

October 9, 2007 (8:00am)

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFFUNITED 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<sup>1</sup> 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.<sup>2</sup> 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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<sup>1</sup> 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).

<sup>2</sup> 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.<sup>3</sup> 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.”<sup>4</sup> 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.<sup>5</sup> 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.*<sup>6</sup>

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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<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> *Id.* (emphasis added).

SRS for storage.<sup>7</sup> These containers currently are stored at the Hanford Site, the Lawrence Livermore National Laboratory (“LLNL”), and the Los Alamos National Laboratory (“LANL”).<sup>8</sup> 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.<sup>9</sup>

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.<sup>10</sup> 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).”<sup>11</sup> 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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<sup>7</sup> 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).

<sup>8</sup> *Id.*

<sup>9</sup> 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>

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

<sup>11</sup> Plan at 4.

processing additional plutonium, *therefore requiring some modifications to both facilities.*”<sup>12</sup>

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.<sup>13</sup> 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.”<sup>14</sup> 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.”<sup>15</sup>

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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<sup>12</sup> *Id.* at 7 (emphasis added).

<sup>13</sup> 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).

<sup>14</sup> FSER at 11-49, 11-52 to 11-54.

<sup>15</sup> 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).<sup>16</sup> 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. §

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<sup>16</sup> 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**

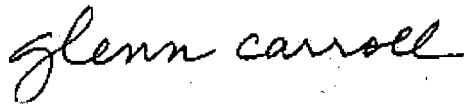
For the foregoing reasons, Petitioners' late-filed contention should be admitted.



Respectfully submitted this 5th day of October, 2007

A handwritten signature in black ink that reads "Louis A. Zeller". The signature is fluid and cursive, with a long horizontal line extending to the right.

Louis A. Zeller  
Blue Ridge Environmental Defense League  
PO Box 88  
Glendale Springs, NC 28629  
(336) 982-2691  
e-mail: BREDL@skybest.com

A handwritten signature in black ink that reads "glenn carroll". The signature is in a cursive, lowercase style.

Glenn Carroll  
Coordinator  
Nuclear Watch South  
139 Kings Highway  
Decatur, GA 30030  
(404) 378-4263  
Atom.girl@mindspring.com

October 5, 2007

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

In the Matter of

SHAW AREVA MOX SERVICES

(Mixed Oxide Fuel Fabrication Facility)

Docket No. 70-3098-MLA

ASLBP No. 07-856-02-MLA-BD01

October 5, 2007

**DECLARATION OF DR. EDWIN S. LYMAN  
IN SUPPORT OF PETITIONERS' LATE-FILED CONTENTION**

Under penalty of perjury, Edwin S. Lyman declares as follows:

1. My name is Edwin S. Lyman. I am a Senior Staff Scientist at the Union of Concerned Scientists.
2. I am a qualified expert on matters relating to nuclear power plant safety and security. A copy of my curriculum vitae is attached.
3. I am familiar with the licensing-related filings and correspondence that have been submitted by Shaw AREVA MOX Services in support of its application for an operating license for the MOX Fuel Fabrication Facility. I am also familiar with the history of the U.S. Department of Energy's program for disposition of surplus plutonium.
4. I assisted Petitioners with the preparation of their late-filed contention regarding the need for updating of the U.S. Nuclear Regulatory Commission's environmental impact statement ("EIS") for the MOX plutonium fuel factory to evaluate new and significant information and changed circumstances regarding changes in the DOE's plans for plutonium disposition. The factual statements in the content are true and correct to the best of my knowledge and the expressions of opinion based on my best professional judgment.
5. If the Petitioners' contention is admitted, I plan to submit expert testimony in support

DETT.

  
Edwin S. Lyman, Ph.D.

October 5, 2007

Edwin Stuart Lyman  
Curriculum Vitæ

**Education**

Ph.D, Cornell University, Theoretical Physics, August 1992.  
M.S., Cornell University, Physics, January 1990.  
A.B., *summa cum laude*, New York University, Physics, June 1986; Phi Beta Kappa.

**Professional Experience**

May 1, 2003 – Present: Senior Staff Scientist, Union of Concerned Scientists.

June 2002 – April 2003: President, Nuclear Control Institute, Washington, D.C.

July 1995 – May 2002: Scientific Director, Nuclear Control Institute, Washington, D.C.

August 1992 – June 1995: Postdoctoral research associate, Center for Energy and Environmental Studies, Princeton University, Princeton, NJ.

Spring 1995: Preceptor for Environmental Studies 302, "Perspectives on Environmental Issues: Values and Policies."

Spring 1994: Lecturer, Woodrow Wilson School. Preceptor for WWS 304, "Science, Technology and Public Policy."

July 1988 – June 1992: Graduate research assistant, Newman Laboratory of Nuclear Studies, Cornell University, Ithaca, NY. Conducted thesis research on high-energy physics under the supervision of Prof. S.H.-H. Tye.

August 1986–June 1988: Andrew D. White Graduate Fellow, Physics, Cornell University.

**Publications**

E. Lyman and D. Lochbaum, "Protecting Vital Targets: Nuclear Power Plants," in *Homeland Security: Protecting America's Targets, Vol. III* (J. Forest, ed.), Praeger, Westport, CT, 2006, 157-173.

J. Beyea, E. Lyman and F. von Hippel, "Damages from a Major Release of <sup>137</sup>Cs Into the Atmosphere of the United States," *Science and Global Security* **12** (2004) 125-136.

G. Bunn, C. Braun, A. Glaser, E. Lyman and F. Steinhausler, "Research Reactor Vulnerability to Sabotage by Terrorists," *Science and Global Security* **11** (2003) 85-107.

D. Hirsch, D. Lochbaum and E. Lyman, "The NRC's Dirty Little Secret," *Bulletin of the Atomic Scientists* (May/June 2003).

R. Alvarez, J. Beyea, K. Janberg, J. Kang, E. Lyman, A. Macfarlane, G. Thompson and F. von Hippel, "Reducing the Hazards from Stored Spent Power-Reactor Fuel in the United States," *Science and Global Security* **11** (2003) 1-51.

E. Lyman, "Revisiting Nuclear Power Plant Safety" (letter), *Science* **299** (2003), 202.

E. Lyman, "The Limits of Technical Fixes," in *Nuclear Power and The Spread of Nuclear Weapons: Can We Have One Without the Other?* (P. Leventhal, S. Tanzer and S. Dolley, eds.), Brassey's, Washington, DC, 2002, 167-182.

E. Lyman, "The Pebble-Bed Modular Reactor: Safety Issues," *Physics and Society*, American Physical Society, October 2001.

E. Lyman, "Public Health Risks of Substituting Mixed-Oxide for Uranium Fuel in Pressurized Water Reactors," *Science and Global Security* **9** (2001), 1.

E. Lyman and S. Dolley, "Accident Prone," *Bulletin of the Atomic Scientists*, March/April 2000, 42.

E. Lyman and H. Feiveson, "The Proliferation Risks of Plutonium Mines," *Science and Global Security* **7** (1998), 119.

E. Lyman and P. Leventhal, "Bury the Stuff [Weapons Plutonium]," *Bulletin of the Atomic Scientists*, March/April 1997, 45.

E. Lyman, "Weapons Plutonium: Just Can It," *Bulletin of the Atomic Scientists*, November/December 1996, 48.

F. von Hippel and E. Lyman, "Appendix: Probabilities of Different Yields," addendum to J. Mark, "Explosive Properties of Reactor-Grade Plutonium," *Science and Global Security* **4** (1993), 125.

F. Berkhout, A. Diakov, H. Feiveson, H. Hunt, E. Lyman, M. Miller, and F. von Hippel, "Disposition of Separated Plutonium," *Science and Global Security* **3** (1993), 161.

E. Lyman, F. Berkhout and H. Feiveson, "Disposing of Weapons-Grade Plutonium," *Science* **261** (1993) 813.

P. Argyres, E. Lyman and S.H.-H. Tye, "Low-Lying States of the Six-Dimensional Fractional Superstring," *Phys. Rev. D* **46** (1992) 4533.

S.-w. Chung, E. Lyman and S.H.-H. Tye, "Fractional Supersymmetry and Minimal Coset Models in Conformal Field Theory," *Int. J. Mod. Phys A* **7** (1992) 3337.

### **Selected Reports**

E. Lyman (with M. Schneider et al.), "Residual Risk: An Account of Events in Nuclear Power Plants Since the Chernobyl Accident in 2006," commissioned by the Greens of the European Parliament, May 2007.

E. Lyman, "Chernobyl on the Hudson? The Health and Environmental Impacts of a Terrorist Attack at the Indian Point Nuclear Power Plant," commissioned by Riverkeeper, Inc., September 2004.

E. Lyman, "Safety Issues in the Sea Shipment of Vitrified High-Level Radioactive Wastes to Japan," report sponsored by the Nuclear Control Institute, Greenpeace International and Citizens' Nuclear Information Center Tokyo, December 1994.

E. Lyman, "Interim Storage Matrices for Excess Plutonium: Approaching the 'Spent Fuel Standard' Without the Use of Reactors," PU/CEES Report No. 286, Center for Energy and Environmental Studies, Princeton University, August 1994.

E. Lyman, "The Solubility of Plutonium in Glass," PU/CEES Report No. 275, Center for Energy and Environmental Studies, Princeton University, April 1993.

### **Selected Invited Talks and Testimony**

"Licensing Challenges for Fuel Cycle Facilities Under the Global Nuclear Energy Partnership," U.S. Nuclear Regulatory Fuel Cycle Information Exchange, Rockville, MD, June 12, 2007.

"The 'Nuclear Renaissance' and the Spread of Nuclear Weapons," American Physical Society Ohio Chapter Meeting, May 7, 2007.

"Recycling Nuclear Waste," American Physical Society Annual April Meeting, Jacksonville, FL, April 15, 2007.

"The Security Imperative of Eliminating Commercial Use of HEU," presentation to the Committee on Medical Isotope Production Without Highly Enriched Uranium, National Academy of Sciences, Washington, DC, February 15, 2007.

"Recycling Nuclear Waste," Peace Studies Seminar, Cornell University, November 29, 2006.

"Nuclear Power and Nuclear Proliferation," Citizens for Global Solutions conference, Washington, DC, November 13, 2006.

"Next-Generation Nuclear Plants: Safety and Security," presented at "Is Nuclear Power a Solution to Global Warming and Rising Energy Prices?," American Enterprise Institute conference, Washington, DC, October 6, 2006.

"Recycling Nuclear Waste: Technical Difficulties and Proliferation Concerns," Physics Department Colloquium, Case Western Reserve University, Cleveland, OH, September 14, 2006.

"The Chernobyl Source Term: Implications for Nuclear Safety," international conference "Chornobyl +20: Remembrance for the Future," Kiev, Ukraine, April 23-25, 2006.

"Public Health Consequences of a Severe Accident or Attack at a Nuclear Plant," Nuclear Policy Research Institute Conference on Nuclear Power and Global Warming, Airlie House, Warrenton, VA, November 7, 2005.

Testimony before the Subcommittee on Clean Air, Climate Change on Nuclear Safety, Committee on Environment and Public Works, United States Senate, May 26, 2005.

"Safeguarding the U.S. Plutonium Disposition Program Against Nuclear Terrorism," Science and Global Security Program seminar, Woodrow Wilson School of Public and International Affairs, Princeton University, December 9, 2004.

"Status of the Security Regime for the U.S. Mixed-Oxide Fuel Program," Managing the Atom Project seminar, Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University, November 2, 2004.

"U.S. Nonproliferation Policy, Plutonium Disposition and the Threat of Nuclear Terrorism," seminar on "Recycling Plutonium: Risks and Alternatives," sponsored by the Green Group, European Parliament, Brussels, Belgium, January 9, 2003.

"Current Status of the U.S. Plutonium Disposition Program," seminar, Princeton University Program on Science and Global Security, Princeton University, Princeton, NJ, June 12, 2002.

"Controlling Fissile and Radioactive Material," Public Health Summit on Weapons of Mass Destruction, sponsored by Physicians for Social Responsibility and the UCLA School of Public Health, Ackerman Hall, UCLA, Los Angeles, June 2, 2002.

"Assessing the U.S. Government Response to the Nuclear Terrorism Threat After 9/11," presentation to the Joint Atomic Energy Intelligence Committee, McLean, VA, May 9, 2002.

"Upgrading Physical Protection at Nuclear Facilities to Address New Threats," MIT

Security Studies Seminar, MIT, Boston, MA, April 18, 2002.

"Perspectives on New Plant Licensing," presentation at the U.S. Nuclear Regulatory Commission Briefing on Readiness for New Plant Applications and Construction, Washington, DC, July 19, 2001.

"Regulatory Challenges for Future Nuclear Plant Licensing: A Public Interest Perspective," U.S. NRC Advisory Committee on Reactor Safeguards (ACRS) Workshop on New Nuclear Plant Licensing, Washington, DC, June 5, 2001.

"The Future of Nuclear Power: A Public Interest Perspective," 2001 Symposium of the Northeast Chapter of Public Utility Commissioners, Mystic, CT, May 21, 2001.

Statement at the U.S. Nuclear Regulatory Commission Briefing on Office of Nuclear Regulatory Research Programs and Performance, May 11, 2001.

"Barriers to Deployment of Micro-Nuclear Technology," presentation at the workshop on "New Energy Technologies: A Policy for Micro-Nuclear Technologies," James A. Baker III Institute for Public Policy, Rice University, Houston, TX, March 19-20, 2001.

"Aging Research and Public Confidence," presentation at the U.S. Nuclear Regulatory Commission 2001 Regulatory Information Conference (RIC), Washington, DC, March 14, 2001.

"NRC Reactor Safeguards Activities," presentation at the U.S. Nuclear Regulatory Commission 2001 Regulatory Information Conference (RIC), Washington, DC, March 14, 2001.

"DOE's Nuclear Material Stabilization Approach: The Failure of Transparency," Embedded Topical Meeting on DOE Spent Nuclear Fuel and Fissile Material Management, American Nuclear Society Annual Meeting, San Diego, CA, June 2000.

"The Status of Reactor Safeguards Initiatives," presentation at the U.S. NRC 2000 Regulatory Information Conference, Washington, DC, March 29, 2000.

"Safety Questions Concerning MOX Fuel Use in Proposed U.S. Reactors," Sixth International Policy Forum on the Management and Disposition of Nuclear Weapons Materials, sponsored by Exchange/Monitor Publications, Washington, DC, June 1999.

"Transparency and Plutonium Disposition," ISIS Workshop on Comprehensive Controls on Plutonium and Highly Enriched Uranium: Long-Term Problems and Prospects for Solutions, sponsored by the Institute for Science and International Security, Washington, DC, June 1997.

"Ship Transportation of Radioactive Materials," presentation to the Marine Board of the National Research Council, U.S. National Academy of Sciences, Woods Hole, MA, June 20, 1996.

"The Importation and Storage of High-Level Radioactive Wastes at Rokkasho-Mura: Safety Concerns," presentation at the Public Forum on High-Level Nuclear Waste and Reprocessing," Aomori, Japan, April 16, 1996.

"Perspectives on U.S. Options for Disposition of Excess Plutonium," Third International Policy Forum on the Management and Disposition of Nuclear Weapons Materials, sponsored by Exchange/Monitor Publications, Landsdowne, VA, March 21, 1996.

"Addressing Safety Issues in the Sea Transport of Radioactive Materials," presentation to the Special Consultative Meeting of Entities Involved in the Marine Transport of Nuclear Materials Covered by the INF Code," International Maritime Organization, London, March 4-6, 1996.

"Prospects and Unsolved Issues for Plutonium Immobilization," INESAP/IANUS/UNIDIR Fissile Cutoff Workshop, Palais des Nations, Geneva, June 1995.

"An Intermediate Solution for Plutonium from Dismantled Nuclear Warheads," Annual Meeting of the German Physical Society, Berlin, Germany, March 1995.

"The Sea Transport of High-Level Radioactive Waste: Environmental and Health Concerns," Channel Islands International Conference on Nuclear Waste, St. Helier, Jersey, United Kingdom, January 1995.

### **Conference Papers**

E. Lyman, "Regulatory Challenges Facing the Global Nuclear Energy Partnership," GLOBAL 2007 Conference, Boise, ID, September 2007.

E. Lyman, "Envisioning a World Without Uranium Enrichment," 48<sup>th</sup> Annual Meeting of the Institute of Nuclear Materials Management, Tucson, AZ, July 2007.

E. Lyman, "The Global Nuclear Energy Partnership: Will it Advance Nonproliferation or Undermine it?" 47<sup>th</sup> Annual Meeting of the Institute of Nuclear Materials Management, Nashville, TN, July 2006.

E. Lyman, "Can Nuclear Fuel Production in Iran and Elsewhere Be Protected Against Diversion?" paper presented at the Nonproliferation Policy Education Center/King's College-London Conference "After Iran: Safeguarding Peaceful Nuclear Energy," London, October 2-3, 2005.

E. Lyman, "The Erosion of Physical Protection Standards Under the MOX Fuel Program," 46<sup>th</sup> Annual Meeting of the Institute of Nuclear Materials Management, Phoenix, AZ, July 2005.

E. Lyman, "Extending the Foreign Spent Fuel Acceptance Program: Policy and



Implementation Issues," 26<sup>th</sup> International Meeting on Reduced Enrichment for Research and Test Reactors, IAEA, Vienna, Austria, November 2004.

E. Lyman, "Using Bilateral Mechanisms to Strengthen Physical Protection Worldwide," 45<sup>th</sup> Annual Meeting of the Institute of Nuclear Materials Management, Orlando, FL, July 2004.

E. Lyman, "The Congressional Attack on RERTR," 25<sup>th</sup> International Meeting on Reduced Enrichment for Research and Test Reactors, RERTR-2003, Chicago, IL, October 2003.

E. Lyman, "Nuclear Plant Protection and the Homeland Security Mandate," 44<sup>th</sup> Annual Meeting of the Institute of Nuclear Materials Management, Phoenix, AZ, July 2003.

E. Lyman and A. Kuperman, "A Reevaluation of Physical Protection Standards for Irradiated HEU Fuel," 24<sup>th</sup> International Meeting on Reduced Enrichment for Research and Test Reactors, RERTR-2002, Bariloche, Argentina, November 2002.

E. Lyman, "Material Protection, Control and Accounting at the U.S. MOX Fuel Fabrication Plant: Merely and Afterthought?" 43<sup>rd</sup> Annual Meeting of the Institute of Nuclear Materials Management (INMM), Orlando, FL, June 2002.

E. Lyman, "Terrorism Threat and Nuclear Power: Recent Developments and Lessons to be Learned," Symposium on Rethinking Nuclear Energy and Democracy after 9/11, sponsored by PSR/IPPNW Switzerland, Basel, Switzerland, April 2002.

E. Lyman, remarks for Expert Panel on Advanced Reactors, Nuclear Safety Research Conference, U.S. Nuclear Regulatory Commission, Washington, DC, October 2001.

E. Lyman, "The Future of Immobilization Under the U.S.-Russian Plutonium Disposition Agreement," 42<sup>nd</sup> Annual Meeting of the Institute of Nuclear Materials Management (INMM), Indian Wells, CA, July 18, 2001.

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:  
Michael C. Farrar, Chairman  
Dr. Nicholas G. Trikouros  
Lawrence G. McDade

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

CERTIFICATE OF SERVICE

I hereby certify that the foregoing *Petitioners' Late Filed Contention Regarding Need to Supplement EIS for Proposed MOX Plutonium Processing Facility* filed October 5, 2007 was sent via the method indicated to each of the following:

Secretary of the Commission \*  
Rulemaking and Adjudications Staff  
United States Regulatory Commission  
Mail Stop 0-16C1  
Washington, DC 20555-0001  
hearingdocket@nrc.gov

Administrative Judge  
Michael C. Farrar, Chair  
Atomic Safety and Licensing Board  
US Nuclear Regulatory Commission  
Mail Stop T-3 F23  
Washington, DC 20555  
mcf@nrc.gov

Administrative Judge  
Dr. Nicholas G. Trikouros  
Atomic Safety and Licensing Board  
US Nuclear Regulatory Commission  
Mail Stop T-3 F23  
Washington, DC 20555  
ngt@nrc.gov

Administrative Judge  
Lawrence G. McDade  
Atomic Safety and Licensing Board  
US Nuclear Regulatory Commission  
Mail Stop T-3 F23  
Washington, DC 20555  
Lgm1@nrc.gov

Andrea Z. Jones  
Office of the General Counsel  
US Nuclear Regulatory Commission  
Mail Stop 0-15D21  
Washington, DC 20555  
axj4@nrc.gov

Jody C. Martin  
Office of the General Counsel  
US Nuclear Regulatory Commission  
Mail Stop 0-15D21  
Washington, DC 20555  
jcm5@nrc.gov

\* Original and two copies via U.S. Mail

Marcia Carpentier, Law Clerk  
Atomic Safety and Licensing Board  
US Nuclear Regulatory Commission  
Washington, DC 20555  
mxc7@nrc.gov

Patricia Harich  
ASLBP Program Analyst  
Atomic Safety and Licensing Board  
Mail Stop T-3 F23  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001  
pah@nrc.gov

Donald J. Silverman, Esq.  
Morgan, Lewis & Bockius  
1111 Pennsylvania Ave., NW  
Washington, DC 20004  
dsilverman@morganlewis.com

Vincent C. Zabielski, Esq.  
Morgan, Lewis & Bockius, LLP  
1701 Market Street  
Philadelphia, PA 19103  
vzabielski@morganlewis.com

Glenn Carroll  
Nuclear Watch South  
139 Kings Highway  
Decatur, GA 30030  
atom.girl@mindspring.com

Mary Olson  
Nuclear Information and Resource Service  
PO Box 7586  
Asheville, NC 28802  
maryolson@main.nc.us

Dealis Gwyn  
Shaw AREVA MOX Services  
PO Box 7097  
Aiken, SC 29804

A handwritten signature in black ink, reading "Louis A. Zeller", followed by a horizontal line.

Louis A. Zeller  
Blue Ridge Environmental Defense League  
PO Box 88  
Glendale Springs, NC 28629  
BREDL@skybest.com

October 5, 2007