HANFORD COMMUNITIES, RICHLAND, WA, LARRY HALER, ET AL.
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Hanford Communities

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May 8, 1996

U.S. Department of Energy
Office of Fissile Materials Disposition
P. O. Box 23786
c/o SAIC PEIS
Washington, D.C. 20026-3786

Ref: Draft Programmatic EIS - Weapons Usable Fissile Materials Disposition - February 1996

To Whom it May Concern:

The Hanford Communities, individually through their respective elected bodies and collectively as a group, provide summary comments and recommendations as noted below relative to the referenced EIS. We appreciate the opportunity to provide input into this vital Department of Energy project and accordingly have taken extraordinary measures to ensure a thorough technical and citizen review.

We asked community leaders and technical experts to serve as a volunteer advisory group to the Hanford Communities for this draft PEIS. The 30+ persons participating in this capacity divided into seven focus groups: transportation, health and safety, MOX fuel and Pu conversion, reactor burn options, vitrification disposition, socioeconomic issues and national security issues. Their comments complement and go into greater depth than the Hanford Communities' comments and are summarized in Attachment 1. Please review and carefully consider both sets of comments.

While time constraints did not permit public meetings or televised citizen forums during the limited comment period, we intend to hold one or more public meetings or media forums to fully inform the public of this response and gain additional citizen input. We will promptly notify DOE if there are any substantive changes to this transmittal as a result of this additional input.

We strongly support the reactor burn option as the preferred Pu disposition alternative. We believe this option has the best chance of becoming the disposition model internationally because it permits recovery of a significant fraction of the valuable "fuel" value while fully complying with one of the accepted proliferation-resistant disposal alternatives. We believe Hanford offers the best and most compelling cost and schedule advantage with the least environmental, health, safety and proliferation risks for either the reactor burn or the vitrification disposition mode. With Hanford's and Washington Public Power Supply System's existing facilities and infrastructure, and the planned privatization of Hanford's tank waste vitrification program (Figure 1), large savings in capital and operating funds are possible relative to other sites. 1/08.03.01

SUMMARY COMMENTS AND RECOMMENDATIONS

- Excess weapons-usable fissile materials must be promptly safeguarded and disposed of in the U.S. and internationally to prevent nuclear weapons proliferation. Time is of the essence since there is a clear and present danger of illicit use of bomb-grade plutonium and high enriched uranium in the world today. Accordingly we recommend DOE select the preferred disposition alternative and the Pu conversion and disposition sites that best achieve rapid, cost effective, integrated use of already existing DOE facilities; widespread acceptance by the international nuclear weapons community; and minimization of disposition implementation time, new capital requirements and environmental, transportation, safeguards, security, worker and public health and safety, and proliferation risks. 2/08.03.01

- Independent Communities With Common Interests -

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08 03 01 Comment Number 1

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

08 03 01 Comment Number 2

The Department of Energy acknowledges the commentor's support for the disposition of surplus Pu in existing facilities to the extent practical. Decisions on disposition of weapons-usable fissile materials will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

- Hanford should be included in the draft EIS as a potential Pu processing and disposition site -- the PEIS currently only considers Hanford as a "long term storage" site, and specifically, the
  - Fuels and Materials Examination Facility should be considered as a potential site for MOX fuel fabrication, Pu conversion and/or small scale Pu vitrification, and the
  - Fast Flux Test Facility reactor should be considered as a viable plutonium "burner" reactor

3/01.04.00

- We oppose any consideration of Hanford as a "long-term Pu storage only" facility. Temporary plutonium storage is acceptable as part of an expeditious, substantive Pu disposition option.

4/08.03.01

- Hanford is unique in that a large, operating, commercial nuclear-electric power station (WNP-2); a plutonium oxide fuel burning test reactor (FFTF); a commercial low-level waste disposal site; a nearly complete plutonium oxide (MOX) fuel fabrication facility; another large, but partially completed, nuclear-electric power station (WNP-1); a soon-to-be-developed vitrification plant; plus all the site infrastructure co-exist within DOE's Hanford site boundaries. These collocated or "clustered" facilities (Fig. 1) should be given preferential consideration in this EIS and Record of Decision and in all assessments of environmental impacts, schedules, capital requirements, life-cycle costs, health, safety, safeguards, security, transportation and proliferation risks.

3/01.04.00 cont.

- Mitigating transportation issues is a high priority. New or expanded Pu storage site(s) should not be determined until after the plutonium conversion site(s), and preferably, after the preferred plutonium disposition method(s) and the plutonium disposition site(s) are finally selected.

5/01.00.00

- We oppose using Canadian CANDU or any other foreign reactors to dispose of U.S. generated weapons-grade plutonium. This is neither appropriate nor responsible international U.S. policy.

6/08.03.01

In conclusion, we do not believe the Department of Energy can adequately address or minimize the environmental impacts and associated health, safety, safeguards, security, transportation, schedule and cost impacts of the proposed PEIS until it evaluates its Pu conversion and disposition options relative to the synergistic use of existing, collocated, cost effective facilities in the DOE complex.

2/08.03.01 cont.

We urge you to formally and thoroughly examine the potential benefits of disposing of plutonium as depicted in the attached simplified schematic (Figure 1). We believe implementing this strategy will literally save DOE billions of dollars and shorten the time to initiate Pu disposition by at least 4 to 8 years. The schematic depicts a collocated plutonium disposition "system" involving compatible, already existing Hanford facilities plus new, already scheduled tank waste vitrification facilities. The plutonium conversion step indicated in the schematic could be at Hanford or elsewhere.

3/01.04.00 cont.

We look forward to working with the Department of Energy to refine and improve upon the ideas and concepts provided in this memo. It is essential that DOE's former weapon's complex sites cooperate to find the best, safest, most timely and cost-effective solution to the plutonium disposition problem. Excessive plutonium disposition costs will likely have a negative impact on the entire EM budget and hence adversely affect all sites. It is essential that the on-going Hanford cleanup program not be adversely impacted by the plutonium conversion and disposition program.

7/11.00.01

We urge you to incorporate our plutonium disposition comments and recommendations by whatever means are necessary under NEPA into a final or re-issued PEIS and into the Record of Decision.

Very truly yours,

Larry Haler, Chair
Hanford Communities Governing Board

Attachments: as stated

cc: Mr. T. P. Grumbly, DOE-HQ
Mr. J. David Nulton, DOE-HQ

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01 04 00 Comment Number 3

The PEIS considers six DOE sites for long-term storage of Pu. The ROD will choose an approach and site for long-term storage and a technology(ies) for disposition. The same six DOE sites were evaluated with regard to the disposition options addressed in the PEIS. Additional site-specific NEPA analysis may be required before a disposition decision can be implemented. Hanford is among the six sites considered for disposition.

Liquid metal reactors were not included as alternatives for Pu disposition in the PEIS due to the longer time and greater cost required to complete their construction. The FFTF, on the other hand, is an existing reactor and could be used for Pu burning. However, the limited capacity of the FFTF would limit the rate at which Pu could be dispositioned and require a much longer timeframe for disposition than that which could be achieved with the reactor options addressed in the PEIS.

The Department of Energy is in fact considering the FFTF, pursuant to the ROD for the TSR PEIS. The ROD (December 1995, 60 FR 63878) for the TSR PEIS addressed the FFTF for tritium production as follows:

> A private group has recently suggested that it purchase the FFTF from DOE and that DOE then contract with the private group to make tritium at that facility. In the [Tritium Supply and Recycling Final] PEIS, the use of FFTF was considered and dismissed as a long-term tritium supply option because the amount of tritium that it could produce would only meet a percentage of the steady state tritium requirements, and it was not reasonable to rely on operating the facility far beyond the end of its design life. However, DOE will evaluate the presentation made by the private group to determine whether the operation of the FFTF might be able to play any role in meeting future tritium requirements. If any changes are warranted to this ROD following that review, or further NEPA documentation is required, DOE will take appropriate action.

The Secretary of Energy has requested a review by the JASONS Panel (eminent academic scholars and scientists) as part of the evaluation of tritium production with the FFTF. Should the outcome of this evaluation lead to a DOE proposal to restart the FFTF for tritium production, additional environmental analyses would be performed, as appropriate. If the FFTF were to be restarted, a substantial portion of the surplus Pu that would be used

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The Hanford Communities Governing Board and Administrative Board Unanimously Approved the Attached Letter Response to the Department of Energy's "Storage and Disposition of Weapons-Usable Fissile Materials" Draft Programmatic Environmental Impact Statement During Its Meeting May 3, 1996

By Signature Below, We the Cities and the County Comprising the Hanford Communities, During Our Regular City Council or County Commissioner Meetings on May 6 or May 7, 1996 Voted Affirmatively to Send the Same Letter in Response to the Department of Energy's Draft Programmatic Environmental Impact Statement

Max Benitz, Jr., Chair — 5-6-96 date
Board of Benton County Commissioners

J. E. Fluckiger, Mayor — 5-7-96 date
City of Benton City

Jim Beaver, Mayor — 5-7-96 date
City of Kennewick

Charles Kilbury, Mayor — 5/6/96 date
City of Pasco

Larry Haler, Mayor — 5/6/96 date
City of Richland

Jerry Peltier, Mayor — 5-6-96 date
City of West Richland

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for MOX fuel could be used to fabricate the FFTF driver fuel, thereby achieving the Spent Fuel Standard for Pu disposition through irradiation in the FFTF. Further description of the FFTF has been added to Appendix N of the PEIS.

The FMEF is considered for use as a long-term storage facility for Pu, and the impacts are included in Section 4.2.1 of the PEIS. For the production of MOX fuel a generic facility was considered for all six DOE sites. At Hanford this MOX fuel fabrication facility would be located in the 200-Area adjacent to 200 East. The utilization of the FMEF would be a variant for MOX fuel fabrication at Hanford, which is bounded by the environmental analysis for the MOX fuel fabrication facility located in the 200-Area. Table 2.4–1 of the PEIS provides a brief description of variants to disposition alternatives analyzed which includes "Modification/completion of existing facilities for MOX fabrication." The storage options for Hanford also include the construction of a new facility. Utilization of the FMEF for the Upgrade Alternative would not preclude its use to also support Pu disposition activities for either Reactor or Immobilization Alternatives.

08 03 01 Comment Number 4

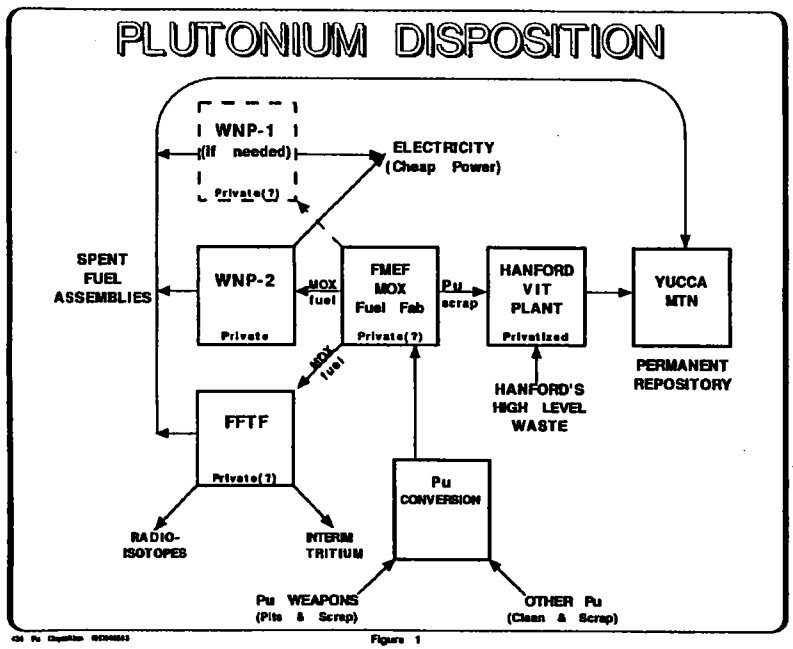
The Department of Energy acknowledges the commentor's opposition to continuing or long-term storage. Decisions on storage of weapons-usable fissile materials will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

01 00 00 Comment Number 5

Comment noted.

08 03 01 Comment Number 6

The Department of Energy acknowledges the commentor's opposition to the use of the CANDU Reactor Alternative for the disposition of Pu. Decisions on disposition of weapons-usable fissile materials will be based upon environmental analyses, technical and economic studies, national policy



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considerations, and public input. This will include an appropriate level of analysis by Canada before any decision on burning Pu in a CANDU reactor is implemented.

11 00 01 Comment Number 7

Comment noted. DOE's Fissile Materials Disposition Program is an integrated effort that will require the participation of a number of DOE sites that have weapons material experience. DOE acknowledges the commentor's concern about the potential effect that selection of Hanford for new missions could have on the Hanford cleanup program. It is DOE's intent that the implementation of Fissile Materials Disposition Program decisions will have little or no impact to ongoing clean up programs. Decisions on storage and disposition of weapons-usable fissile materials will be based on environmental analyses, technical and economic studies, national policy considerations, and public input. The decision process will also give consideration to existing agreements between DOE, the State of Washington, and the EPA.

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Attachment #1: Detailed Comments from the Hanford Communities "Citizens Advisory Committee" on the Plutonium Disposition PEIS

The Hanford Communities Advisory Committee[1] represents more than 500 years of experience dealing with billion dollar projects, community interests, and government programs similar to that outlined in this draft programmatic EIS.

Excess weapons-usable plutonium in any form other than a safeguarded "spent fuel standard" represents a clear and present danger to the world's society. The risks of devastating consequences are magnified by the time to reach consensus in today's complex national and international political environment. The "do nothing" option in this PEIS is not acceptable. Time is of the essence. Prompt, decisive United States leadership to demonstrate a cost-effective, near-term path forward that high proliferation-risk countries of the world will adopt, is critical. 8/08.03.01

In view of the short time permitted for review of the massive amount of detail (~2600 pages), each of seven subcommittees of the Advisory Committee was asked to primarily look for critical or serious issues, gaps, incorrect facts, conclusions or assumptions that could substantially distort the public's view. Also each subcommittee was asked to avoid trying to redo or reinvent the massive amount of valuable detail in the PEIS.

A. Health and Safety

This subcommittee was asked to address the feasibility and appropriateness of the statement in the PEIS relating to public and occupational health and safety within a fifty mile radius of the site. This was to be done in consideration of two possible uses for plutonium disposition at the site: 1) reactor burning of plutonium and 2) vitrifying plutonium together with high level waste into borosilicate glass logs.

A1. The first concern, if there is a concern, is that the summary report does not address the methodology used, so it is really not totally possible to evaluate how good the numbers or the doses are. 9/09.09.08

A2. The PEIS also stated that occupational and environmental radiological and chemical {doses} will be within accepted limits. The judgment of this committee is that there are sufficient unknowns, certainly with respect to the chemical hazards, that such a statement is difficult to substantiate. The other hazards, such as ergonomic, occupational in general, were not addressed. The only issue was latent cancer due to radiation within the two plutonium disposition alternatives. 10/09.09.08

[1] The list of invited Advisory Committee participants is attached. Some of those invited could not participate because of potential conflicts of interest, some participated on an ex-officio basis only, and some had only minor involvement because of illness or travel schedules. The majority of those invited did participate, providing valuable contributions to this Attachment.

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08 03 01 Comment Number 8

The Department of Energy acknowledges the commentor's opposition to continuing or long-term storage. Decisions on storage of weapons-usable fissile materials will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

09 09 08 Comment Number 9

The PEIS Summary presents the Proposed Actions and their potential environmental impacts. It does not include a description of the assessment methodologies used for each environmental resource including human health risk assessment. A description of assessment methodologies used for each environmental resource is presented in the Methodology Report, Chapter 4, and the Appendices of the PEIS.

09 09 08 Comment Number 10

Detailed information regarding hazardous chemicals used in the Proposed Action, and their health impacts to workers and the general public, is described in Chapter 4 and Appendix M of the PEIS. This information includes the chemical emissions from the proposed facilities, the toxicity of the emitted chemicals, the predicted chemical concentrations in the environment, and health impacts to workers and the general public. The methodology used for the chemical hazards assessment is also documented in the Methodology Report, Chapter 4, and Appendix M of this PEIS.

A3. Was an ALARA evaluation done? If so, it is not documented or referred to in the PEIS. 11/09.09.08

A4. The PEIS summary was written before NCRP report 121 was issued. The PEIS summary does not appear to be consistent with the philosophy or guidelines in NCRP 121, which deals with collective dose. This philosophy and guideline, if applied to this analysis, would basically ignore the radiological risks to the general public as the risk of a fatal cancer is less than one. 12/09.09.08

A5. Based on the guidance provided to the Hanford Communities' subcommittees, we must accept the methodology that is the determinate of risk. On this basis, the radiological risk for cancer latency would appear to be insignificant.

A6. Perhaps more basic is the lack of specificity of what type of hazards, aside from radiation, might be involved, i.e., what types of chemicals, what would be shipping alternatives and what to do about long term release likelihood. Our conclusions are: a) to accept the calculations and risk estimates as done by DOE that the risk of latency for long term cancer causation is basically very small to insignificant, and b) to question the chemical hazards and transportation hazards that have not been fully addressed. (editor comment: note transportation issues in Section E below) 13/09.10.08 12/09.09.08 cont. 13/09.10.08 cont.

B. Pu Conversion and Mixed Oxide Fuel Fabrication

B1. The Fuels, Materials, and Examination Facility (FMEF) was improperly considered in the PEIS as only a potential storage area. This facility, originally built to manufacture and handle MOX fuel elements, should be considered as the best potential site for MOX fabrication in the United States.

B2. The FMEF capabilities and attributes are understated. The FMEF is a versatile and expandable facility. It was designed to be expanded to the east. All site infrastructure requirements, e.g., electrical capacity, cooling, sewer, security system, etc., are readily available to support an expansion.

B3. The FMEF in its current configuration can house a limited Pu metal-to-oxide conversion and a mixed-oxide (MOX) fuel fabrication line supporting Fast Flux Test Facility (FFTF) plutonium burn. In addition, one of the several large post-irradiation exam (PIE) hot cells can be used to demonstrate vitrification of off-specification or scrap local plutonium. All three of these programs could be implemented within five years, given the advanced completion state of the facilities and knowledge of the processes. 3/01.04.00 cont.

B4. If an aggressive reactor burn program develops utilizing local light water reactors (LWR), FMEF's expansion capabilities would permit the addition of an adjacent fuel fabrication facility capable of fueling both FFTF and local LWRs. This would provide space within the existing FMEF building to retrofit large-scale Pu metal-to-oxide conversion, plutonium scrap cleanup and limited plutonium

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09 09 08 Comment Number 11

It has been stated in this PEIS that it is DOE's position to keep the health risk for workers and public ALARA although there is no elaboration of how to implement the ALARA practice for each proposed alternative. The ALARA analysis and practice are the refinement of the design and operation. It needs more detailed information about the facility design, which is not available at this stage.

09 09 08 Comment Number 12

As stated in this comment, the PEIS was written before National Commission of Radiological Protection (NCRP) Report 121 was issued. To meet NEPA requirements, the latent cancer fatalities to the population are reported in this PEIS as they are calculated, even if the results are very small or insignificant. To help understand the radiation health risk and latent cancer fatalities, an explanation of these terms is included in Appendix M of the PEIS.

09 10 08 Comment Number 13

The detailed information about hazardous chemicals from the Proposed Alternatives and their health impacts to workers and the general public is described in Chapter 4 and Appendix M of this PEIS. The information contained in this PEIS includes the chemical emissions from the proposed facilities, toxicity of the emitted chemicals, the predicted chemical concentrations in the environment, and their health impacts to workers and the general public. The methodology used for the chemical hazards assessment is documented in the Methodology Report, Chapter 4, and Appendix M of this PEIS. The transportation of hazardous and non-hazardous material is presented in Appendix G.

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vitrification. Expertise and equipment from other countries to expedite early MOX fuel fabrication could be used as appropriate. | 3/01.04.00 cont.

B5. While the PEIS bounds environmental impacts in an extreme fashion, it doesn't represent a realistic fiscal approach nor a rapid deployment approach to a very real plutonium proliferation problem. The PEIS's lack of recognition and understatement relative to a group of facilities that exist and are environmentally adequate and appropriate to economically begin this project make the value of the document questionable. The PEIS must bound, but it must also incorporate realistic solutions. | 14/01.04.00

B6. The current federal government fiscal policy and environment do not correspond to the extreme facility requirements and description in the PEIS. There is a need to take every advantage of facilities and capabilities currently available and pursue a modular approach to the solution. The need for plutonium disposition is too great to have the program collapse upon itself due to inflated need assumptions and criteria. | 15/01.00.00

B7. While land is in plentiful supply at Hanford, the land requirements indicated for facilities necessary to perform disposition activities such as pit disassembly, plutonium conversion, immobilization, and MOX fuel fabrication seem to be significantly overstated. These land use requirements do not seem to be consistent with facilities that have previously accommodated these type of operations. In addition, potential utilization of existing facilities at DOE Sites for these disposition activities would result in considerably less land use than indicated. | 16/01.04.00

B8. It appears that insufficient consideration has been provided in the PEIS to facilities that are already constructed and operational or are partially complete and could be made operational at minimum cost. Facilities such as these, at which most of the costs of siting, design, construction, public safety evaluations, security systems and processes, and public acceptance have already been provided, should be given top priority in these considerations. | 2/08.03.01 cont.

B9. All waste streams that may be generated as a result of the implementation of the selected disposition alternative need to be thoroughly evaluated. Acceptable plans and processes to properly dispose of these waste streams must be solidly in place prior to putting the alternative into production. Further, synergism, not conflict, with vital on-going cleanup missions is possible. | 17/09.11.08

C. Reactor Burn Disposition Option

C1. We strongly recommend the most effective, permanent and fail-proof means of disposing of surplus weapon's materials, i.e., convert it to reactor fuel and irradiate it to the spent fuel standard. The excess plutonium represents hundreds of millions of dollars, if used in the form of reactor fuel that should be used to provide needed electrical power, cancer killing radioisotopes and tritium for | 1/08.03.01 cont.

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01 04 00 Comment Number 14

Comment noted.

01 00 00 Comment Number 15

Existing facilities have been considered in this PEIS to the extent practicable. For example, in the storage action, one of the three alternatives is Upgrade at Multiple Sites, which uses existing facilities. In the disposition action, existing reactors in the United States and Canada are included as alternatives as well as an existing vitrification facility at DOE's SRS.

01 04 00 Comment Number 16

The Department of Energy believes that the land use requirements identified for pit disassembly and conversion, immobilization, and MOX fuel fabrication are correct. If these requirements exceed what is eventually needed, the smaller requirement will be bounded by the environmental analysis.

09 11 08 Comment Number 17

The conceptual designs for the Consolidation and Collocation storage alternatives and the disposition alternatives have, as part of their design, waste management facilities that would treat and package all waste generated into forms that would enable long-term storage and/or disposal in accordance with RCRA and other applicable Federal and State statutes, and DOE Orders. For the Upgrade Storage Alternatives, site-specific waste management facilities were determined to be adequate. As the designs mature, process waste assessments which include individual waste stream characterization will be completed. No waste stream will be generated that cannot be treated and packaged into a form that enables long-term storage and/or disposal.

national defense. We believe the United States should move rapidly to lead the world in the safe and efficient disposal of excess weapons-usable fissile materials using the disposition method to which most other nuclear power countries are committed. 18/01.03.00

C2. No consideration was given to liquid metal reactor concepts for Pu disposition, although LMRs, especially FFTF, are specifically designed for flexibility in fuel use, and are particularly well suited to operate with mixed oxide (MOX). FFTF, the newest reactor in the DOE complex, has more than a 20-year remaining life and can "burn" significant quantities of plutonium, especially if highly enriched MOX fuel is used. FFTF should be included as a disposition option in the final PEIS.

C3. Hanford represents a unique and effective solution to the Pu disposition problem:

- Virtually the entire disposition cycle can be accomplished on a single site (Hanford), which has much of the security, public health and safety considerations and facilities already in place to commence the task.

- There is unprecedented local public acceptance of a Hanford Pu disposition mission. Unanimous endorsement was obtained from every elected city council member (Richland, Kennewick, Pasco, West Richland and Benton City) and county commissioner (Benton County) and from the Hanford Communities governing and administrative boards. Please note the endorsements attached to the cover letter. 3/01.04.00 cont.

- The FMEF is a facility effectively ready to accept plutonium and uranium oxides and convert them to MOX fuel for FFTF irradiation.

- The FMEF can readily accommodate the introduction of LWR MOX fuel fabrication equipment. (Unused state-of-the-art MOX fuel fabrication equipment is available from Siemens. Siemens also represents a local source of expertise to support the installation and operation of this equipment. Sandvik Special Metals represents a local source of high quality, reactor grade tubing for LWR fuel fabrication).

- WNP-2 is a modern BWR that can annually consume approximately 0.5 tons of weapons grade plutonium as MOX fuel.

- FFTF can use about 3/4 tons of plutonium per year as fuel to produce medical radioisotopes and/or tritium.

- WNP-1, if completed, could consume close to 1 ton of plutonium per year in the form of MOX fuel.

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01 03 00 **Comment Number 18**

Comment noted.

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- The weapons grade plutonium on-site plus any received from off-site should not need to be transported more than a few miles and never off the Hanford reservation until it has been converted to a spent fuel standard.

C4. Using weapons usable fissile material to generate electricity in a once-through cycle in existing light water reactors (LWRs) is the most technologically assured option. The PEIS should clearly define the burnup range for the spent fuel standard. Without this range, costs and benefits cannot be reasonably calculated. 19/08.03.01 20/01.02.00

C5. Prior to selecting LWRs as one of the preferred alternatives, specifics like ownership and management of the facility (i.e., control of operations), re-licensing, costs, taxes, waste management, new fuel, security, spent fuel and spent fuel disposal charges, if any, should be considered and described. 19/08.03.01 cont.

C6. The CANDU Reactor alternative is inconsistent with the criteria on 1) demonstrated technical viability, 2) fostering progress and cooperation with other nuclear weapons states and 3) environmental safety and health compliance. Placing U.S. weapons usable plutonium in the hands of a foreign government for disposition does not make sense for long term law, security and environmental, health and safety enforcement. (Recently, protests to this option have developed within Canada). 21/06.05.08 22/01.03.00

C7. Selection of the partially completed reactor alternative can provide major cost savings to the United States taxpayer and benefits to future generations. All of the screening criteria are met with this reactor alternative. A number of partially completed reactor sites are available for consideration. The PEIS should reference WNP-1 in its PEIS or remove all references to the TVA plant. The PEIS selects TVA's Bellefonte Nuclear Plant as the benchmark for reasons that even more strongly would justify selecting WNP-1. WNP-1 is on DOE land, less than five miles from the FMEF (the FMEF and WNP-1 share a common sewage treatment facility). DOE's Bonneville Power Administration is formally attached to the site, both financially and through electrical distribution. Prior to selecting a benchmark, a number of factors need to be considered, e.g., continuous preservation program, ASME pedigree maintenance, design documentation and security integrity, NRC inspections results, etc. 23/06.03.08 24/01.04.00

C8. Facility and operations "clustering" should be included in the PEIS. One of the current and highly successful business strategies is the concept of "clustering" semi-independent or synergistic businesses. Clustered businesses share overhead (infrastructure) costs and leverage a wide variety of inputs and outputs and resources. Five screening criteria can be directly and substantively influenced using the "cluster" approach: cost-effectiveness, timeliness, ES&H compliance, public and institutional acceptance, and additional benefits. Clusters are more economical because they reduce transportation, provide internal incentives for product and schedule, lower security risk, add regional employment stability and 25/01.04.00

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08 03 01 Comment Number 19

The Department of Energy acknowledges the commentor's support for the Existing LWR 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.

01 02 00 Comment Number 20

The technical, cost, and schedule analyses of the various alternatives are presented in a separate document to support DOE's ROD. This document was made available to the public for review beginning in late July 1996.

06 05 08 Comment Number 21

The following points are given in response to your comments:

a) The CANDU reactor has never been tested with industrial quantities of MOX fuel. However, the Canadians are performing limited testing of MOX fuel in test reactors. It is believed that CANDU reactors can utilize MOX fuel. The Technical Summary Report provides more information on CANDU technology.

b) Contrary to the comment, one of the strengths of the CANDU Reactor Alternative is the prospect of having a joint U.S.-Russian Pu disposition campaign in Canada.

c) In terms of ES&H compliance, the implementation of the CANDU Reactor Alternative would be performed in full compliance with both the U.S. and Canadian ES&H regulations, as applicable.

01 03 00 Comment Number 22

Should the CANDU Reactor Alternative be selected for disposition of Pu, agreement with the Canadian Government would be reached on the Pu disposition process, including safeguards and security requirements which call for facility inspection by the IAEA, as appropriate, and environmental analyses conducted with public involvement.

share environmental impacts. Synergism with on-going cleanup commitments would be expected. | 25/01.04.00 cont.

C9. Security or resistance to theft and diversion by unauthorized parties can be enhanced by "clustering". The PEIS should acknowledge that security (and public health and safety) is significantly enhanced when the transportation of weapons grade materials outside a federally secured site is reduced or eliminated. | 26/13.00.00

D. Combined Fuel and Reactor Subcommittees' Comments

The comments from these two combined subcommittees deal with recommendations or changes to the screening criteria. The screening criteria represent the foundational base of the PEIS. Recommended changes to the criteria are shown in bolded italics.

D1. Screening Criteria for Long-Term Storage Option

a. Environmental, Safety and Health (ES&H) Compliance: High standards of public and worker health and safety and environmental protection must be met ***nationally and internationally*** and significant additional ES&H burdens should not be created. ***Combinations of facilities and use of existing nuclear sites should be used to avoid "new" environmental burdens.*** | 27/01.05.00

b. Cost-Effectiveness: Long-term storage should be accomplished in a cost-effective manner and should be compatible with reasonable disposition alternatives. ***Potential for capital cost escalation shall be considered in the decision process. Proven technologies will minimize capital costs and are the least likely to escalate due to unknowns.*** | 28/01.05.00

c. Foster Progress and Cooperation with Russia and Other Countries: A facility ***(all facilities)*** must accommodate international inspection for surplus materials in unclassified shapes and must establish appropriate standards for storage and protection of international nuclear material inventories. ***Technologies used shall consider the applicability to other countries, for example, the selected alternative should be consistent with Russia's national priorities and be within their means to afford and safely implement.*** | 29/01.05.00

d. Public and Institutional Acceptance: An alternative should be able to muster a broad and sustainable consensus on the manner in which long term storage is accomplished. ***The long term storage alternative should be integrated with the existing site mission and provide assurance that proven means of public involvement exist for mission oversight from start to finish.*** | 30/01.05.00

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06 03 08 Comment Number 23

Comment noted.

01 04 00 Comment Number 24

The PEIS uses the Bellefonte Nuclear Plant as the basis for analysis of a partially completed reactor. If the Partially Completed Reactor Alternative is stated in the ROD, a competitive process would be used to select an actual reactor facility for implementation. This process would consider economics, existing infrastructure, and related factors.

01 04 00 Comment Number 25

The Department of Energy, as part of the ROD, will consider the benefits of grouping various facilities at DOE sites in order to take advantage of existing infrastructure, technical expertise, and related factors.

13 00 00 Comment Number 26

Comment noted. DOE will consider this information in its analyses and decisionmaking process.

01 05 00 Comment Number 27

The commentor's recommended inclusion is already an existing part of the criteria. A detailed description of all the screening criteria appears in Section 2.2 of the *Summary Report of the Screening Process*, March 1995.

01 05 00 Comment Number 28

The commentor's concern has been taken into consideration in the cost, schedule, and technical impact analysis which is presented in a separate document made available to the public for review beginning in late July 1996.

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D2. Screening Criteria for Disposition Options

a. Resistance to Theft and Diversion by Unauthorized Parties: Each step in the disposition process must be capable of providing for comprehensive protection and control of weapons-usable fissile materials. ***The comprehensive protection and control approach must demonstrate integration with the previous and following step.*** 31/01.05.00

b. Technical Viability: There should be a high degree of confidence that the alternative will be technically successful, ***with reliance on proven technology that can be economically supported and is available to former Soviet Union countries and other nuclear weapons states.***

c. Environmental, Safety and Health (ES&H) Compliance: High standards of public and worker health and safety and environmental protection must be met and significant additional ES&H burdens should not be created. ***The selected disposition alternative should take advantage of existing ES&H burdens to minimize total impact. New PEIS ES&H burdens should be integrated with existing federal and commercial ES&H burdens to avoid doubling the burden in the same exclusion zones.*** 32/01.05.00

e. Cost-Effectiveness: Disposition should be accomplished in a cost-effective manner and be compatible with reasonable long term storage alternatives. ***Disposition should capitalize on existing federal facilities and proven technologies to enhance cost effectiveness. Cost effectiveness shall consider internationally compatible technologies to foster international progress and cooperation. Selected alternatives should include the total life-cycle cost concept and be cost projected through the period estimated to complete the mission.*** 33/01.05.00

f. Timeliness: There is an urgent need to begin Pu disposition and to minimize the time period that surplus fissile materials remain in weapons-usable form. ***Each step in the process should be fully integrated into an overall project time table that includes steady state operation and D&D. Incentives and market competition shall be used to assure timeliness.*** 34/01.05.00

g. Public and Institutional Acceptance: An alternative should be able to muster a broad and sustainable consensus on the manner in which disposition is accomplished. ***The nationally and internationally accepted disposition alternative must be integrated with local/regional acceptance of the selected site(s). In addition to local/regional acceptance, decisions about plutonium disposition need to be based on objective analyses of cost, time, and risk. The selected site should have a functional public oversight board with broad regional representation and strong local municipality support.*** 31/01.05.00 cont.

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01 05 00 Comment Number 29

To the extent practicable, the commentor's recommendation was incorporated into the Nonproliferation Policy impact analysis presented in a separate document which was made available to the public for review in October 1996.

01 05 00 Comment Number 30

The Department of Energy has an ongoing effort in program integration in which public involvement is an important element.

01 05 00 Comment Number 31

Comment noted.

01 05 00 Comment Number 32

Comment noted.

01 05 00 Comment Number 33

Comment noted.

01 05 00 Comment Number 34

The commentor's concern has been taken into consideration in the cost, schedule, and technical impact analysis which is presented in a separate document made available to the public for review beginning in late July 1996.

h. Additional Benefits: The ability to leverage government investments for disposition of surplus materials to contribute to other national or international initiatives should be considered. ***The highest consideration should be given to prior unused or partially used government investments (facilities and/or infrastructure), especially those that are clustered, that could be leveraged to effect rapid, safe and cost effective plutonium disposition and to contribute to other national or international initiatives.*** 32/01.05.00 cont.

i. ***Waste Package and Byproduct Program Integration: The selected alternative shall consider all waste forms and their effective disposition, including provisions for D&D.*** 35/01.05.00

j. ***Local Public and Private Business Sector Involvement: The selected alternative shall use, to the maximum extent practicable, local private and public businesses, best commercial practices and incentives to best accomplish the mission.*** 32/01.05.00 cont.

E. Socioeconomic Issues

Since a number of the recommendations from the Advisory Committee support using already existing Hanford and/or local facilities, there were few new socioeconomic issues to consider. For example the Advisory Committee virtually discarded the "green field" strategy used in the PEIS, e.g., the construction of new facilities on geographically dispersed sites. Not disposing of weapons grade plutonium is believed to have far greater socioeconomic consequences than using existing Hanford assets and capabilities to responsibly and quickly demonstrate a workable international plutonium disposition model. 36/09.08.01

F. Transportation Issues

The group looking at transportation issues did not find anything in the PEIS that would be characterized as a "showstopper". Instead, a number of items of lesser consequences were discussed and are reported here for the purpose of addressing these in the final EIS. On the positive side, transportation of radioactive materials in this country has an excellent track record with few major accidents and no fatalities from release of material in accidents. This subcommittee concluded that transportation is a fully developed technology and with proper coordination and route selection, risk can be minimized. Hanford Site capabilities, as well as those of the surrounding communities, coupled with the new Hazardous Materials Management and Emergency Response (HAMMER) training facility, provide a unique combination of resources in support of on-site/off-site emergency preparedness.

However, because transportation often puts unwanted radioactive or hazardous materials in unwanted places, this topic will remain important relative to plutonium disposition. It is clear that the PEIS can take the position that there is convincing 37/10.00.00

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01 05 00 Comment Number 35

"Waste minimization" and "known and manageable waste forms" were included in the screening criteria, as described in the *Summary Report of the Screening Process*.

09 08 01 Comment Number 36

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

10 00 00 Comment Number 37

The PEIS transportation analysis includes the movement of material required for disposition at more than one location. If the common activity facilities (for example, pit disassembly facility) are located at the same site as the disposition activity facilities (for example, ceramic immobilization facility), then there would be a reduction in the transportation risk. The current analysis is bounding for activities at multiple sites.

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evidence that "clustering" of some or all of the various steps in locations, such as Hanford, with short relative inter-facility distances will result in lower fatalities due to a non-radiological caused accident. It is also clear, consistent with other commenters, that the PEIS is deficient in not calculating the transportation burden reduction by integrating the various transportation steps for different disposition and storage alternatives. — 37/10.00.00 cont. 38/10.00.00

F1. The packaging certifications (pedigrees) are not clearly explained, i.e., not all packagings possess the NRC endorsement. — 39/10.00.00

F2. Relative transportation risk bases are not clearly presented. — 40/10.00.00

F3. Alternatives in Chapter 2 do not address material transportation adequately or consistently. For example, in Section 2.4.1, Pit Disassembly/Conversion Facility; Section 2.4.5.2, Existing Light Water Reactor Alternative; and Section 2.4.5.4, Evolutionary Light Water Reactor Alternative, all should address all the applicable transportation streams and what special requirements apply such as security or special routing. — 41/10.00.00

F4. There are several examples of confusing references to DOT specification packaging versus NRC certified packaging. Some of these occur in Section 4.4, Intersite Transportation of Fissile Materials, and in Appendix G, Intersite Transportation "6M, 6M Type B, 6M-2R, Model 6M". The EIS needs to identify clearly which packaging is which. — 42/10.00.00

F5. Section 4.4.2.2, Packaging, does not adequately describe the safety basis of the DOT-6M packaging (an old grandfathered DOT Specification packaging container as shipped in the SST), particularly when compared with the safety basis of a state-of-the-art NRC certified spent fuel cask or the BUSS Cask. Many are not aware of the various systems that authorize Type B packages: DOT Specification (old), DOT Certificate of Competent Authority, NRC Certificate of Compliance, and DOE Weapons Program authorizations. They need to be defined and considered in the risk analysis. — 43/10.00.00

F6. "Potential fatalities" should be clearly defined in Section 4. — 44/10.02.00

F7. Section 4 infers that RADTRAN calculates the non-radiological risk, which it does not. — 45/10.02.00

F8. Page 4-772: The first sentence states "materials would be transported by SST or commercial equivalent truck." There is no commercially available equipment like the SST. — 46/10.00.00

F9. Page 4-773: The second sentence states "For relatively low-level radioactive materials, DOT Specification Type A packaging are used". It should be pointed — 47/10.00.00

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10 00 00 Comment Number 38

The transportation of materials for storage and disposition have been separated to allow for separate decisions. The summation of the results is conservative since it does not consider the integration of the two actions. All steps (for example, pit disassembly or MOX fuel fabrication) have been included in the transportation analysis for disposition.

10 00 00 Comment Number 39

The analysis for the storage and disposition alternatives evaluates the potential risks for transporting shippable forms of fissile materials (that is, Pu and HEU) that have been stabilized and packaged for shipment at the originating site. All packaging processes (and certifications) meet DOT and DOE requirements. NRC certification criteria is applied to all Type B packagings, as required by the DOT regulations. Section 4.4.2.2 of the PEIS presents information on packaging criteria established and enforced by Federal agencies. A thorough explanation of risk basis is presented within Sections G.1.1 and G.1.2 for truck/rail and port transit modes, respectively.

10 00 00 Comment Number 40

The human health risks of material transportations associated with the proposed Pu storage and disposition alternatives are evaluated and presented in Section 4.4 of this PEIS. The more detailed description of the methodology and supporting data for the analysis is presented in Appendix G. Transportation of radioactive materials between sites includes health risks for both normal operations and accident conditions to the public and workers.

10 00 00 Comment Number 41

The transportation issues raised require site-specific knowledge in order to describe the transportation streams and the special requirements which apply to each transportation scenario (security, special routing). Transportation of radioactive material from an existing LWR site and evolutionary LWR site may include several modes of transportation (truck, rail, barge, etc.) depending on the location of the site. Specific transportation streams and

out that strong tight containers are also allowed for low specific activity radioactive material shipments.	47/10.00.00 cont.
F10. Page 4-780: For the Deep Borehole emplacement alternative, it is not clear why shipments would follow immobilization and come from lag storage. Also, why the large difference in shipping volume capacity? For example, the shipping volumes of 5.5 tons per year seem low, when the immobilized pellets could be shipped at a rate of 551 tons per year.	48/10.00.00
F11. Page 4-781: The fifth paragraph mentions shipping one rail cask at a time for a total of sixty-four shipments per year. No mention is made of whether these shipments are by special train or regular train service. There is a big difference in cost associated with the two options.	49/10.00.00
F12. Page 4-783: Risk numbers are difficult to understand and follow. It seems that the difference in level of risk between processing in the United States versus processing in Europe, as depicted in Table 4.4.3.3-4 would be much greater than shown.	50/10.02.00
F13. Appendix G: The risk associated with the transportation of the materials would be better understood if it were broken into radiological and non-radiological categories. The radiological risks would also be more meaningful if they were reported for both accident and normal modes. One cannot easily compare the "summed all risks" numbers in this PEIS with other reports that do not use this method.	51/10.02.00
F14. Not enough information was given about the RADTRAN input values used. For instance, the following values should be included and referenced: release fractions (RFAC, HERSOL, RBSP), atmospheric dispersion values (for truck, rail, and oncoming highway traffic statistics).	52/10.02.00
F15. NUREG-0170 severity categories were used for all truck shipments. This may not be appropriate for the 6M shipments or for the 55-gallon drum shipments.	53/10.02.00
F16. Page G-3: Second paragraph, second sentence states that the 6M packages would be placed on Cargo Restraint Transporters (CRT) to facilitate loading and securing in the SST. What's the status on the CRT's? Several sites were told to return them. Are CRT's still being used on the SST's?	54/10.00.00
F17. Page G-3: The second sentence in the third paragraph mentions transferring the CRT's from an SST to a standard ISO container. Standard ISO containers do not have the floor tie down capability associated with the CRT's and available in the SST. A proper tie down pattern would have to be developed for ocean transport in ISO containers.	55/10.00.00

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special requirements will be addressed if these alternatives are selected for further consideration. Appendix G presents additional information on transportation of radioactive materials and types of packaging specific to the material to be transported.

10 00 00 Comment Number 42

The PEIS uses the terminology "6M Type B package" to designate both the generic package type identified in the DOT specification and the specific variation of the package type used by DOE. The specific package type used by DOE is denoted as the 6M-2R, consisting of the 6M Type B package using 2R inner containers.

All aspects of the transportation of radioactive materials within the United States are regulated at the Federal level by the DOT. The Federal regulations are implemented by both NRC licenses and DOE for the transportation of radioactive materials. Package designs meeting the Type B package performance criteria are considered by NRC and DOE to provide adequate protection of the public and operating personnel in the event of a transportation accident. The NRC has no regulatory authority regarding DOE transport of radioactive materials, although DOE does use NRC criteria for the certification of Type B packaging, including the 6M-2R.

The approval process followed by DOE regarding Type B packaging and transportation of radioactive materials is established by DOE Orders. Package design, testing, and safety information must be prepared for shipping packages proposed for use within the DOE complex. Review and approval of this information results in DOE's issuance of a Certificate of Compliance for the package and its use. In the case of the 6M Type B package, although the package meets DOT specification, the DOE approval process provides additional requirements prior to the package's use within the DOE complex.

10 00 00 Comment Number 43

A discussion of the safety basis of certified nuclear packaging is beyond the scope of the PEIS. The TI, which is a regulatory characteristic of a package, was estimated to be the maximum allowed by regulatory requirements and

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F18. The PEIS transportation burden does not include the risks for intermediate level and low level waste associated with each step of the process.	56/10.02.00
F19. No analysis of possible criticality incidents under accident conditions is provided.	57/10.02.00
F20. The PEIS does not adequately analyze both the regulations (NRC, DOT and DOE) and the history of interpretation of those regulations, which form the basis for defining a transportation system for plutonium.	58/10.00.00
F21. There are no references to the safeguards requirements for shipping Pu, even though these are extensive. It appears on page 4-771 that it is intended to utilize the SST for all shipments of Pu. Yet, on page 4-780, in the penultimate paragraph, it indicates that ceramic pellets containing 1% Pu might be shipped by commercial carrier. This is confusing.	59/10.00.00
F22. Some of the analysis appears based on RADTRAN without any conscious evaluation of the results. For example, Page G-3 states that "transits to ports are typically through low population density areas." Ports are almost universally located in cities where the population density is the highest.	60/10.02.00
G. Vitrification Disposition Option	
Evidence continues to build that vitrification is a viable alternative or a supplemental alternative to reactor burn as a means of disposing of plutonium. Vitrification supplements reactor burn by serving as a potential disposal means for contaminated plutonium and plutonium scraps otherwise unsuitable for manufacture into MOX fuel assemblies.	61/08.03.01
Incorporating several weight percent plutonium in a vitrified glass appears to be feasible. Criticality concerns about plutonium pooling in a vitrified melt are being dispelled with experimental data. In addition, neutron absorbers could be added to the matrix if deemed necessary. Durability of the glass product is a function of the type of glass limited by the maximum temperature of the melter. The borosilicate glass proposed in the PEIS can be processed at about 1050°C. Higher temperature melts can be achieved with less boron and more silicon, e.g., at about 1300 to 1500°C.	62/05.01.08
Small melter vitrification technology developed at Hanford over the past several decades and demonstrated in the 324 Building can be used as the basis for implementing a scaled-up version in a suitable Hanford facility. The planned TWRS high level tank waste vitrification project provides an opportunity for high radiation field "immobilization" techniques to be used for higher throughputs. In summary, all of the vitrification technology necessary to deal with a variety of vitrification alternatives resides at Hanford ready for implementation.	63/05.01.01

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used in the transportation risk analysis. A discussion of transport packaging is presented in Appendix G.

10 02 00 Comment Number 44

Potential fatalities are a conservative estimate of those fatalities that would result from both radiological and nonradiological risks from normal operations and accident conditions for a Proposed Action. A definition has been added to the Glossary (Chapter 7, *Glossary*) of the Final PEIS.

10 02 00 Comment Number 45

RADTRAN calculated only the radiological risk due to materials transportation. Nonradiological risk is calculated as described in Section G.1.1. Section 4.4.1 was clarified to state that RADTRAN only calculated the radiological risk.

10 00 00 Comment Number 46

If commercial trucks were utilized, additional requirements (physical and administrative) would be applied to provide equally effective safety and security measures as provided by SST.

10 00 00 Comment Number 47

The commentor is correct that strong, tight packagings can be used for low-level radioactive materials of less than Type A quantities. The text in Section 4.4.2.2 was changed to concur.

10 00 00 Comment Number 48

The Deep Borehole Alternative discusses the disposition of surplus weapons-usable Pu in two forms: (1) direct emplacement of Pu without immobilization and (2) Pu-loaded, ceramic-coated pellets. The amount of Pu to be transported for direct emplacement is estimated to not exceed 5 t (5.5 tons) per year. The amount of Pu-loaded, ceramic-coated pellets to be transported for emplacement is estimated to be 500 t (551 tons) per year. The Pu-loaded,

G1. Page 2-109: Under facility operations, it should be clarified whether the 25 kg per operating day throughput is for Pu only or for the immobilized waste form. This same comment applies to the ceramic waste form. | 64/05.01.08 | 65/05.02.08

G2. Page 2-110: Under waste management, what are "criteria" pollutants? | 66/05.01.08

G3. Use of Cs-137 or high level waste as a deterrent -- Anything that requires massive shielding will probably increase the cost of operations by a factor of 100. Any significant gamma emitter will decay away in less than 300 years and will be of no long term value. | 67/05.01.08

National Security

This subcommittee of the Advisory Committee had nothing new to add to the PEIS. Other participants of the Advisory Committee agreed with the screening criterion in the PEIS that "there is an urgent need to begin Pu disposition and to minimize the time period that surplus fissile materials remain in weapons-usable form." | 68/01.00.00

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ceramic-coated pellets contain 1 percent Pu. Therefore, the amount of Pu-loaded, ceramic-coated pellets would be 100 times as great as the amount of Pu for direct emplacement, or approximately 500 t (551 tons) per year.

10 00 00 Comment Number 49

Although shipments may be consolidated into "dedicated trains" of more than one car, the risk analysis has considered regular train services for these shipments. Several court decisions have shown there is no safety basis for the use of "special trains" for high-level nuclear materials. DOT, DOE, and NRC have provided no such direction that special trains will be used for radioactive materials.

10 02 00 Comment Number 50

The values given in Table 4.4.3.3–4 of the PEIS represent the "Total Potential Fatalities" associated with the transportation of Pu oxide, uranium oxide, and MOX, for the Reactor Alternative category. The quantities presented are a result of direct risk calculations which yield results in "numbers of human fatalities." In regard to accumulating the risks associated with a given transportation process, the maximum risk impacts from the transport of Pu oxide, uranium oxide, and MOX fuel under the Reactor Alternatives may be summed directly from Table 4.4.3.3–4. According to results calculated by the "industry-wide accepted" RADTRAN code, the highest number of total potential fatalities from the transportation of materials from lag storage to fuel fabrication and then to a reactor site is 4.16 for MOX fuel fabrication in the United States. In Europe, the number of potential fatalities for a similar procedural operation would be 4.62. The difference between 4.62 and 4.16 fatalities is essentially negligible. Risk differences between the two "regional" alternatives (that is, the United States vs. Europe) are very small for all stages involved.

10 02 00 Comment Number 51

The human health risks from the transportation of radioactive materials between sites include both radiological and nonradiological impacts to the

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Hanford Communities Advisory Committee

Review of Plutonium Disposition
Draft Environmental Impact Statement

Invited Participants*

Mr. Jack Baker
Mr. Walt Blair
Mr. Joe Burn
Dr. John Calcagni
Dr. Tom T. Claudson**
Mr. Rob Davis
Mr. Lanrin R. Dodd
Dr. Ersel Evans**
Mr. Greg Field
Dr. Michael Fox
Ms. Janet Green
Dr. Tom Henn**
Mr. Harold Heacock
Dr. John Honekamp
Mr. Rich Hoyt
Mr. Jim Hummer
Mr. Bill Irvine
Mr. Bob Jefferson
Mr. Ron Kathren
Mr. Jack McElroy
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Mr. Craig Williamson**
Mr. Gene Wirth
Dr. Martin Wistisen
Mr. Tom Woods**

Ms. Pam Brown, Hanford Analyst
Dr. Ray Robinson, Project Consultant

*Some of those invited could not participate because of potential conflicts of interest, some participated on an ex-officio basis only, and some had only minor involvement because of illness or travel schedules. The majority of those invited did participate providing valuable contributions.
**Sub-committee Chairs

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public and workers. The categories of calculated risk include nonradiological accident impacts to the public and workers, nonradiological normal operation impacts to the public (air pollution), radiological accidents to the public, and radiological normal operation impacts to the public and workers. The risk to the public for radiological accidents is an order of magnitude less than either nonradiological accidents or radiological exposures during normal operations.

10 02 00 Comment Number 52

Appendix G of the PEIS discusses the pertinent methodology and associated parameters utilized in the transportation modeling via the RADTRAN code. The scope of this document does not require scientific detail regarding input parameters to exceed that of a programmatic level.

10 02 00 Comment Number 53

This PEIS evaluated the potential for highway accidents and radioactive releases from the 6M shipments during transport in terms of eight accident severity categories identified in NUREG-0170 and implemented through analysis by the RADTRAN 4.0 computer code. The accident categories ranged from the least severe and most frequent accident (Category I) to the most severe and least frequent accident (Category VIII). NUREG-0170 characterizes package response to these accident categories in terms of release fractions based on the package type, transportation mode, and accident category. DOE considers the accident category information presented in NUREG-0170 to adequately cover the transport mode and package types addressed in the PEIS.

10 00 00 Comment Number 54

The CRTs are still being used on the SST.

HANFORD ADVISORY BOARD

A Site Specific Advisory Board, Chartered under the Federal Advisory Committee Act

David Nulton
Director, NEPA Compliance and Outreach
Office of Fissile Materials Disposition
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PO Box 23786
Washington, DC 20026-3786

Sent by Facsimile to 1-800-820-5156 and by US Mail

May 3, 1996

Dear Mr. Nulton:

Re: Storage and Disposition of Excess Weapons Useable Plutonium and Special Nuclear Materials (SNM) (HAB Advice #46)

The draft Plutonium Programmatic Environmental Impact Statement (PEIS) indirectly considers Hanford as a potential site for certain activities within the scope of the plutonium safe storage and disposition program by the virtue of the site's current capability and plutonium possession. The Hanford Advisory Board is opposed to the piecemeal approach to nuclear material storage and disposition like that taken in the PEIS on plutonium disposition. We have on three previous occasions adopted advice to USDOE urging an integrated public discussion on these issues. (Board Advice #13, 34 and 38) We have a commitment from USDOE leadership to initiate such a process. Therefore, a ROD on the narrow choices presented in this EIS is premature pending the National Equity Dialogue. The Board is opposed to the use of the bore hole option at Hanford. At this time, the Board has not expressed a preference for one of the other disposal options. However, the Board does have a number of values/issues which relate to a plutonium (Pu) and spent nuclear material (SNM) program. Many of these values/issues have been previously provided to you as advice or recommendations for other Hanford programs. These values are: 69/08.02.00 70/08.03.01

1. Any plutonium or SNM storage or disposal program must be compatible and integrated with the TPA commitments and milestones and should not affect the rate or funding of cleanup. The program would have the safe disposition of Hanford plutonium as a priority. 7/11.00.01 cont.

HAB Consensus Advice #46 Page 1
Subject: Storage and Disposition of Excess Weapons Useable Plutonium and Special Nuclear Materials (SNM)
Adopted: May 2-3, 1996

Contact: Confluence Northwest, Facilitation Team
800 NW Sixth Avenue, Suite 342, Portland OR 97209-3715 Phone (503) 243-2693 Fax (503) 243-2683

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10 00 00 Comment Number 55

Transportation component design specific to this situation is beyond the scope of this PEIS. If design changes are necessary for ISO transport to occur, proper modifications would be expedited to meet the necessary criteria.

10 02 00 Comment Number 56

The number of shipments of LLW and TRU waste is stated in the waste management section for each storage and disposition alternative. The radioactive wastes included in the transportation analysis is shown in Table 4.4.2.2–1. Transportation of the wastes is included for each storage and disposition option as stated in Section 4.4.3.

10 02 00 Comment Number 57

The form and limited quantities of material shipped and the design of the packaging system prohibit criticality. Controls are implemented by following DOT regulations for the TI.

10 00 00 Comment Number 58

The comment was given consideration for the Final PEIS but only current regulations are stated in the document. A list of Federal and State regulations is included in Appendix J.

10 00 00 Comment Number 59

The mode (SST, commercial truck, rail) for shipping materials under each alternative is identified in Table 4.4.2.2–1. The safe secure transport of special nuclear materials is described in the new Section G.6. Transport of immobilized Pu-loaded ceramic coated pellets (1 percent) could be by either SST or appropriate commercial truck. The decision would be made in siting studies if either of the Deep Borehole Categories is selected.

10 02 00 Comment Number 60

RADTRAN analysis considers population densities as explained in Section G.1. Because of the radioactive nature of the material being shipped, the

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2.	Any plutonium program assigned to Hanford must be fully funded from new funding sources. This funding should include appropriate site infrastructure and overhead costs. Funding should fully cover the cost of treatment, storage and disposal of any new waste streams.	72/07.00.00
3.	The acceptance of plutonium at Hanford should not delay, defer, or negatively impact Hanford cleanup.	73/11.00.01
4.	Appropriate local and regional public information and involvement programs must be conducted by the agencies to ensure that the public is fully informed of the risks, hazards and impacts of such a program. This would be part of the national dialogue on all nuclear materials (noted above) prior to assignment of nuclear materials to a specific site.	74/08.02.00
5.	Any permit or plan approval for new Hanford programs/activities must be fully integrated and must comply with all State of Washington public health and safety rules and regulations.	75/08.03.00
6.	Equity impacts must be addressed in the assignment of new nuclear materials (including plutonium) to Hanford.	76/01.00.00
7.	The transportation of plutonium and special nuclear materials to Hanford storage will require careful planning of routes and consideration of weather emergencies to minimize the likelihood of an accident. Emergency preparedness for minimizing the impacts from an accident will require financial support from DOE for state, tribal, and local involvement, including adequate equipment and training. When materials are shipped, timely notification should be provided to transportation agencies.	77/10.01.00
8.	The choice of disposal options re: Pu will be a determinant for sites such as Hanford. Prior to the choice of a disposal option, complete characterization of the material and the impacts of short and long-term disposition technologies must be reviewed by the public and regulatory agencies.	78/08.02.00
9.	Acceptable processing techniques including waste processing must be developed as an integrated part of any new Hanford storage and disposal program. Permanent disposal of waste plutonium at Hanford is not acceptable.	79/09.11.01

HAB Consensus Advice #46 Page 2
Subject: Storage and Disposition of Excess Weapons Usable Plutonium and Special Nuclear Materials (53-3-4)
Adopted: May 2-3, 1996

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Military Ocean Terminal, Sunny Point, North Carolina, was used for analysis in the PEIS. Sunny Point is a remote, controlled-access port for military ammunition shipments and would likely be the shipping point.

08 03 01 Comment Number 61

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 08 Comment Number 62

Comment noted.

05 01 01 Comment Number 63

Comment noted.

05 01 08 Comment Number 64

Clarification was made in Section 2.4.4.1 of the Final PEIS.

05 02 08 Comment Number 65

Clarification was made in Section 2.4.4.2 of the Final PEIS.

05 01 08 Comment Number 66

Criteria pollutants are defined in the *Clean Air Act* (CAA) in a listing of chemical pollutants for which certain concentration levels are not to be exceeded without monitoring and possible mitigation.

05 01 08 Comment Number 67

Comment noted. The Spent Fuel Standard involves a radiation barrier that decays over time.

10. A "systems" analysis approach should be utilized to select the most effective method for processing and interim storage. This analysis should adequately address public and worker health and safety and environmental issues. | 80/08.03.00

11. If a plutonium disposition mission is assigned to Hanford, every effort should be made to use existing workforce, facilities, technologies, and other resources. | 81/09.00.01

Finally, we note that this PEIS does not address cumulative impacts of nuclear material movement and disposition as required by NEPA. | 82/08.00.00

The Health, Safety and Waste Management Committee of the HAB looks forward to further discussions and working with you on this issue. The Board looks forward to your written response, as called for in our charter.

Very truly yours,

Merilyn B. Reeves, Chair
Hanford Advisory Board

attachments: Board Advice #13, 34 and 38

cc: Thomas Grumbly, DOE
John Wagoner, DOE
Alice Murphy, DOE
Chuck Clarke, EPA
Mary Riveland, Ecology
Cindy Kelly, Designated Federal Official
Linda Lingle, Site Representative
Jim Mecca, DOE (by fax)
The Oregon and Washington Congressional Delegations

HAB Consensus Advice #46
Subject: Storage and Disposition of Excess Weapons Usable Plutonium and Special Nuclear Materials (SNM)
Adopted: May 2-3, 1996

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01 00 00 Comment Number 68

Comment noted.

08 02 00 Comment Number 69

The Department of Energy acknowledges the commentor's support for coordination and increased understanding of decisions to be made on the storage and disposition of weapons-usable fissile materials. However, the National Dialogue Project is beyond the scope of this PEIS.

08 03 01 Comment Number 70

The Department of Energy recognizes the commentor's concern with the Borehole Alternatives. Decisions on the disposition alternatives will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

08 03 00 Comment Number 71

The Department of Energy acknowledges the commentor's concern about the potential effect that the selection of Hanford for new missions could have on the Hanford clean-up program. Decisions on storage and disposition of weapons-usable fissile materials will be based on environmental analyses, technical and economic studies, national policy considerations, and public input. The decision process will also give consideration to existing agreement between DOE, the State of Washington, and the EPA.

07 00 00 Comment Number 72

Funding for all alternatives will be through the budget process, and is not a part of the NEPA process.

11 00 01 Comment Number 73

The Department of Energy will not begin implementation of the Proposed Action at any site without having given full consideration to the

environmental, cost, schedule, and policy analyses, public comments, and agreements with various states regarding the clean-up activities on the sites. Therefore, implementation of the Proposed Action is not expected to cause adverse impacts to ongoing programs at the selected site(s).

08 02 00 Comment Number 74

The Department of Energy uses a wide variety of methods to communicate with the public on these important issues. These methods include public meetings, as part of the NEPA process, and meetings outside of the process such as the Plutonium Round Table. Numerous fact sheets and displays are made available at the meetings as well as by mail. All of this information is available on the Program's electronic bulletin board. A video produced by the Oregon Department of Energy was underwritten by DOE.

08 03 00 Comment Number 75

It is recognized that the decision to locate any of the alternatives at a site would require coordination with State and local officials on a variety of areas including the mission of the site.

01 00 00 Comment Number 76

Comment noted. Equity will be considered in DOE's decisionmaking process, along with all other factors.

10 01 00 Comment Number 77

Logistical planning and meteorological surveillance are standard concerns which normally receive a great deal of attention during transportation operations such as this; transfer of materials to Hanford will hold no exceptions. Emergency preparedness personnel (that is, Emergency Response Teams) will be supplied with the necessary equipment and training commensurate with DOT, DOE, and NRC regulations. Sufficient funding for these concerns will be available to satisfactorily ensure that potential contingencies be dealt with in an effective and timely manner. DOE provides

liaison with appropriate agencies for special nuclear material shipments. However, due to their classified nature, specific information on times and dates cannot be provided.

08 02 00 Comment Number 78

Before and after decisions are made on a disposition technology or technologies, DOE will conduct studies and technical demonstrations to fully understand the impact of disposition actions. This information will be made available to the public, to the extent possible.

09 11 01 Comment Number 79

The conceptual designs for the storage and disposition facilities have, as part of their design, waste management facilities that would treat and package all waste generated into forms that enable long-term storage and/or disposal in accordance with RCRA and other applicable Federal and State statutes and DOE Orders. As noted in Section 4.1.10 of the PEIS, waste management activities that would support the long-term storage or disposition of weapons-usable fissile materials were assumed to be in accordance with current site practice. Thus, only LLW and possibly some solid nonhazardous waste was assumed to be disposed of onsite. Any future waste management facilities that may be required to support the long-term storage or disposition of weapons-usable material would be coordinated with any decisions in the waste-type-specific RODs resulting from the Waste Management PEIS and respective site-specific NEPA documentation.

08 03 00 Comment Number 80

Comment noted.

09 00 01 Comment Number 81

Comment noted and will be taken into consideration when DOE is ready to select sites to implement Pu disposition.

08 00 00 **Comment Number 82**

The Department of Energy has determined that, based on historical trends and regulatory constraints, impacts associated with transportation of nuclear materials are unlikely and not otherwise significant. Therefore, no cumulative effects analysis of transportation impacts were performed. The cumulative impact analysis is located in Section 4.7 of the PEIS.