily require disclosure via SEIS.

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DU, a heavy metal with pyrophoric properties, is as dangerous as lead, if not more so. It is undesirable to live in a neighborhood where lead shells have fallen, exploded, and contaminated the soil, yet many children in Iraq, Kosovo, and Afghanistan have played in DU-contaminated dirt, or in destroyed tanks and neighborhoods. Possible uses of DU on future battle sites of America’s wars must be projected and along with them, the likely demand for DU munitions and armor must be calculated. An adequate SEIS must quantify prospective civilian and soldier victims of DU exposure, based upon what is now known about the pathways of contamination and exposure. The future costs of human decontamination and medical treatment must be identified. The quantities of radiologically-contaminated buildings and other items that will occur must be authoritatively conjectured. And predictable remediation and disposal costs would have to be assessed and assigned values. The unknowns respecting military uses of DU are myriad, such as how extensively DU ordnance pollutes battlefields, the precise effects of aerosolized low-level radiation on human health and the environment, and DU’s long-term health effects in humans when introduced into air and water. Depleted uranium is an unknown quantity in many ways; the development of improved scientific and fiscal understanding is obligatory. These gaps in understanding, though, are susceptible of NEPA scrutiny, and can be identified and explained in terms of their significance.

The rampant presence of DU on 21st century battlefields in U.S. wars, the dependence of the Pentagon on DU armor and munitions, and the present and prospective environmental dangers of DU to manufacturing workers, transport workers, the American public, and noncombatants, as well as combatants, all illustrate that there must be significant examination of DOE/NNSA’s proposed DU process line under NEPA.

B. Controversial Health Effects From Use And Dispersion Of DU

DU and its decay products emit alpha, beta, and gamma radiation that can result in external and internal exposure to those who handle or encounter DU-contaminated materials.\textsuperscript{23} Based on the zero-threshold linear dose response model, any absorbed dose of uranium is assumed to result in an increased risk of cancer.\textsuperscript{24} Since uranium tends to concentrate in specific locations in the body, the risk of cancer of the bone, liver, and blood (such as leukemia) may be increased.\textsuperscript{25} Inhaled DU particles that reside in the lungs for long periods of time may damage lung cells and increase the possibility of lung cancer after many years.\textsuperscript{26} DU is considered primarily an internal hazard, but there is also some associated external radiation hazard since the progeny of DU emit gamma rays.\textsuperscript{27}

\textsuperscript{24}Id.
\textsuperscript{25}Id.
\textsuperscript{26}Id.
\textsuperscript{27}Id.
Once inside the body, DU may cause harm due to its chemical toxicity and/or alpha radiation. Laboratory studies on rats indicate short-term effects of internal exposure to DU may include kidney damage, while long-term effects may include cancer, central nervous system problems, immune system disorders and reproductive effects.\(^{28}\) Given that a 10 to 30 year lag may exist after a person’s exposure to DU dust and the development of cancer,\(^{29}\) it is probable that physical effects from DU exposure will manifest over time.

In locations where DU rounds hit hard targets, soldiers and civilians may be exposed to DU during combat or later, when noncombatants and combatants alike enter or re-enter contaminated areas. Soldiers and civilians may climb on and enter destroyed vehicles to salvage usable equipment,\(^{30}\) or encounter corroded or DU-contaminated metals in agricultural fields, forests or water supplies.\(^{31}\) According to an article in the Journal of Environmental Radioactivity, children playing with soil may be identified as the critical population group [for DU exposure], with inhalation and/or ingestion of contaminated soil as the critical pathway.\(^{32}\)

So serious is the problem of DU contamination of battle sites that the Department of Defense years ago compiled and promulgated regulations, orders, and directives to strictly require military personnel to conduct prompt and effective investigation and remediation of


personnel and equipment following DU radiological exposures.\textsuperscript{33}

Few humans exposed to DU have been studied, so comparatively little is known about the effects DU has had or may have in the future on exposed populations. There have been extensive studies of uranium mine workers, but the studies have inherent weaknesses, and may have only limited usefulness for understanding battlefield exposures to DU munitions.\textsuperscript{34} Estimates of combat and post-combat exposures to DU dust vary widely, in some cases by several orders of magnitude.\textsuperscript{35} The uncertainties about the causative link between exposure to DU and subsequent health problems may never be fully resolved so long as there are so few studies of exposed populations.

While the U.S. Veterans Administration does not formally recognize DU exposure as per se justification for veterans’ compensation, the agency is gathering data on troop exposures\textsuperscript{36} and offering treatment for physical symptoms.\textsuperscript{37} The VA admits that “[s]ome Gulf War, Bosnia, Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) veterans may have been exposed to DU when they were on, in, or near vehicles hit with friendly fire; entering or near burning vehicles; near fires involving DU munitions; or salvaging damaged vehicles.”\textsuperscript{38} The agency stipulates that “[w]hen a projectile made with DU penetrates a vehicle, small particles of DU can be formed and breathed in or swallowed by service members in the struck vehicle. Small DU fragments can also scatter and become embedded in muscle and soft tissue.”\textsuperscript{39} The struggle for scientific and medical recognition of exposure to Depleted Uranium recalls the long, perditious road to VA recognition of the harsh lives left to the “atomic veterans” and Agent Orange troops of earlier generations.

NEPA requires recognition and scrutiny of predictable worker, soldier and noncombatant health outcomes from continued or expanded use of DU as a consequence of constructing the proposed DUF\textsubscript{4} process line.


\textsuperscript{36}https://www.publichealth.va.gov/exposures/depleted_uranium/followup_program.asp

\textsuperscript{37}https://www.publichealth.va.gov/exposures/depleted_uranium/

\textsuperscript{38}Id.

\textsuperscript{39}Id.
C. International Law Implications of DU Munitions Usage
Must Be Analyzed and Discussed

Depleted Uranium usage falls within a gray and controversial area in international law.

The Sub-Commission on Prevention of Discrimination and Protection of Minorities of the United Nations Human Rights Commission\(^\text{40}\) passed motions in 1996 and 1997 that listed weapons of mass destruction, or weapons with indiscriminate effect, or of a nature to cause superfluous injury or unnecessary suffering, and urged all states to curb the production and the spread of such weapons. The list included DU weaponry. The Sub-Commission produced a working paper in 2002\(^\text{41}\) that found the use of DU in munitions involves weapons with indiscriminate effect that are likely to cause superfluous injury and unnecessary suffering.\(^\text{42}\) The paper further concluded that use of DU may breach one or more of the Universal Declaration of Human Rights, the Charter of the United Nations, the Genocide Convention, the United Nations Convention Against Torture, the Geneva Conventions including Protocol I, the Convention on Conventional Weapons of 1980, and/or the Chemical Weapons Convention.

Further, the Sub-Commission noted that:

Annex II to the Convention on the Physical Protection of Nuclear Material 1980 (which became operative on 8 February 1997) classifies DU as a category II nuclear material. Storage and transport rules are set down for that category which indicates that DU is considered sufficiently "hot" and dangerous to warrant these protections. But since weapons containing DU are relatively new weapons, no treaty exists yet to regulate, limit or prohibit its use. The legality or illegality of DU weapons must therefore be tested by recourse to the general rules governing the use of weapons under humanitarian and human rights law. . . .\(^\text{43}\)

Parties to Article 36 of Protocol I to the Geneva Conventions of 1949, the Sub-Commission further explained, “have an obligation to ascertain that new weapons do not violate the laws and customs of war or any other international law.”\(^\text{44}\) A party to the Protocol (including the United States) is under an obligation “in the study, development, acquisition or adoption of a new weapon, means or method of warfare” to determine whether its employment would, “in some or all circumstances be prohibited by this Protocol or by any other rule of international law.

\(^{40}\)Now known as the UN Sub-Commission on the Promotion and Protection of Human Rights.


\(^{42}\)Id. at 7.

\(^{43}\)Id. at 32.

\(^{44}\)Article 36 appears at https://ihl-databases.icrc.org/appli/ihl/ihl.nsf/Article.xsp?action=openDocument&documentId=FEB84E9C01DDC926C12563CD0051DAF7
applicable to the High Contracting Party.” This obligation of prior study of weapons to ensure that their use will not violate the laws and customs of war or any other international law was also stressed by the International Court of Justice in its Advisory Opinion on the legality of the threat or use of nuclear weapons.\textsuperscript{45} There has never been any such formal prior study despite 50 years of DU usage in U.S. armaments. The SEIS sought by the undersigned petitioners could foster that analysis and signal the United States’ compliance with the Geneva Conventions and the Advisory Opinion.

In December 2018, the United Nations General Assembly passed its seventh resolution over an 11-year period that repeated (for the 7th time) that, because of the ongoing uncertainties over the long-term environmental impacts of depleted uranium identified by the United Nations Environment Programme, states should adopt a precautionary approach to its use.\textsuperscript{46} The same resolution echoed the language of earlier resolutions, encouraging states to provide assistance to states affected by the use of depleted uranium weapons, in particular by identifying and managing contaminated sites and material.\textsuperscript{47}

The foregoing survey of international law and convention is a requisite starting point for DOE/NNSA to undertake an inquest into the legality of the use of DU in America’s wars.

\textbf{IV. INTERPRETATIONS OF NEPA INDICATE THAT EIS SUPPLEMENTATION IS REQUIRED}

Council on Environmental Quality regulations require that “Agencies. . . [s]hall prepare supplements to . . . 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.” 40 C.F.R. § 1502.9(c).

“Significantly” in NEPA parlance is discussed in Council on Environmental Quality regulations at 40 C.F.R. § 1508.27:

Significantly as used in NEPA requires considerations of both context and intensity:

(a) Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.

(b) Intensity. This refers to the severity of impact. Responsible officials must bear

\textsuperscript{47}\textit{Id.}
in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

(2) The degree to which the proposed action affects public health or safety.

(3) ***.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

(6) 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.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

(8) The degree to which the action may adversely affect . . . or may cause loss or destruction of significant scientific, cultural, or historical resources.

(9) 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 of 1973.

(10) ***.

Applying the criteria above, the resumption of production of military DU is “significant” for purposes of NEPA investigation and disclosure. DOE/NNSA proposes to install a new process line that will generate DU, which under any other circumstances would be treated as a form of radioactive waste, as, instead, a useful commodity. The cumulative effects from restoring the Federal Government to DU production include adverse effects from extremely longtime environmental pollution with implications for costly human impacts, destruction or sacrifice of the physical environment and long-term, widespread economic destabilization.

Alternatives to the use of DU in warfighting exist, such as the blending of tungsten with projectiles to increase penetrating power. The effects of using DU in warfighting when there are less catastrophic alternatives prompts much controversy. Given decades of DU contamination and the resultant increase in unknowns and risks, public dialogue and consideration of its precedential and prospective use, as compared to alternatives, is quite significant.

It is reasonable to anticipate continuing, cumulatively significant impacts on the environment from future use of DU in warfighting. Changing international attitudes toward the view of DU as a weapon of mass destruction also factor into a determination of the significance of the proposed DOE/NNSA resumption of military DU.
DOE/NNSA, as explained above, committed in the RFP for the original EIS to supplement the NEPA document if there were a move to produce DUF₄. The agency should be held to that promise by the doctrine of judicial estoppel. Where the Federal Government assumes a certain position in a legal proceeding, and succeeds in maintaining that position, it may not thereafter, simply because its interests have changed, assume a contrary position, especially if it be to the prejudice of the party who has acquiesced in the position formerly taken by it (here, the American public and future victims of the use of DU). *New Hampshire v. Maine*, 532 U.S. 742, 121 S.Ct. 1808 (2001), citing *Davis v. Wakelee*, 156 U.S. 680, 689. The purpose of the doctrine is to protect the integrity of the judicial process by prohibiting parties from deliberately changing positions according to the exigencies of the moment.

Additionally, DOE/NNSA commenced in 2018 a supplemental EIS proceeding to decide alternative methods of disposition of Portsmouth DU as radioactive waste. Logic, common sense and efficient use of resources require that the pending SEIS proceeding should be expanded to encompass the question of amendment of the ROD for the fourth process line. DOE/NNSA is obliged to take a renewed “hard look” that discloses and discusses supposedly changed circumstances in a Supplemental EIS. *See Village of Grand View v. Skinner*, 947 F.2d 651, 657 (2d Cir. 1991) (two-step inquiry applied to decision whether or not to issue a supplemental environmental impact statement). The agency’s decision to supplement, or not, must not be arbitrary or capricious. *See Grand View*, 947 F.2d at 657; *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374, 377-78, 109 S.Ct. 1851, 1859-60, 104 L.Ed.2d 377 (1989) (applying arbitrary and capricious standard to agency's decision whether to prepare a supplemental impact statement, which the Court stated was similar to the decision whether to prepare an impact statement in the first instance).

**V. CONCLUSION**

The January 23, 2020 proposed Amended Record of Decision must be rescinded and a Supplemental Environmental Impact Statement must be compiled pursuant to the National Environmental Policy Act. DOE/NNSA’s decision-making here, as a matter of law, must be predicated on fulfillment of NEPA’s commands.

Thank you.

For the Petitioners,

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