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PRELIMINARY COMMENTS ON PLUTONIUM DISPOSITION PEIS
April 18, 1996
Greenpeace International

The task of what to do with weapons plutonium produced during the Cold War is a formidable one. We recognize that the process of making and implementing a "disposition" option could likely be an arduous one, with disagreements along the way, but it is clear that the process must lead to one main goal: a world more secure from the threat of continuing proliferation of stockpiles of weapons-usable plutonium.

The plutonium dilemma that now confronts us in the US is yet another legacy of misguided Cold War policies; we must not allow steps which have been made away from the threats of the nuclear arms race to be reversed. In only one way it is good that we are currently faced with the problem of what to do with the plutonium removed from nuclear weapons: the process of disarmament as required under the Nuclear Nonproliferation Treaty (NPT) has finally begun.

START III and Beyond

Given the growing demand by the international community that NPT disarmament obligations be met, the stockpile of plutonium removed from weapons will only grow. The U.S. now faces the challenge to show that it can meet its treaty commitments and quickly move far beyond the high level of nuclear weapons negotiated under the START II agreement. Deep cuts and then elimination of nuclear weapons will lead to a stockpile of so-called surplus plutonium of almost 100 tonnes. 1/01.03.00

The decisions made about what to do with this dangerous material must be made with deliberate and thoughtful analysis. But it appears that the Department of Energy has begun an Environmental Impact Statement process which is lacking in both analysis and depth. DOE must return to the drawing board and newly prepare this document with full consideration given to the global proliferation implications of the disposition decision.

Proliferation Impacts Ignored

While it is of utmost importance to irreversibly remove the plutonium from weapons, what is done with the material will have far-reaching international proliferation impacts. Although it is widely agreed that the meeting of a "high-level waste standard" 2/01.06.00

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01 03 00 Comment Number 1

Although Strategic Arms Reduction Talks (START) II protocol nuclear-weapons levels are beyond the scope of this PEIS, global proliferation concerns and the need to encourage reciprocal actions by Russia are integral parts of various sections of the PEIS, including the purpose and need and the Preferred Alternative. Furthermore, proliferation implications for the various alternatives and variants are evaluated in DOE's nonproliferation analysis, which was issued for public review in October 1996. DOE's ROD will be based on the nonproliferation analysis, as well as the environmental analyses, technical and economic studies, national policy considerations, and public input.

01 06 00 Comment Number 2

As explained in the response to Comment Number 1, global and domestic nonproliferation is considered in various parts of the PEIS. The purpose of the Proposed Action is, in part, to establish the technical and program infrastructure that will enable the United States to take unilateral action, or negotiate reciprocal actions, with other nations for the disposition of surplus weapons-usable Pu. This PEIS addresses the environmental impacts of the reasonable alternatives for DOE's Proposed Action. Analyses of the cost, schedule, technical, and nonproliferation policy impacts are described in separate documents, and will be considered in DOE's decision. The *Draft Nonproliferation and Arms Control Assessment of Weapons-Usable Fissile Materials Storage and Plutonium Disposition Alternatives* was made available for public review in October 1996. DOE also conducted a series of public meetings, prior to the issuance of the Final PEIS, to discuss the nonproliferation analysis as it relates to the PEIS alternatives and variants.

The analysis of the nonproliferation impacts examines, among other things, the risk of theft, risk of reversal, and arms reduction impacts for the various disposition alternatives.

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is a goal to be strived for, it appears that the DOE has set out on a course which largely disregards both domestic and international proliferation impacts of the plutonium disposition decision.

In reading the Draft Programmatic Environmental Impact Statement, it is striking to realize that there is almost no discussion of the proliferation impact of the decision. It's almost as if the DOE has forgotten or ignored that decisions taken here will have affects far beyond our borders. As it is recognized that the National Environmental Policy Act (NEPA) must consider proliferation impacts, DOE must simply redo this document and correct its grave error of omission. In coming to a decision after such an analysis is done, DOE must choose an option which minimizes both domestic and international proliferation impacts. We feel that such a choice can also be the most environmentally sound. 2/01.06.00 cont.

"Direct Use" Material

Nowhere in the EIS is there an in-depth discussion of the dangerous nature of MOX. Unlike conventional uranium fuel, MOX is regarded by the International Atomic Energy Agency (IAEA) as well as the US Government of requiring protection due to the ease with which the weapons plutonium can be separated from the fuel. The IAEA deems MOX as being of "direct use" in nuclear weapons and the US requires military escort during transport. 3/13.00.00

As a result of the military nature of the material, reactor operators in the US or Canada using MOX would effectively become nuclear weapons storage sites. To incorporate allegedly civilian facilities into the military complex raises serious questions about theft or diversion of the material from the reactors and during transport. The public will be quite hesitant to embrace the idea that their local reactor has become a storage site for nuclear weapons materials. 4/01.04.00

MOX - Reprocessing

It appears that nowhere in the document has DOE recognized the intimate relationship between the reprocessing industry and the use of plutonium fuel (mixed oxide fuel, MOX) in nuclear reactors. Every country which uses MOX fuel is either engaged in reprocessing or has close links with the reprocessing industry. Yet, in the EIS DOE has a total memory lapse, both failing to analyze the international interconnectedness of MOX, reprocessing, and plutonium use and stockpiling as well as failing to analyze potential impacts on a potential domestic plutonium industry. 5/01.06.00

Given the dismal failure of breeder reactors, plutonium reprocessors now present MOX as the justification for

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13 00 00 Comment Number 3

As discussed in the *Draft Nonproliferation and Arms Control Assessment of Weapons-Usable Fissile Materials Storage and Plutonium Disposition Alternatives*, appropriate safeguards and security would be used for the various steps of the MOX process. The safeguards and security for pit disassembly/conversion and MOX fuel fabrication would likely be similar to safeguards for the weapons-usable fissile materials. Furthermore, the facilities would be inspectable by IAEA. The DOE safe secure trailer (SST) system will be utilized for the transportation of the fresh MOX fuel which includes armed nuclear materials couriers. Once irradiated, the spent MOX fuel would meet the spent fuel standard and be disposed of in a geologic repository.

01 04 00 Comment Number 4

The Reactor Alternatives would utilize a once-through fuel cycle. Spent fuel would be disposed of with other commercial reactor spent fuel. Pu would arrive at the reactor in the form of fresh fuel which could not be used in weapons without extensive reprocessing to extract the Pu. Necessary safeguards and security at the reactors would be provided. The facilities would be inspectable by IAEA, as appropriate. The nuclear reactors would not become nuclear weapons storage sites.

01 06 00 Comment Number 5

The Department of Energy acknowledges the commentor's opposition to the Reactor Alternative using MOX fuel and the commentor's concerns about reprocessing. The President's Nonproliferation Policy says the United States will not recycle Pu. Burning weapons Pu in reactors does not utilize the recycling process because the Pu in the spent fuel from this process will not be extracted for reuse in new fuel. This is consistent with U.S. policy since no Pu is being recycled. After a once-through fuel cycle, the Pu would be converted to a nonproliferation form as spent reactor fuel. Thus, foreign reprocessing would not be encouraged by the Reactor Alternatives. Section 2.4.5.1 of the Final PEIS has been expanded to clarify that reprocessing would not be part of the Reactor Alternatives. Decisions on disposition will be made based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

reprocessing. What was once an imaginary dream to "complete the nuclear fuel cycle" has now boiled down to a business in search of customers. The European reprocessing companies British Nuclear Fuels (BNFL) and COGEMA are currently building up massive stockpiles of plutonium and are attempting to gain new reprocessing and MOX clients around world. Belgonucleaire is attempting to sell its MOX services to any willing client. Russia and Japan are similarly engaged in reprocessing and plutonium stockpiling with a goal to use both MOX and breeder reactors. Yet DOE has turned a blind eye to this international reprocessing-MOX connection. 5/01.06.00 cont.

Likewise, the likely connection in the US between a MOX industry created by use of weapons-grade plutonium and a future plutonium economy is ignored in the EIS. The history of interest in MOX in the US, as in other countries, is also tied to the reprocessing industry, as reflected by the GESMO process and the failed West Valley, Morris and Barnwell reprocessing experiments. But in spite of the past connection in the US between MOX and reprocessing, the EIS does not stop to reflect on what the future might hold if the US pursues MOX.

MOX Contradicts US Nonproliferation Policy

In September 1993, President Clinton issued a nonproliferation policy which stated that "The United States does not encourage the civil use of plutonium and, accordingly, does not itself engage in plutonium reprocessing for either nuclear power or nuclear explosive purposes. The United States, however, will maintain its existing commitments regarding the use of plutonium incivil nuclear programs in Western Europe and Japan." The policy also stated that the US would "seek to eliminate where possible the accumulation of stockpiles...of plutonium" and "explore means to limit the stockpiling of plutonium for civil nuclear programs." 2/01.06.00 cont.

If implemented, a decision to use MOX will violate this policy in many ways. First, any use of MOX in the US will go far beyond encouragement of the civil use of plutonium. Second, use of MOX will be an active encouragement to reprocessors in Europe, Japan, Russia (and potentially in other countries) which have inextricably woven together the reprocessing and MOX industries. Third, any agreements reached with European MOX fabricators to either provide MOX fabrication service in Europe or to assist in MOX fabrication in the US will constitute a new (not existing) commitment which will heartily be welcomed as boost to reprocessing/MOX. 6/01.06.00 5/01.06.00 cont.

The EIS has failed to evaluate the potential violations of President Clinton's nonproliferation policy or how the policy is anticipated to be changed in the case a MOX-use decision is made. 2/01.06.00 cont.

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01 06 00 Comment Number 6

The Reactor Alternatives, which would use MOX fuel, would not contradict the U.S. Nonproliferation Policy. As explained in the PEIS, the alternatives would pertain only to surplus weapons-usable Pu, such as from dismantled weapons, and would not use or encourage the use of MOX fuel based on other sources.

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MOX Fabrication Facility

It is extremely unclear what would become of a MOX facility in the US once the weapons grade plutonium stockpile had been fabricated into fuel. Given the expense of such a facility and the environmental impacts which would loom after its operation, it would seem that DOE would discuss the fate of the facility once its mission was over. But it does not seem that the decontamination and decommissioning of any MOX plant is included in the EIS. By lack of such a discussion, it is implied that another mission might await such a facility once the weapon-grade stockpile was depleted. Thus, the construction of a MOX plant might serve to stimulate commercial reprocessing as part of the infrastructure to support use of the plutonium would already be in place. 7/01.06.00

By choosing a mix of disposition options including MOX, the incentive to use a MOX fabrication facility for a second plutonium fuel fabrication mission might actually increase. A two or multi-option decision would mean that less plutonium was available for MOX, thus leading to increased cost per unit. With this increased cost, the impetus to continue use of the facility with commercial weapons-usable feedstock in an attempt to recoup cost or justify the facility's construction could actually increase.

Given that the main European reprocessors could be in on operation of any US MOX facility, that a primary DOE contractor (Westinghouse Savannah River Company) at one of the leading sites for a MOX facility (Savannah River Site) has actually prepared a study as to the feasibility of commercial reprocessing, and that a section dealing with "conditioning" (reprocessing) has been included in the Nuclear Waste Policy Act of 1996, we consider that the warning signs of hidden reprocessing agendas are clear. 8/01.06.00

"Expressions of Interest"

Under the plutonium disposition EIS process, no reason can be found for the December 1995 solicitation of "Expressions of Interest" from utilities and nuclear companies for their interest in MOX. The request for EOIs was simply an expediency of the moment apart from the formal EIS process. 9/08.00.00

As has been done in the EIS, the DOE did not outline in the solicitation to the utilities the proliferation risks of MOX use in the US. And the utilities have similarly chosen to also either ignore or obfuscate the connections. Utilities responding to the solicitation have presented their goals as noble - wanting to help with weapons-grade plutonium disposition - yet their real interests clearly are pecuniary in nature. Compensation, not public service, is the motivational factor.

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01 06 00 Comment Number 7

A MOX fuel fabrication facility would be constructed, or the existing facility modified for MOX fuel fabrication, only for the purpose of converting weapons-usable Pu into MOX fuel to be burned in a reactor. The Pu would be consumed in a reactor using a once-through fuel cycle, then disposed of as spent nuclear fuel. No reprocessing would be involved in surplus Pu disposition, consistent with the President's Nonproliferation Policy. After completion of the materials disposition mission, the facility would either go through decontamination and decommissioning (D&D) or be converted to another mission, not involving MOX fuel fabrication or reprocessing. D&D costs are considered in the Disposition Technical Summary Report and will be included in the decisionmaking process. Furthermore, DOE will evaluate environmental impacts for decontamination and decommissioning in subsequent tiered NEPA reviews.

01 06 00 Comment Number 8

The President's Nonproliferation Policy says the United States will not recycle Pu. Burning weapons Pu in reactors does not utilize the recycling process because the Pu in the spent fuel from this process will not be extracted for reuse in new fuel. This is consistent with U.S. policy since no Pu is being recycled. After a once-through fuel cycle, the Pu would be converted to a nonproliferation form as spent reactor fuel. There is no "hidden reprocessing agenda."

The Westinghouse Savannah River company report referred to by the commentor was prepared to respond to a request by Congressman C. Norwood (GA). DOE did not consider the report a significant issue since this Nation's policy of not reprocessing commercial spent fuel is long standing and there is no Administration support and little Congressional interest in revisiting the issue.

08 00 00 Comment Number 9

The request for "Expression of Interest" was made to answer the question: If the Existing LWR Alternative was selected for the disposition of Pu, would there be any utilities interested in implementing the decision and under what

But while the EOIs have become an integral part of the discussion about plutonium disposition they remain apart from the EIS process. Given that DOE sought the "expressions" outside of the EIS process raises serious questions as to the legitimacy of the EIS and decision-making process itself. If the EOI process is serious and is part of the decision-making process, the reactor or facility of each and every respondee should be incorporated officially in the EIS as DOE is in practice conducting a review of the viability of the proposals as they relate to the EIS. Just as DOE sites were covered in the EIS, the private facilities now involved in the process must be brought into the EIS or the entire EIS process should begin again. 9/08.00.00 cont.

An egregious example of monetary interest at work can be seen by the offer of TEAM CANDU, led by AECL Technologies and Ontario Hydro Nuclear. This proposal is to transport MOX fabricated in Canada or Europe to the Bruce A reactor complex on Lake Huron. The idea has been presented as being acceptable to Canadians but the formal process of government approval has not begun and the public debate in Canada over this idea has only just started. That public debate is likely to be quite contentious given that weapons-grade plutonium would roll on Canada's highways and the resulting plutonium-laden spent fuel will be left in Canada. 10/01.03.00

Ontario Hydro has not been forthcoming in stating that the Bruce A reactors are in need of retubing which has been estimated to cost $300 million each. The Bruce 2 reactor was taken out of service in 1995 in order to avoid this costly expense and other major repairs and the other Bruce A reactors are scheduled for retubing beginning in the year 2000. But given the expense of the overhaul and difficulty of justifying such an outlay in an increasingly competitive electricity market, it is possible that Ontario Hydro will have to close the reactors.

Why are the financial problems of Ontario Hydro not mentioned in the Expression of Interest? Is there a desire on their part to justify the expense of retubing by pursuing the MOX mission. And will US taxpayers end up underwriting these expenses? DOE and TEAM CANDU must come forward and reveal the true condition of the reactors at Bruce A and what the anticipated repair costs are. 11/01.03.00

Similarly, if reactor problems such as being experienced by Ontario Hydro exist with the US utilities expressing interest, the EIS must fully reveal and evaluate them.

Lack of Documentation

DOE contends that it does not have to publicly release information concerning the costs of the various options until 12/08.00.00

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general conditions? The request for "Expression of Interest" in the use of existing reactors for the disposition of Pu was only one of a series of actions taken by DOE to obtain technical, cost, schedule, and policy information. That information, along with the PEIS, will be presented to the decisionmaker in order to help ensure a well-informed decision. The *Technical Summary Report for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0003) provides an explanation for the issuing of this request for "Expression of Interest." Should a Reactor Alternative be selected at the ROD, DOE would issue a Request for Proposal to interested parties to solicit MOX fuel fabrication facility design and construction proposals and/or proposals for burning the MOX fuel in reactors.

The disposition sites used in the PEIS for analysis are considered representative, and a combination of sites was used. Tiered NEPA reviews, as appropriate, will examine specific locations, as stated in the PEIS; specific reactor location(s) will depend, in part, on market conditions and contract negotiations. The explanation of representative sites in Section 2.1.4 of the PEIS has been expanded to provide further clarification of the approach used for the sites for the analysis of environmental consequences.

01 03 00 Comment Number 10

Should the CANDU Reactor Alternative be chosen for Pu disposition, further negotiations between the U.S. and Canadian Federal and Provincial Governments will be required before implementation, as well as business negotiations with reactor owners. In addition, according to the Canadian Government (see letter sent by the Canadian Embassy in Washington, DC, dated June 6, 1996, reproduced in this CRD) implementation would be subject to Canadian Federal and Provincial regulations, and an appropriate level of analysis by the licensee of health, safety and environmental impacts would be required before issuance of an operation license and before any decision on burning Pu in a CANDU reactor could be implemented.

01 03 00 Comment Number 11

The Department of Energy (U.S. taxpayers) will not be underwriting the expense of retubing any reactor. Selection of a specific reactor(s) would be

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just before a Record of Decision is made. We contend that both as a matter of record for the Draft PEIS as well as in compliance with a sound openness policy that such documentation must be released as soon as it is available and long before the EIS comment period closes.

As the DOE repeatedly states in the EIS that "cost-effectiveness" will be a part of the disposition decision, no tools have been provided to aid in the public in the determination of the costs of the various options. All cost and economic evaluations must no longer be kept secret and be allowed to be reviewed as part of the EIS process. 12/08.00.00 cont.

It does not appear that reference or citation is made in the EIS to important documents which must be made available to the public during the Draft EIS comment period. For example, a document prepared by AECL Technologies on the CANDU reactor option is not mentioned in the EIS. And documents pertaining to work being done between Oak Ridge National Laboratory (ORNL) and Belgonucleaire in MOX performance are not mentioned in the EIS. 13/08.00.00

Immobilization

It appears to us that the guiding hand in any decision must be that of nonproliferation linked with environmental protection. Given the risks associated with an endorsement of MOX and the plutonium economy, we believe that immobilization is the only viable disposition option. 14/08.03.01

Given a need for further research into immobilization techniques, we therefore request that DOE provide more money in FY 1997 to expand research into the various options. Given that the prime mission of the Defense Waste Processing Facility is to vitrify high-level waste and not to be used for plutonium vitrification research, we endorse the idea of a pilot vitrification plant to study the feasibility of this option. 15/05.01.06

Requests

Given the seriousness of the issue at hand and the need for a careful analysis by the public of the options presented, we hereby make the following requests:

1) That all documents pertaining to cost of the various disposition options be immediately placed in the DOE public document rooms or be publicly released as soon as they are finished and be made a part of the Draft EIS record. 16/08.01.00

2) That all documents pertaining to research into MOX use and immobilization be placed immediately in the public document rooms and be made part of the Draft PEIS record.

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through responses to Requests for Proposals and follow-on business and contract negotiations.

08 00 00 Comment Number 12

In the interest of openness and more informed decisionmaking, DOE released Technical Summary Reports to the public as soon as they became available. Cost data, along with technical and schedule data, were provided in Technical Summary Reports of both storage and disposition in the summer of 1996. Results of the nonproliferation analysis were made available in October 1996. These analyses, along with the environmental analysis and public input, will be integrated into DOE's decisionmaking process.

08 00 00 Comment Number 13

Based upon this comment, the index of reference materials in the DOE Public Reading Rooms was improved. Further references in the Final PEIS were checked for completeness. The documents referred to by the commentor were not cited in the PEIS. However, the AECL Technologies, Inc., *Plutonium Consumption Program, CANDU Reactor Project*, July 31, 1994 is cited in the *FMDP CANDU PEIS Data Report* which is a cited reference in the PEIS. The work between Oak Ridge National Laboratory (ORNL) and Belgonucleaire was not relied upon for the PEIS.

08 03 01 Comment Number 14

The Department of Energy acknowledges the commentor's support for the Immobilization Alternative. Decisions on disposition of weapons-usable fissile materials will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

05 01 06 Comment Number 15

Research and development is both on-going and planned to support the disposition alternative(s). If immobilization is selected in the ROD, DOE may propose pilot facilities. Currently the can-in-canister variant of the Immobilization Alternative is being researched at the SRS Defense Waste

3) That detailed budget figures for Fiscal Years 1996 and 1997 for MOX, storage and immobilization research be made available and that all documents produced in conjunction with such research be publicly released as soon as they are available and be made part of the Draft PEIS record.

4) That the public comment period be extended until such time as pertinent economic and technical documents are made available. 16/08.01.00 cont.

Given the fact that the "Expressions of Interest" in MOX use have de facto become a part of the EIS process and that documentation associated with such expressions was not publicly available until approximately March 29, further justification exists for an extension of the comment period.

Thank you for the opportunity to submit these comments. We will submit more comments and documentation at a later date.

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Processing Facility (DWPF). Based on public comments, Appendix O has been added to the PEIS to describe this variant.

08 01 00 Comment Number 16

The Technical Summary Reports, which contain cost information for both storage and disposition, were made available to the public (and have been placed in the DOE Public Reading Rooms) in July 1996 and will be included in the decisionmaking process. Documents related to research concerning MOX fuel, storage and immobilization which are cited in the PEIS, are available in the DOE Public Reading Rooms and are part of the PEIS record.

Budget figures and research documents may be made available upon appropriate request. However, the budget is not part of the NEPA process and the budget figures are not included in the PEIS record. Research documents that are cited and relied upon in the PEIS are available in the DOE Public Reading Rooms and are part of the PEIS record.

The Expression of Interest is not part of the NEPA Process. (See response to Comment Number 9).