UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

In the Matter of Shaw AREVA MOX Services License Application for Possession and Use of Byproduct, Source and Special Nuclear Materials for the Mixed Oxide Fuel Fabrication Facility	)	October 5, 2007 Docket No. 70-3098 ASLBP No. 07-856-02-MLA-BD01

PETITIONERS' LATE-FILED CONTENTION REGARDING NEED TO SUPPLEMENT EIS FOR PROPOSED MOX PLUTONIUM PROCESSING FACILITY

I. INTRODUCTION

Petitioners, Blue Ridge Environmental Defense League and Nuclear Watch South, hereby submit a late-filed contention regarding the failure of the application for mixed oxide ("MOX") plutonium fuel factory ("MFFF") to comply with the National Environmental Policy Act ("NEPA"). This contention is supported by the Declaration of Dr. Edwin S. Lyman, attached.

As discussed below, the contention satisfies a balancing of the NRC's criteria for late-filed contention.

II. CONTENTION 6: Need to Supplement EIS to Address Changed Circumstances and New and Significant Information Regarding Plutonium Disposition

Contention: The license application for the mixed oxide ("MOX") plutonium fuel factory ("MFFF") fails to comply with the National Environmental Policy Act ("NEPA") or NRC implementing regulation 10 C.F.R. § 51.92, because the U.S. Nuclear Regulatory Commission's ("NRC's" or "Commission's") environmental impact statement ("EIS")

for the facility[1] does not address significant proposed changes in the U.S. Department of Energy's ("DOE's") strategy for disposing of surplus weapons-grade plutonium, which in turn would require modifications to the design of the MOX plutonium fuel processing facility. The environmental impacts of these design changes, their implications with respect to connected actions, and alternatives that would avoid or mitigate their impacts, must be considered before the facility can be licensed to operate.

Basis: NEPA requires that before undertaking a major federal action, an agency must take a "hard look" at the environmental consequences of the action. *Baltimore Gas and Elec. Co. v. Natural Resources Defense Council, Inc*., 462 U.S. 87, 97 (1983). Where an agency has not yet taken the major federal action, it must consider "new and significant information" that bears on the environmental impacts of the proposed action. *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371-72 (1989). See also 10 C.F.R. § 51.92(a), which requires supplementation where the proposed action has not been completed, if: "(1) there are substantial changes in the proposed action that are relevant to environmental concerns; or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."

The ever-changing history of the DOE's strategy for disposition of surplus weapons-grade plutonium, up through the spring of 2007, is rehearsed in a March 28, 2007, Federal Register notice.[2] In 2000, the DOE announced its decision to dispose of approximately 50 metric tons (MT) of surplus weapons-grade plutonium by processing

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[1] NUREG-1767, Final Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina (2005).

[2] Notice of Intent to Prepare a Supplemental Environmental Impact Statement for Surplus Plutonium Disposition at the Savannah River Site, 72 Fed. Reg. 14,543 (March 28, 2007) ("NOI").

up to 33 tons in the MOX plutonium processing facility and "immobilizing" 17 MT through vitrification in a facility to be built at SRS.[3] In 2002, however, the DOE cancelled the immobilization strategy for "budgetary" reasons, leaving the nominal 17 MT of plutonium originally slated for immobilization without "a defined path to disposition."[4] In the March 28, 2007 Federal Register notice, the DOE announced its intent to prepare a Supplemental Environmental Impact Statement ("SEIS") to evaluate alternative disposition strategies for up to 13 MT of plutonium.[5] In the notice, the DOE described as its "preferred alternative" a combination of vitrification in the originally proposed vitrification facility, plus the use of a new approach involving the use of the "H-Canyon" facility and high level waste ("HLW") storage tanks at the SRS:

> DOE's preferred alternative is to construct and operate a vitrification facility within an existing building at the SRS. This facility would immobilize plutonium within a lanthanide borosilicate glass inside stainless steel cans. The cans then would be placed within larger canisters to be filled with vitrified high-level radioactive waste in the Defense Waste Processing Facility (DWPF) at the SRS. The canisters would be suitable for disposal in a geologic repository. *DOE also would prepare some of the surplus plutonium for disposal by processing it in the H-Canyon at the SRS, then sending it to the high-level waste tanks and DWPF*.[6]

Petitioners note that the Notice of Intent did not describe any plans to change the design or operation of the proposed MOX plutonium processing facility.

On September 5, 2007, the DOE issued an Amended Record of Decision regarding its plan to ship approximately 2,511 "3013-compliant" containers, containing no more than about 11 metric tons of surplus non-pit weapons-usable plutonium to the

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[3] *Id.*
[4] *Id.*
[5] *Id.*
[6] *Id.* (emphasis added).

SRS for storage.[7] These containers currently are stored at the Hanford Site, the Lawrence Livermore National Laboratory ("LLNL"), and the Los Alamos National Laboratory ("LANL").[8] Although the DOE claimed that its decision related only to storage, the Federal Register notice and accompanying Supplemental Analysis show that DOE's decision to ship the plutonium to the SRS was premised on the assumption that there would be a "disposition path out of South Carolina" for the plutonium.[9]

An attachment to the press release accompanying the September 5, 2007 Amended Record of Decision, "Plan for Alternative Disposition of Defense Plutonium and Defense Plutonium Materials That Were Destined for the Cancelled Plutonium Immobilization Plant" provided additional information, not contained in the March 28, 2007 NOI, regarding DOE's proposed "disposition path" for the 13 metric tons of plutonium that had once been slated for immobilization.[10] According to the Plan, the DOE is "evaluating the cost and feasibility of further reducing or eliminating the mission of the Plutonium Vitrification process (*e.g.*, use only the MFFF and H-Canyon to dispose of the 13 MT of surplus plutonium)."[11] The Plan also states that: "[e]liminating the mission for the Plutonium Vitrification process would result in the MFFF and H-Canyon

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[7] The notice was published in the Federal Register on September 11, 2007. Amended Record of Decision: Storage of Surplus Plutonium Materials at the Savannah River Site, 72 Fed. Reg. 51,807 (September 11, 2007).

[8] *Id.*

[9] 72 Fed. Reg. at 51,809. *See also* Supplemental Analysis at 3. The Supplemental Analysis can be found on the DOE's website at: http://www.em.doe.gov/pages/arodpu.aspx

[10] The September 5, 2007 Plan can also be found on the DOE's website at: http://www.em.doe.gov/pages/arodpu.aspx

[11] Plan at 4.

processing additional plutonium, *therefore requiring some modifications to both facilities."* [12]

The technical necessity of modifying the MOX plutonium processing facility in order to implement the strategy described in the September 5, 2007 Plan is clear. According to the NRC Final Safety Evaluation Report ("FSER") for construction of the proposed facility, any alternate feedstock (AFS) powder containing "chemical species not compatible with the AP [aqueous polishing] process" will be "transferred to the recanning unit for repackaging" and by implication will not be further processed at the MFFF for use in plutonium fuel.[13] According to the NRC staff, AFS powders that exceed the design basis impurity limits, as specified by Table 11.2-3 and 11.2-4 of the FSER, "may affect the design and the safe operation of the facility."[14] The applicant committed to evaluating "exceptional" batches of AFS plutonium dioxide on a case-by-case basis "according to the facility change process in 10 CFR 70.72." [15]

While the FSER uses the word "exceptional" to describe the potential for nonconforming batches of feedstock, in fact there are strong indications that a significant portion of the AFS that may now be considered for processing to plutonium fuel at the MFFF, as described in the September 5, 2007 Plan, will exceed the impurity limits as specified in FSER Table 11.2-3. A study of the plutonium material considered for AFS that will be shipped from the Plutonium Finishing Plant at Hanford to SRS under the September 5, 2007 Amended ROD reveals that (1) a significant fraction of the plutonium

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[12] *Id.* at 7 (emphasis added).
[13] NUREG-1821, Final Safety Evaluation Report on the Construction of Authorization Request for the Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina at 11-18 (March 2005).
[14] FSER at 11-49, 11-52 to 11-54.
[15] FSER at 11-49, 11-52 to 11-49.

that will be shipped was sealed in 3013 cans without being sampled for its impurity content; and (2) out of 18 samples that were taken, all samples exceeded the 75% specification limit in at least one metallic element (*e.g.*, chromium, iron, nickel and aluminum).[16] Thus, the Tingey and Jones study suggests that exceedance of the MOX plutonium fuel specification limits may be a routine rather than an exceptional occurrence. In order to accommodate the nonconforming feed material, the design basis for the MFFF, including the AFS chemical purification unit, would need to be changed.

While the September 5, 2007 Plan states that the DOE intends to conduct an environmental review of the proposed changes to its plutonium disposition program, by itself that assertion is insufficient to satisfy NEPA with respect to the licensing of the proposed MOX plutonium processing facility. The environmental review must comply with NEPA requirements for timing and scope, and application to the individual MOX plutonium fuel factory licensing proceeding.

- First, the environmental review must be completed before the operating license for the proposed MOX plutonium fuel factory can be granted. *Robertson v. Methow Valley*, 490 U.S. 332, 349 (1989).
- Second, it must address the environmental impacts of the proposed changes with respect to the operation of the MOX plutonium processing plant, including waste generation and disposal, routine emissions and accident impacts. 10 C.F.R. §

[16] J.M. Tingey and S.A. Jones, "Chemical and Radiochemical Composition of Thermally Stabilized Plutonium Oxide from the Plutonium Finishing Plant Considered as Alternate Feedstock for the Mixed Oxide Fuel Fabrication Facility," PNNL-15241, Pacific Northwest National Laboratory, July 2005, pp. iv and 1.5-1.7.

51.71 (d); *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), CLI-93-3, 37 NRC 135, 144-45 (1993).

- Third, the Supplemental EIS must also address the implications of the design changes with respect to connected actions, and reasonable alternatives for avoiding or mitigating those impacts. *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-04, 59 NRC 31, 41 (2004). For instance, the Supplemental EIS should evaluate tradeoffs between the environmental impacts of the proposed action to modify the MFFF and the alternatives --- namely, the vitrification and H-Canyon routes.
- Finally, whether the DOE or the NRC conducts the analysis, it must be "plugged in" to the NRC's licensing decision for the MOX plutonium processing facility. *Baltimore Gas and Elec. Co.*, 462 U.S. at 101.

Unless and until these NEPA requirements are met, the EIS for the proposed MOX plutonium fuel factory will be insufficient to support the licensing of the facility.

III. SATISFACTION OF LATE-FILING STANDARD

Petitioners' contention satisfies a balancing of the NRC's late-filed contention criteria in 10 C.F.R. § 2.309(c)(i)-(viii). Petitioners satisfy the first and most important factor -- good cause -- because they are filing the contention within 30 days of the issuance of the September 5, 2007 Report, which constitutes the first time the DOE has announced that the MOX plutonium processing facility will require modification in order to accommodate plutonium feedstock.

Second, Petitioners have already established their right to be made parties under the Atomic Energy Act by demonstrating that they have standing and that their contentions are admissible.

Third, Petitioners have also previously established their health, safety and property interests in the outcome of this proceeding.

Fourth, Petitioners' interests in a safe, clean and healthful environment would be served by the issuance of an order forbidding the issuance of a license for the MOX plutonium fuel factory unless and until the DOE and NRC comply with NEPA by supplementing the EIS for the facility.

Fifth, Petitioners have no means other than this proceeding to vindicate their interest in requiring the NRC to fully comply with NEPA in considering the environmental impacts of operating the MOX plutonium fuel fabrication facility.

Sixth, there are no other parties representing Petitioners' interest in this proceeding with respect to the issue raised in the Petitioners' contention.

Seventh, while Petitioners' participation may broaden or delay the proceeding, any delay or broadening of the proceeding is the fault of the DOE, not Petitioners. In addition, because Petitioners are raising their concerns relatively early in the proceeding, the addition of this contention to this proceeding will not have a significant effect on its length.

Finally, Petitioners will assist in the development of a sound record, because they have assistance from Dr. Edwin S. Lyman, a qualified expert in the area of nuclear safety.

IV. CONCLUSION

For the foregoing reasons, Petitioners' late-filed contention should be admitted.

Respectfully submitted this 5th day of October, 2007

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October 5, 2007