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June 4, 2002

The Honorable Spencer Abraham
Secretary
Department of Energy
1000 Independence Avenue S.W.
Washington, D.C.
20585

Dear Mr. Secretary:

I am writing to request information regarding the Department of Energy's (DOE's) weapons plutonium disposition program. I am concerned about the management, environmental and budgetary uncertainties that have plagued this program, and its adverse consequences for the environment and public health. Since the Department's current plans call for converting weapons-grade plutonium into commercial nuclear power plant fuel, an action which blurs the long-standing distinction between civilian and military applications of nuclear technology, I believe the program also has adverse consequences for the proliferation of nuclear weapons.

In September 2000, the United Stated and Russia agreed to a hybrid or "dual-track" approach for disposing of surplus weapons plutonium. Under that agreement, the U.S. would dispose of 8.4 metric tons (MT) via immobilization and 25.6 MT as mixed plutonium-uranium oxide fuel (MOX). On January 23, 2002, DOE announced that it changed its dual-track policy into a single-track policy, and presented a substantially altered plan, which included the cancellation of the immobilization track, and the addition of unspecified purification equipment in the MOX Fuel Fabrication Facility in order to process 6.4 MT of plutonium. Other significant changes to the program were announced in a February 15 2002 DOE report to Congress, which stated that DOE would need two additional (but unspecified) reactors to burn MOX fuel. Additionally, information released by the Nuclear Regulatory Commission (NRC) and Duke Cogema Stone & Webster, reports that a new waste solidification plant may be needed to process the transuranic and uranium waste streams coming from the MOX plant. These possible changes mean that the cost, science and environmental consequences of this program have all been radically altered.

As the U.S. program has been rapidly changing focus, the Russian program appears to be losing its focus. Congress has insisted that the disposition plans of the U.S. and Russia remain in parallel so that the U.S. is not reducing its plutonium stockpile unilaterally or more quickly than Russia. However, Russia's plutonium disposition program is premised on the export and subsequent use of the Siemens AG

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MOX fuel fabrication plant in Hanau, Germany. A recent announcement indicates that the facility may be being permanently dismantled, calling into question the future of the Russian disposition program.

In light of the numerous programmatic changes to the U.S. plutonium disposition plan and the many uncertainties that surround the Russian program, I ask for your prompt assistance in answering the following questions:

Questions on the new U.S. disposition plan

1) The DOE's amended Record of Decision (ROD) on plutonium disposition was published in the Federal Register on April 19, 2002. That amended ROD announced the formal termination of the plutonium immobilization program and stated that plutonium would be taken to the Savannah River Site (SRS) for long-term storage. Given that National Environmental Policy Act (NEPA) documentation prepared to date has indicated that plutonium would only be stored for an interim period at SRS, please provide copies of the NEPA documentation that has been prepared for this changed mission of long-term plutonium storage at SRS. If no such documentation has been prepared, why not, given this significant change to the program?

2) The ROD indicates that DOE now plans to turn impure plutonium stored at Rocky Flats, Hanford and other DOE sites into MOX fuel. DOE has maintained for many years that this material could not be processed into a MOX fuel that could be safely burned in nuclear reactors as it was too impure and that such processing would cost too much. What new information exists to show that this material can be purified and processed into MOX fuel from a technological standpoint? How much will it cost to do so? Please provide copies of all relevant reports and analyses.

3) Please provide a list of where all the plutonium that had been slated for immobilization that is now being shifted to the MOX track is currently located. For each such source of plutonium, please provide information on its location and quantity, its purity, the contaminants it contains, the technical process by which those contaminants will be removed and the shipment schedule to SRS.

4) On January 23, 2002, a DOE briefing document on the plutonium disposition program indicated that 2 MT of "very impure" plutonium were going to be disposed of directly as waste. Is this still DOE's intent? If so, where will it be disposed of and when? If not, what is the current plan for the disposal or processing of this material? Is DOE considering processing this material through one of the reprocessing facilities at SRS? If so, please provide copies of the NEPA documentation that has been prepared for such processing.

5) Given that the cancellation of the immobilization track constitutes a significant change to the program, when does DOE intend to prepare a Supplemental

Environmental Impact Statement (SEIS) as required by DOE NEPA regulations? Will this SEIS be prepared before any shipments begin from Rocky Flats to SRS?

6) Since shipments of plutonium from Rocky Flats to SRS could be further delayed by the need to conduct the new NEPA analysis or by litigation brought to prevent them from occurring, has DOE prepared any review of other potential secure storage sites for these materials? If so, where? If not, why not? Does DOE believe that plutonium can be safely stored at Rocky Flats while any SEIS is being prepared? Why or why not?

7) Since processing of impure plutonium materials may result in contaminated waste streams from purification equipment inside the MOX plant, what does DOE plan to do with this waste? Does DOE plan to build a waste solidification facility at SRS to manage this waste? What is the estimated cost of this facility, when will an EIS be prepared on it and what will happen to the waste processed in that facility in the long-term? Will this facility have any other mission besides supporting the MOX program, such as supporting any processing at SRS for new nuclear weapons pit production?

8) The FY 1999 Energy and Water Appropriations bill contains report language that states that "The Department of Energy should proceed with preparations for plutonium disposition to include the design and licensing of key disposition facilities as well as qualification of mixed oxide fuel. The United States, however, should not proceed unilaterally to dispose of excess plutonium without parallel progress on the Russian side. No funds have been provided to initiate actual construction of plutonium disposition facilities without such an agreement." The FY 2001 Energy and Water Appropriations bill contains report language that states that a DOE report, which was due to be delivered to the House and Senate Appropriations Committees by February 15, 2001, should include information on "the process by which parity between the two countries will be maintained throughout execution of the program." Finally, on April 26, 2002, DOE's General John Gordon sent a letter to Representative Lindsay Graham (R-SC) that stated that the U.S. and Russia plutonium disposition programs "are linked and must remain so for legitimate national security and non-proliferation objectives."
   a) Please provide a copy of the report on plutonium disposition that was due be delivered to the House and Senate Appropriations Committees by February 15, 2001.
   b) Is it DOE's intention to begin construction of any of the facilities that will be used to purify excess plutonium or convert it into MOX fuel prior to the conclusion of a binding agreement between the U.S. and Russia that requires the two sides to proceed with plutonium disposition in parallel? If so, why, since that would seem to conflict with Congressional intent, as well as with General Gordon's letter to Representative Graham?
   c) Is it DOE's intention to begin construction of any of the facilities that will be used to purify excess plutonium or convert it into MOX fuel prior to the selection of a means by which the Russian plutonium will be disposed of, and a means by

which that process will be funded? If so, why, since that would seem to conflict with Congressional intent, as well as with General Gordon's letter to Representative Graham?

9) Does DOE plan to consolidate any other plutonium (besides the 34 MT subject to the U.S.-Russia agreement) at the Savannah River Site? If so, please indicate the amount, the current location, the timeframe for its shipment to SRS, the reason DOE wishes to store it at SRS, and the permanent disposition plans (i.e. MOX, immobilization, etc.).

10) DOE has recently issued statements about the need to construct a new Modern Pit Facility to make new plutonium pits for nuclear weapons. Please provide copies of all documents written by DOE and/or its contractors which review the possible locations for such a facility. When does DOE anticipate beginning the EIS process for this facility? What is the anticipated production capacity for the facility? Will the U.S. Nonproliferation Treaty partners be notified that the U.S. is proceeding with a new nuclear weapons pit facility that could support a long and enduring nuclear weapons stockpile? If so, when? If not, why not?

Questions on the Russian plutonium disposition program

1) A December 2001 DOE-Minatom cost report for the Russian plutonium disposition program stated that the planning basis for the Russian MOX program was the export of the never-used Siemens MOX plant in Hanau Germany to Russia. According to news reports, that facility is being permanently dismantled, and key components may not be available for export to Russia. Please confirm the status of the Hanau MOX plant and which components (if any) will be available for use in Russia. If it is not available, what specific plan exists to construct a MOX plant(s) in Russia? Please provide copies of all reports or analyses related to non-Hanau MOX options in Russia, including costs and timelines.

2) Is U.S.-origin technology being considered for construction of a MOX plant in Russia? If so, wouldn't it be necessary for the U.S. to first conclude an Agreement for Nuclear Cooperation with Russia?

3) I have been informed that the Soviet-designed VVER-1000 reactors may not be technically suited to burning MOX fuel. Does DOE believe that to be the case? If so, please provide copies of all technical analyses regarding (both in support of and against) this opinion. Are there any potential adverse safety issues involved in using the VVER-1000 reactors for burning MOX fuel? If so, what are they? If the reactors are still being considered, what technical upgrades will be needed, at what cost and on what timeline will they occur? How many of these reactors will be needed at what disposition rates, and what is the expected life-span of these reactors?

4) What are the projected costs for any modular high-temperature gas reactor(s), the BN-800 breeder reactor, or the BREST breeder reactor, all of which are being

considered for plutonium disposition in Russia? Does DOE intend to work with Russia to construct these reactors and what will be the role of the G-8 in such activities? Given that the BN-800 and BREST can produce weapons-grade plutonium when operated in the breeder mode, please provide copies of all proliferation analyses, reports or recommendations that could prevent the Russian plutonium disposition program from being used to produce additional plutonium, whether during or after the program has been completed/terminated.

5) Would the U.S. support the selection of a breeder reactor, which could produce weapons-grade plutonium even as it was disposing of surplus plutonium, to dispose of the Russian materials? If so, why, given the proliferation concerns associated with enabling the production of more plutonium that could be used to construct more nuclear weapons?

6) Does the U.S. hope to obtain funding from the G-8 to complete the Russian plutonium disposition program? How much will Russia pay, both in cash and in-kind expenses, for the MOX program and any new related reactors? For the next 10 years, please outline what funds will be needed from the U.S. and from the G-8, both if the Hanau MOX equipment is available to be exported and used as well as if it is not available. How much funding is planned to be expended by the U.S. and the G-8 for nonproliferation programs in Russia that do not relate to MOX?

7) I have been informed that some within Minatom and the Russian nuclear labs support immobilization of at least some Russian plutonium. What is DOE doing to engage those who support immobilization? How much research money is being spent on these activities in Russia?

8) The schedule for the U.S. and Russian plutonium disposition program has slipped from that presented in the September 2000 U.S.-Russian plutonium disposition agreement. Will the timelines and schedules presented in that agreement be formally modified? If so, how and when? When will the missing parts of the agreement - liability, safeguards and costs - be added to the agreement? What is the status of those missing elements?

9) Has the U.S.-Russia plutonium agreement of September 2000 actually entered into force or not? If it has not entered into force, does there exist any other formal mechanism between the U.S. and Russia for plutonium disposition? If it hasn't entered into force, are the schedules, timelines and disposition methods outlined in the agreement valid? If it has entered into force or if the U.S. is abiding by the agreement without it entering into force, has the agreement been modified to reflect revised schedules and termination of immobilization by the U.S. side? If it hasn't been modified, why not?

Questions on MOX Lead Test Assemblies

1) Has DOE determined where the MOX lead test assemblies (LTAs) will be fabricated? If so, please explain what option has been chosen, how much it will cost and the schedule for their fabrication. What is the schedule for irradiation in the McGuire reactor and what is the schedule for post-irradiation examination? Who will conduct it?

2) In the event that DOE is considering LTA fabrication in Europe: Would weapons-grade plutonium from the U.S., the UK or France be used for the fabrication? If the LTAs will be fabricated from U.S. plutonium, how will it be transported to Europe and under what laws and regulations? Under what physical security provisions would such a shipment to Europe take place, and in what timeframe? Would the plutonium be "polished" prior to shipment? If so, where, and what NEPA documentation would be prepared for this activity?

3) What MOX facilities in Europe are under consideration for the fabrication mission? How would the weapons-grade plutonium be transported to this facility and under what laws and regulations? What type of agreement(s) would be needed with European countries either providing weapons-grade plutonium or MOX fabrication services? If plutonium from the UK or France is used, how would this material be transferred to U.S. ownership and what would be its cost? Would this plutonium also need to be "polished" (like the U.S. plutonium) to remove gallium and other impurities?

4) How much is the fabrication of the LTAs estimated to cost? Has MOX fuel (to meet U.S.-specifications) ever been fabricated before from weapons-grade plutonium by the chosen fabricator? Would the fabrication process be the same as the process in the U.S. MOX factory and would the quality control methods be at least as stringent as those to be used in the U.S.?

5) What NEPA documentation would be prepared on the LTA fabrication in Europe and shipment back to the U.S., and when will it be released to the public? How would the LTAs be shipped to the U.S. - by sea or air? Please fully describe the security measures that will be taken to guarantee the safety of the shipment(s). What type of import license will be needed for the import and packaging? Who will pay for the transport and what is the estimated cost? How will the transport be conducted once the shipment arrives in the U.S.?

6) Will Russia also be fabricating and irradiating MOX LTAs at the same time at the U.S.? If not, please explain why the LTA projects in both countries are not being conducted in parallel. Please give details of where the Russian LTAs will be fabricated, where they will be irradiated, and the schedule for this work. Please give a status report on where the fabrication plans now stands.

7) Is the U.S. Government keeping the G-8 fully abreast of the status of both the LTA program and the status of other aspects of the U.S. and Russian programs, including technical, cost, legal, funding, and progress? Please provide copies of any

DOE information provided, either by DOE or other U.S. Government officials, to the G-8 in advance of the various G-8 meetings taking place in Canada in June 2002.

Questions on the Canadian MOX Program at Chalk River, Ontario

1) DOE has chosen light water reactors for MOX irradiation in the U.S., but it remains unclear which reactors will be used for the Russian MOX program. Given that the irradiation testing of MOX pellets at the Atomic Energy of Canada Limited (AECL) at Chalk River Laboratories, Ontario is now taking place, does this mean that irradiation in CANDU reactors is among the options under consideration for the disposition of Russian plutonium? Has the U.S. eliminated the CANDU irradiation option from consideration for irradiation of U.S. plutonium?

2) What is the status of the MOX irradiation testing in the NRU reactor at Chalk River? Has DOE received information or reports about results of the test of the MOX pellets which were manufactured from U.S. plutonium at Los Alamos National Laboratory? If so, please provide copies of such information or reports. What is projected to be the total cost to DOE and AECL of these MOX irradiation tests and associated post-irradiation examination? When will it be completed?

3) Under the PARRALLel EXperiment (PARALLEX) Project, MOX pellets from the U.S. and Russia were to be shipped to Canada for testing in the NRU reactor. Did the shipment of MOX from Russia ever take place, and if so, when? Is irradiation of the Russian material now underway? If the shipment did not take place, why not? If it is still planned, when will it occur, and has a new Transportation Plan been developed by AECL?

Thank you for your consideration of this important matter. Please provide a response no later than close of business on Monday July 1, 2002. If you have any questions or concerns, please have your staff contact Dr. Michal Freedhoff or Dr. Kristen Kulinowski of my staff at 202-225-2836.

Sincerely,

Ed Markey

Edward J. Markey