

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY,  
WASHINGTON, DC, DAN FENSTERMACHER  
PAGE 1 OF 13

NUCLEAR SAFEGUARDS AND TECHNOLOGY DIVISION  
BUREAU OF NONPROLIFERATION POLICY



UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY  
320 21st St, N.W., Rm. 4004  
Washington, DC 20451

FAX COVER SHEET

TO: DOE/MD-1 -- David Nulton

FAX NUMBER: 586-4078

DATE: May 7, 1996

.....

FROM: Dan Fenstermacher

FAX NUMBER: (202) 647-4467 (fax)

PHONE NUMBER: 647-2833 (direct line/audix) -1140 (secretary)

.....

MESSAGE:

COMMENTS ON DRAFT PEIS ON DISPOSITION

Attached are written comments and selected pages with comments in the margins. These are preliminary comments only, and not meant to imply ACDA concurrence with the entire Draft PEIS.

.....

PAGE ONE OF 13  
IF PAGES ARE NOT RECEIVED, PLEASE CALL: (202) 647-2833.

1. One point stands out in particular -- ~~the phrase "peaceful beneficial reuse whenever possible" on p. S-5 must be deleted.~~

Since disposition of surplus HEM is covered in a separate PEIS, this phrase directly implies that re-use of Pu is in our interest "whenever possible," which is in direct contradiction to our national policy (cf. p. A-2 for U.S. policy on non-encouragement of civil use of Pu). The criteria listed on pp. 2-6 and 2-7 correctly make no mention of "re-use" of Pu as a desirable, but the language on p. S-5 is incorrect.

1/01.04.00

2. Conceptually, there is also a confusion with the formulation of the MOX option on p. S-7.

If that box is meant to describe MOX as it relates to the "disposition alternative," then it must add the phrase "and subsequent use of that fuel in a reactor." Otherwise, it implies that fresh MOX is a suitable endpoint that meets the spent fuel standard, which it does not.

2/06.01.08

3. Finally, the "destinations" at the end of the disposition alternatives in the figure on p. S-11 are confusing.

Since the figure gives the destination "Domestic High Level Waste Repository" for Immobilization and Reactor options, but "Deep Borehole" for the deep borehole option, it implies that the PEIS is comparing the immobilization and reactor options all the way through to the final repository. I had understood this not to be the case, but rather that the options were being compared only through the achievement of the "spent fuel standard," which is achieved during "interim" storage of the vitrified forms or in spent fuel pools (or dry storage) for the reactor options. This figure should not imply that the more difficult problem of ultimate repositories is being addressed in the comparison as well. I've proposed a wording fix in the margins.

3/12.00.00

F-042

01 04 00                      **Comment Number 1**

The Department of Energy agrees that this phrase is inaccurate. It has been removed from the PEIS.

The specific purpose of DOE's PEIS effort is to evaluate alternatives for the disposition of surplus weapons-usable Pu that would render the Pu as inaccessible and unattractive for reuse in nuclear weapons as the much larger and growing quantity of Pu that exists in spent nuclear fuel from commercial power reactors. This condition is referred to as the Spent Fuel Standard. If an alternative using MOX fuel in reactors is selected, the surplus Pu would eventually be contained in spent fuel and, by definition, the Spent Fuel Standard would be achieved.

While the PEIS discusses the generation of spent fuel as an indirect result of potential disposition actions, any subsequent reprocessing and extraction of Pu from that spent fuel is beyond the scope of the PEIS and the fundamental nonproliferation purpose of the disposition effort. The fact that the PEIS evaluates disposition of surplus weapons Pu through use in MOX fuel, but does not further evaluate reprocessing of the spent fuel, does not foreclose policy or technology options, nor does it prejudice further decisions regarding the management or disposition of the spent fuel.

06 01 08                      **Comment Number 2**

Comment noted. It is DOE's intent to use the MOX fuel in a reactor to achieve the Spent Fuel Standard. Also, in the cases of the Reactor Alternatives and the Immobilization Alternatives, DOE would process the material to the Spent Fuel Standard, but would not include geologic emplacement as a part of the material disposition program. Geologic emplacement of the material forms for these alternatives in the NWPA-HLW management system could be subsequently implemented.

12 00 00                      **Comment Number 3**

Comment noted. This figure has been modified to clarify that the NWPA-HLW repository is not included in the scope of the environmental analysis.

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY,  
WASHINGTON, DC, DAN FENSTERMACHER  
PAGE 3 OF 13

result of the NEPA process will identify plans for fulfilling the Nation's weapons-usable fissile materials storage needs well into the next century. These decisions are as follows:

For storage:

- The strategy for long-term storage of weapons-usable Pu and nonplutonium HEU
- The storage site(s)

For disposition:

- The strategy and technologies for disposition of surplus weapons-usable Pu

The Department, with interagency coordination, will then issue the ROD. Following the ROD, tiered project-specific NEPA documents will be prepared, as necessary.

DEVELOPMENT OF ALTERNATIVES

This FEIS analyzes a number of reasonable alternatives for storage and disposition, in addition to the No Action Alternative. The Department used a screening process along with public input to identify a range of reasonable alternatives for the storage and disposition of weapons-usable fissile materials. The process was conducted by a screening committee that consisted of experts from DOE assisted by technical advisors from the Department's national laboratories and other support staff. The committee was responsible for identifying the reasonable alternatives to be evaluated. It compared alternatives against screening criteria, considered input from the public, and utilized technical experts and analyses from the national laboratories and industry to develop a final list of alternatives.

The first step in the screening process was to develop criteria against which to judge potential alternatives. The criteria were developed for the screening process based on the President's Nonproliferation and Export Control Policy of September 1993, the Joint Statement Between the United States and Russia on Non-proliferation of Weapons of Mass Destruction and the Means of Their Delivery of January 1994, and the analytical framework established by the NAE in its 1994 report, *Management and Disposition of Excess Weapons Plutonium*. The criteria include nonproliferation; security; environmental, safety, and health; timeliness and technological viability; cost-effectiveness; international cooperation; and ~~public and institutional acceptance~~. The criteria were discussed at the public scoping workshops, and participants were invited to comment further using questionnaires. The questionnaires allowed participants to rank criteria based on relative importance, comment on the appropriateness of the criteria, and suggest new criteria. Details on how the screening process was developed and applied, and the results obtained from the process, were published in a separate report (*Summary Report of the Screening Process to Determine Reasonable Alternatives for Long-Term Storage and Disposition of Weapons-Usable Fissile Materials*, DOE, March 1995).

Development of Long-Term Storage Alternatives

For long-term storage, DOE began with five potential action alternatives (see Figure 5-2), as well as the No Action Alternative. The screening process identified two action alternatives as reasonable: (1) upgrade interim storage facilities and (2) consolidate storage at DOE sites. The second alternative was later refined and converted into two alternatives: consolidate Pu storage at one site (while HEU storage remains at Oak Ridge Reservation [ORR]), and collocation of Pu and HEU storage at one site. Each action alternative was further refined by dividing storage of the nonplutonium material (excluding materials in use) into two subcategories for analysis. One subcategory for each action alternative includes storage of strategic reserves, programmatic

materials, and spent nuclear fuel—that is, the combined storage of the nonexcess materials (excluding materials in use). Another subcategory includes spent nuclear fuel, but excludes the strategic reserves and defense-related programmatic materials that are being analyzed in the Programmatic Environmental Impact Statement for Stockpile Stewardship and Management (Stockpile Stewardship and Management PEIS). In this way, a full range of reasonable storage alternatives is analyzed. Therefore, a total of three reasonable long-term storage alternatives (with subalternatives and options), in addition to the No Action Alternative, were selected for analysis in the PEIS.

To select candidate sites for long-term storage, DOE used a separate set of siting criteria consistent with those used in the evaluation of sites for reconfiguration of the Nuclear Weapons Complex in February 1991. The siting criteria included population; environment, safety, and health; socioeconomic; transportation; and site availability and feasibility. The process resulted in six candidate storage sites: Hanford Site (Hanford), Nevada Test Site (NTS), Idaho National Engineering Laboratory (INEL), Pantex Plant (Pantex), ORR, and Savannah River Site (SRS).

#### Development of Long-Term Storage Subalternatives

With the exception of weapons program materials in use, this PEIS analyzes the environmental impacts of reasonable alternatives for long-term storage of all surplus and nonexcess weapons-usable fissile material categories (see Figure E-1). In DOE's Stockpile Stewardship and Management PEIS, a portion of the nonexcess weapons-usable fissile materials, namely the strategic reserve materials and the Pu-242 materials used for weapons R&D, is being analyzed for long-term storage at only ORR, Pantex, and NTS. For this reason, the Storage and Disposition PEIS includes a subalternative analyzing the environmental effects of each long-term storage alternative without this portion of the materials. Both documents are analyzing the same resources and environmental issues affected by the proposed actions. Recommended preferred alternatives will be presented to the Secretary on both PEIS's before the Secretary's decision and the publication of the RODs.

Because of mission changes, the proximity of Rocky Flats Environmental Technology Site (RFETS) to the Denver metropolitan area, and the fact that three out of the top five facilities identified in DOE's *Plutonium Working Group Report on Environmental, Safety, and Health Vulnerabilities Associated With the Department's Plutonium Storage* (November 1994) are located at the site, RFETS is considered as a storage site only under the No Action Alternative in the Storage and Disposition PEIS. For other long-term storage alternatives, existing Pu stored at RFETS would be moved to one or more other Pu storage sites.<sup>2</sup> Therefore, DOE developed a subalternative under the Upgrade at Multiple Sites Alternative to analyze the storage of all or some Pu from RFETS at each candidate site.

#### Development of Disposition Alternatives

For disposition, DOE began with 37 potential action alternatives (see Figure E-3), as well as the No Action Alternative. Using the same criteria as for long-term storage, DOE identified 11 reasonable alternatives for surplus Pu disposition: (1) deep borehole (immobilization), (2) deep borehole (direct emplacement), (3) surplus plutonium glass immobilization, (4) ceramic immobilization, (5) electrochemical treatment, (6) immobilization glass immobilization, (7) Burnable mixed oxide (MOX) fuel fabrication, (8) reactor burning, (9) existing light water reactors (LWRs), (10) partially completed LWRs, (11) evolutionary or advanced LWRs, and (12) Canadian Deuterium Uranium (CANDU) reactors. Upon further study of supply/demand conditions for Burnable MOX fuel and due to lack of maturity of the technologies for boronated glass immobilization, DOE deleted alternatives (6) and (7). However, MOX fuel fabrication (but not reactor burning) at European

<sup>2</sup> Small quantities of weapons-usable fissile material from two additional sites, Los Alamos National Laboratory and Lawrence Livermore National Laboratory, will be analyzed in the Final Storage and Disposition PEIS. The materials at these sites consist of small amounts of recently declared surplus Pu and Pu materials currently in active program use. The Draft Storage and Disposition PEIS only analyzes the transportation impact of these materials to other storage sites.

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY,  
WASHINGTON, DC, DAN FENSTERMACHER  
PAGE 5 OF 13

*possibly had a separate option*

*Disposition* *Storage options and*

*and up?*

*Summary*

Facilities remain a reasonable short-term option for the Existing LWR Alternative. Therefore, a total of six reasonable disposition alternatives, in addition to the No Action Alternative, were selected for analysis in the FEIS. These alternatives were grouped into three alternative categories: Deep Borehole, Immobilization, and Reactor.

Facilities under each alternative within the Immobilization and Deep Borehole Categories could be designed such that they could process all the surplus Pu over their operating lives. Each disposition alternative under the Reactor Category would consist of reactors that could consume all the MOX fuel produced from surplus Pu. However, because existing surplus Pu comes in various forms, and some of these forms may not be suitable for conversion to MOX fuel, the *best* disposition of surplus weapons-usable Pu may involve a combination of disposition alternatives.

#### Deep Borehole

A borehole extended several kilometers below the water table into ancient, geologically stable rock formations.

#### Pu Immobilization

A process that immobilizes Pu to create a chemically stable form for disposal.

#### Mixed Oxide Fuel

A blend of uranium dioxide (UO<sub>2</sub>) and plutonium dioxide (PuO<sub>2</sub>) that produces a fuel suitable for use in a nuclear reactor to generate electric power, and subsequent use of the fuel in a reactor.

This Storage and Disposition FEIS identifies the reasonable long-term storage and disposition alternatives as follows:

#### Long-Term Storage:

- Long-Term Storage Alternatives
  - Upgrade or Multiple Step Alternative
  - Consolidation of Pu Alternative
  - Collocation of Pu and HEU Alternative
- Candidate Storage Sites
  - Hanford
  - NTS
  - INEL
  - Pantex
  - ORR
  - SRS

e-7

F-042

Summary

A preferred alternative has not yet been identified. Upon consideration of comments on this draft document and after completion of technical, schedule, cost, and policy assessments, DOE will identify a preferred alternative in the Final Storage and Disposition FEIS.

**NO ACTION AND LONG-TERM STORAGE ALTERNATIVES**

*No Action Alternative*

The No Action Alternative for storage and disposition of weapons-usable fissile materials consist of two parts: (1) no change in current storage location for Pu and HEU and (2) no disposition of surplus Pu. DOE may choose part one, part two, or both parts of the No Action Alternative. if only part one is chosen so change in current long-term storage will take place, other than environmental and safety upgrades. Therefore, existing storage facilities at DOE sites would be used for continued storage of HEU and non-surplus Pu (the No Action Alternative for these materials), while decisions would be made for surplus Pu disposition. If only part two is chosen, disposition of surplus Pu will not occur, and this material would remain in storage. Therefore, decisions on long-term storage would become the "No Disposition Action" for surplus Pu. If both parts are chosen, no Pu disposition and no change in current storage of Pu and HEU will occur. This case is being analyzed in the Storage and Disposition FEIS as the baseline case for the No Action Alternative.

many  
copies  
to be  
inserted  
allow  
padding!

Under the No Action Alternative, all weapons-usable fissile materials would remain in existing storage facilities. Maintenance at existing storage facilities would be done as required to ensure safe operation for the balance of the facility's useful life. Sites covered under the No Action Alternative include Hanford, INEL, Pantex, ORR, SRS, and RFETS. Although there are no weapons-usable fissile materials within the scope of this FEIS stored currently at NTS, NTS is analyzed under No Action to provide an environmental basis against which impacts of the storage and disposition alternatives are analyzed.

*Upgrade at Multiple Sites Alternative*

Under this alternative, DOE would either modify certain existing facilities or build new facilities, depending on the site's requirements to meet standards for nuclear material storage facilities, and would utilize existing site infrastructure to the extent possible. These modified or new facilities would be designed to operate for up to 50 years. Pu materials currently stored at Hanford, INEL, Pantex, and SRS would remain at those four sites, and HEU would remain at ORR. Currently, NTS does not store weapons-usable fissile materials that are within the scope of this FEIS and, therefore, it is not a candidate site for this alternative.

A subalternative of relocating the Pu inventory (approximately 12.7 t [14.0 tons], as stated in the DOE's Openness Initiative of February 6, 1996) from RFETS to one or more of the four existing Pu storage sites is analyzed. Storage without strategic reserve and weapons R&D programmatic materials is also included as a subalternative to coordinate with analysis in the Stockpile Stewardship and Management FEIS.

Within each of the five candidate storage sites under this alternative, there are one or more storage options. A summary of these options is presented in Table S-1.

*Consolidation of Plutonium Alternative*

Under this alternative, Pu materials at existing sites would be removed, and the entire DOE inventory of Pu would be consolidated at one site, while the HEU inventory would remain at ORR. Again, the four sites with existing Pu storage are candidate sites for Pu consolidation. In addition, NTS and ORR are candidate sites for this alternative. Consolidation of Pu at ORR would result in a situation in which inventories of Pu and HEU are collocated at one site.

F-042

3-1071

Comment Documents  
and Responses

3-1072

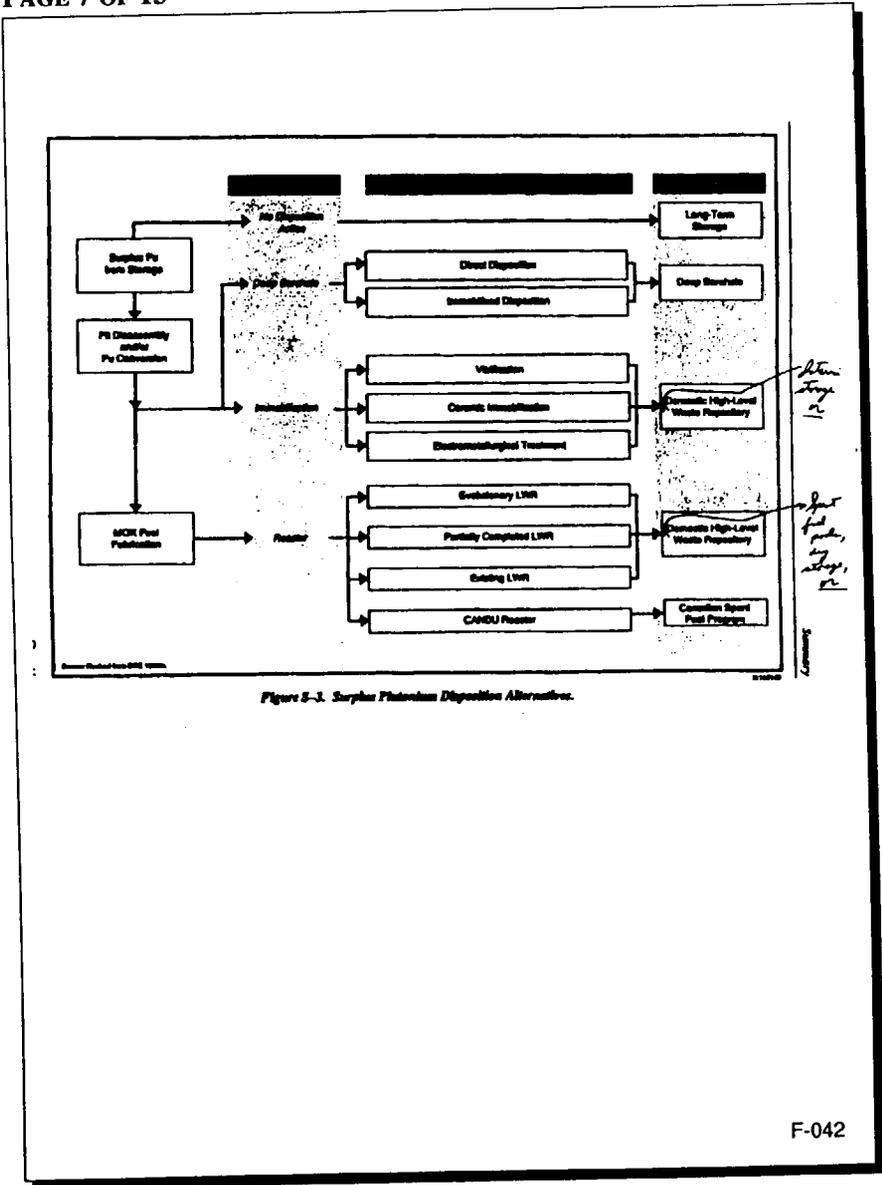


Figure 5-3. Surplus Plutonium Disposition Alternatives.

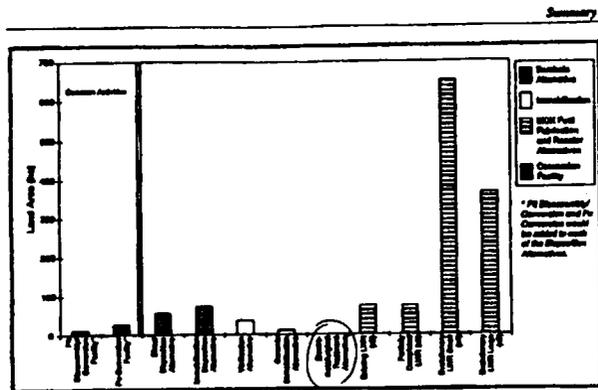


Figure S-14. Operation Land Use by Disposition Alternative.

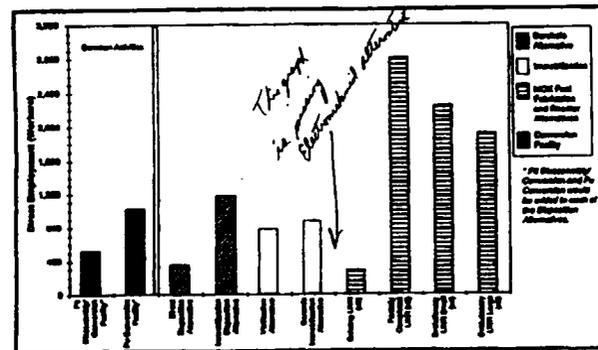


Figure S-15. Maximum Direct Employment Generated by Disposition Alternative.  
 (generally consider a positive impact, in contrast to the previous subject)

only graph  
 in  
 report  
 all other  
 are  
 not  
 (perhaps  
 could  
 be  
 added  
 to  
 caption)

F-042

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY,  
 WASHINGTON, DC, DAN FENSTERMACHER  
 PAGE 9 OF 13

paleontological resources, public and occupational health and safety, and interstate transportation could be susceptible to adverse cumulative impacts. At SRS, waste management and public and occupational health and safety would be vulnerable, and air quality, cultural and paleontological resources, environmental justice, and interstate transportation could be susceptible to adverse cumulative impacts.

Idaho National Engineering Laboratory, NTS, and Hanford would be the least vulnerable to cumulative impacts from the disposition alternatives. At INEL, waste management and socioeconomic (local transportation) would be vulnerable, and air quality, biological resources, cultural and paleontological resources, public and occupational health and safety, and interstate transportation could be susceptible to adverse cumulative impacts.

At NTS, waste management would be vulnerable, and air quality, biological resources, cultural and paleontological resources, public and occupational health and safety, and interstate transportation could be susceptible. At Hanford, waste management would be vulnerable, and air quality, biological resources, cultural and paleontological resources, public and occupational health and safety, and interstate transportation could be susceptible to adverse cumulative impacts.

When the other DOE programs previously identified in this section are considered, the rank order of DOE sites in terms of their remaining potential for cumulative impacts changes to SRS, Pantex, ORR, INEL, Hanford, and NTS. More detailed, site-specific, cumulative impact analysis will be provided in subsequent tiered NEPA documentation once the disposition strategy and technology has been selected.

#### COMPARISON OF ALTERNATIVES

The environmental impacts of the storage and disposition alternatives are presented in comparative form in this section. The emphasis is on those environmental resources and issues of interest to the public that discriminate between the alternatives and provide a clear basis for choice by the decisionmaker. Data for the key discriminators are presented in the Figures 3-32 through 3-43 with the exception of visual resources, which are not presented graphically.

#### Long-Term Storage Alternatives

The impact analysis presented in this Storage and Disposition FEIS indicates that the three long-term storage alternatives would have no or negligible impacts to site infrastructure, noise, and geology and soils.

Potential impacts to cultural and paleontological resources exists for all alternatives whenever there is ground disturbance for construction, with no real differences among the three alternatives other than greater land disturbance for the Consolidation and Collocation Alternatives.

Impacts to air quality, although the potential exists, would similarly be minor and limited to the construction period, with no real differences among the three alternatives. While there would be no or negligible impacts to community services, there would be some loss of service on local roads during construction for all three alternatives; the additional employment and income generated by each alternative would be positive, with the most employment generated by the Collocation Alternative. There would be potential adverse impacts to land-use, because conflicts exist with existing site land-use plans, policies, and controls at several of the DOE sites for the Consolidation and Collocation Alternatives, but not for the Upgrade Alternative. The Collocation Alternative is the only long-term storage alternative that would have adverse visual resource impacts (at ORR). For all of these resources, the No Action Alternative would have the least impact, because no site disturbance is involved.

The water resource requirements for the Consolidation and Collocation Alternatives are greater than for the Upgrade Alternative, both in terms of water consumption and water discharges. Water resource requirements are the greatest for the Collocation Alternative at all DOE sites. The No Action Alternative would have the least

S-47

F-042

Storage and Disposition of Weapons-Usable  
 Flexible Materials Draft PERS

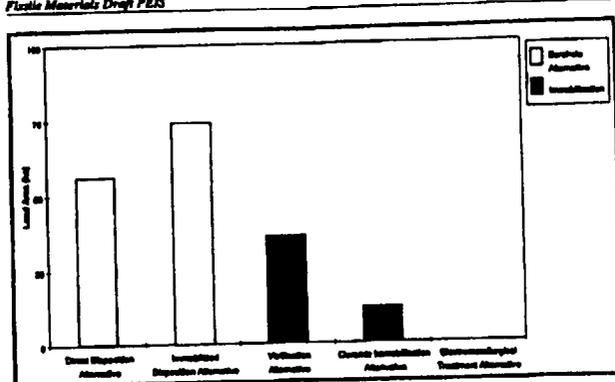


Fig 1  
 part of S-17 Figure S-32. Operations Land Use by Borehole and Immobilization Alternative.

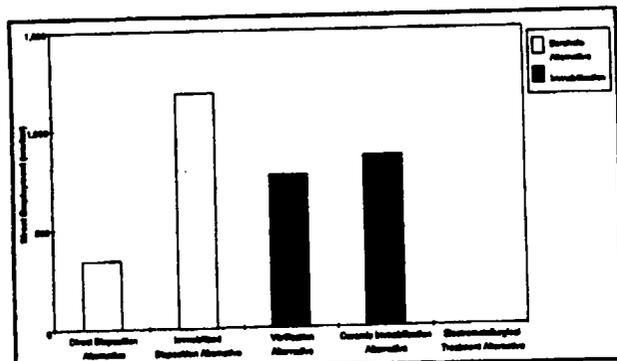


Figure S-33. Direct Employment Generated by Borehole and Immobilization Alternative.

F-042



*Weapons-Usable Fissile Materials Long-Term  
Storage and Disposition Alternatives*

**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.

**Fosters Progress and Cooperation With Russia and Other Countries.** The alternative must establish appropriate standards for the disposition of surplus weapons-usable fissile material inventories and support negotiations for bilateral or multilateral reductions in these materials, and each step in the disposition process must allow international inspections.

**Public and Institutional Acceptance.** An alternative should be able to muster a broad and sustainable consensus on the manner in which disposition is accomplished.

**Additional Benefits.** The ability to leverage government investments for disposition of surplus materials to contribute to other national or international initiatives should be considered.

**Results of the Screening Process: Reasonable Alternatives for Surplus Plutonium Disposition** *(highlighted in red)*  
As a result of the screening process for surplus Pu disposition, three alternative categories for further evaluation are considered reasonable. The alternative categories for further evaluation are the deep borehole *development of this option* category, the immobilization category, and the reactor category. *(see system)*

**Deep Borehole Category.** Within this category, surplus weapons-usable Pu would be emplaced in a deep borehole several kilometers below the water table into ancient, geologically stable rock formations. The borehole would be sealed to isolate the Pu from the accessible environment.

Two deep borehole alternatives were analyzed for this PEIS:

- **Direct Disposition Alternative**—direct emplacement of canisters containing Pu forms that have not been immobilized
- **Immobilized Disposition Alternative**—Pu immobilized in ceramic pellets (without the addition of high-energy, gamma-emitting radionuclides) will be mixed with gravel and emplaced without canisters

In the first borehole alternative, surplus weapons-usable Pu would be encapsulated directly in suitable canisters without any immobilization processing of Pu material and the canisters would be placed in a deep borehole. The hole would then be plugged after completion of the emplacement. In the second borehole alternative, surplus weapons-usable Pu would be converted to an immobilized form. The immobilized Pu form then would be emplaced in a deep borehole, and the hole would be plugged after completion of the emplacement. Under both alternatives, emplacement in a deep borehole would provide a geologic barrier to proliferation that is considered to be at least as effective as achieving the spent fuel standard. The Pu would not need to be mixed with HLW or other radioactive materials.

**Immobilization Category.** Within this category, surplus Pu would be immobilized in an acceptable matrix to create a chemically stable form for disposal in an HLW repository. The immobilized Pu would be mixed with HLW or other radioactive isotopes to create a radiation field that enhances proliferation resistance to meet the Spent Fuel Standard.

Three immobilization alternatives were analyzed for this PEIS:

- **Verification Alternative**—building a new facility to produce a glass waste form that embeds Pu and radionuclides within the glass form

F-042

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY,  
WASHINGTON, DC, DAN FENSTERMACHER  
PAGE 13 OF 13

Storage and Disposition of Weapons-Usable  
Fissile Materials Draft PEIS

VOL. 3

Conventional Arms Transfers

We will actively seek greater transparency in the area of conventional arms transfers and promote regional confidence-building measures to encourage restraint on such transfers to regions of instability. The U.S. will undertake a comprehensive review of conventional arms transfer policy, taking into account national security, arms control, trade, budgetary and economic competitiveness consideration.

**A-3** **JOINT STATEMENT ON NONPROLIFERATION OF WEAPONS OF MASS  
DESTRUCTION AND THE MEANS OF THEIR DELIVERY**

*This is only the 1st of 4 pages, and pg 2 is very relevant to the PEIS! (non-assessment) joint W.C. transparency & verifiability, etc. are all missing here*

THE WHITE HOUSE

Office of the Press Secretary

JOINT STATEMENT  
BY THE PRESIDENT OF THE RUSSIAN FEDERATION  
AND  
THE PRESIDENT OF THE UNITED STATES OF AMERICA

**ON NON-PROLIFERATION OF WEAPONS OF MASS DESTRUCTION  
AND THE MEANS OF THEIR DELIVERY**

President Clinton and President Yeltsin, during their meeting in Moscow on January 14, 1994, agreed that the proliferation of weapons of mass destruction and their missile delivery systems represents an acute threat to international security in the period following the end of the Cold War. They declared the resolve of their countries to cooperate actively and closely with each other, and also with other interested states, for the purpose of preventing and reducing this threat.

The Presidents noted that the proliferation of nuclear weapons creates a serious threat to the security of all states, and expressed their intention to take energetic measures aimed at prevention of such proliferation.

- Considering the Treaty on the Non-proliferation of Nuclear Weapons as the basis for efforts to ensure the nonproliferation of nuclear weapons, they called for its indefinite and unconditional extension at conference of its participants in 1995, and they urged that all states that have not yet done so accede to this treaty.
- They expressed their resolve to implement effective measures to limit and reduce nuclear weapons. In this connection, they advocated the most rapid possible entry into force of the START I and START II treaties.
- They agreed to review jointly appropriate ways to strengthen security assurances for the states which have renounced the possession of the nuclear weapons and that comply strictly with their nonproliferation obligations.
- They expressed their support for the International Atomic Energy Agency in its efforts to carry out its safeguards responsibilities. They also expressed their intention to provide assistance to the Agency in the safeguards field, including through joint efforts of their relevant laboratories to improve safeguards.
- They supported the Nuclear Suppliers Group, and agreed with the need for effective implementation of the principles of full-scope International Atomic Energy Agency safeguard as a condition for nuclear exports with the need for export controls on dual-use materials and technology in the nuclear field.
- They reaffirmed their countries' commitment to the conclusion as soon as possible ... to CTBT.

A-4 *→ next 3 pages missing from PEIS*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION VII  
900 18th STREET - SUITE 500  
DENVER, COLORADO 80202-2468

Ref: KEPR-F

J. David Nelson  
Director, NEPA Compliance & Outreach  
Office of Fissile Materials Disposition  
Pecoreal Building  
1000 Independence Ave., SW  
Washington, D.C. 20585

SUBJECT: ROCKY FLATS COMMENTS - STORAGE AND DISPOSITION  
OF WEAPONS-USABLE FISSILE MATERIALS DRAFT  
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT  
(PEIS)

Dear David:

As requested, we are providing you with our written comments on the Storage and Disposition of Weapons-Usable Fissile Materials Draft Programmatic Environmental Impact Statement (PEIS). These comments will be general in nature but reflect specific sections within the document.

General Comments:

EPA has two primary concerns that we feel must be strongly addressed and they are as follows:

- 1) I am aware that the "no action alternative" is used in all remedial actions as a base line for other alternatives. But in the case at Rocky Flats that alternative can not be considered based on promises by EPA, CDPHR, and DOE to the public that PU will be removed from Rocky Flats starting no later than 2010 and completing no later than 2015.
- 2) It is strongly recommended that DOE be focused on reducing the processing and handling of fissile materials. This recommendation has multiple benefits, it protects the health and safety of the workers and the public, as well as the integrity of the environment at the site(s).

1/01.06.00

2/01.00.00

F-045

01 06 00                      Comment Number 1

The Council on Environmental Quality regulations implementing NEPA require DOE to analyze the No Action Alternative.

01 00 00                      Comment Number 2

Comment noted. Your comment, along with public comments, the PEIS, cost information, nonproliferation analysis and policy analysis will be considered by DOE in the ROD for the storage and disposition of weapons-usable fissile materials.

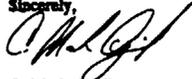
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,  
DENVER, CO, C. MARK AGUILAR  
PAGE 2 OF 2

Again, it is strongly recommended that DOE implement the U. S. non-proliferation policy to include other countries. Additionally, DOE should be subject to external and independent regulations which could justify further funding for these efforts.

3/01.06.00

If you have an questions please feel free to contact me at (303) 312-6251.

Sincerely,



C. Mark Aguilar  
Remedial Project Manager

F-045

01 06 00

## Comment Number 3

Comment noted. As noted in the PEIS, DOE is proposing to implement the U.S. Nonproliferation Policy and set an example for other countries. The various action alternatives for disposition would implement the U.S. Nonproliferation Policy by disposing of surplus weapons-usable Pu, so as to encourage similar actions by other countries. Various activities under the storage and disposition alternatives would be subject to "independent" IAEA inspections, and, under the Reactor Alternatives, domestic reactors would be subject to "external" NRC licensing. Certain wastes generated by the various alternatives would also be subject to "external" regulations by EPA or State regulators.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,  
WASHINGTON, DC, RICHARD E. SANDERSON  
PAGE 1 OF 5



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
ENFORCEMENT AND  
COMPLIANCE ASSURANCE

Mr. J. David Nulton  
U. S. Department of Energy  
Office of Fissile Materials Disposition  
P.O. Box 23786  
Washington, D.C. 20026-3786

Dear Mr. Nulton:

The Environmental Protection Agency (EPA) has reviewed the Department of Energy's (DOE) Storage and Disposition of Weapons-Usable Fissile Materials Draft Programmatic Environmental Impact Statement (PEIS). Our review is provided pursuant to the National Environmental Policy Act and Section 309 of the Clean Air Act.

The proposed action is long-term storage of weapons-usable plutonium and highly enriched uranium, and the disposition of surplus weapons-usable plutonium. The draft PEIS analyzes the potential environmental effects of four long-term storage alternatives at six potential sites, and ten plutonium disposition technology alternatives. EPA has rated the document EC-2, environmental concerns - insufficient information. We recommend that the DOE provide additional information and clarity concerning several issues common to all the alternatives including: accident risk analysis, cumulative impacts, and environmental justice. In particular, more information on the assumption inputs to the MELCOR Accident Consequence Code System model could greatly enhance the public's understanding of the differences in safety risk between alternatives if an accident were to occur. Currently, the PEIS provides only limited review of the model but relies heavily on it to conclude that there is little danger to the public from accidents and little difference in accident risk among the alternatives considered. Further discussion could strengthen the credibility of these conclusions. An explanation of EPA's ratings is provided in Enclosure 1. Detailed comments are provided for your consideration in Enclosure 2.

1/09.09.08

Recycled/Recyclable - Printed with Vegetable Oil based Ink on 100% Recycled Paper (42% PostConsumer)

M-179

09 09 08

Comment Number 1

More explicit information of the assumptions and the sources of input data for the MACCS code is in the Final PEIS. Information and clarification on cumulative impacts and environmental justice have been added to the PEIS, and the accident analysis has been expanded.

3-1081

Comment Documents  
and Responses

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,  
WASHINGTON, DC, RICHARD E. SANDERSON  
PAGE 2 OF 5**

Thank you for the opportunity to comment. If you have any questions, please contact Susan Offerdal at (202) 564-7158.

Sincerely,

  
Richard E. Sanderson  
Director  
Office of Federal Activities

Enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,  
WASHINGTON, DC, RICHARD E. SANDERSON  
PAGE 3 OF 5

SUMMARY OF THE EPA RATING SYSTEM  
FOR DRAFT ENVIRONMENTAL IMPACT STATEMENTS:  
DEFINITIONS AND FOLLOW-UP ACTION \*

Environmental Impact of the Action

1B--Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantial changes in the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

1C--Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes in the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA intends to work with the lead agency to reduce these impacts.

1D--Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

1E--Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1--Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2--Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analysis, or discussion should be included in the final EIS.

Category 3--Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analysis, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 303 review, and that should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment

February, 1977

M-179

3-1083

Comment Documents  
and Responses

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,  
WASHINGTON, DC, RICHARD E. SANDERSON  
PAGE 4 OF 5

1

Enclosure 2

EPA COMMENTS ON THE STORAGE AND DISPOSITION OF WEAPONS-USABLE  
FISSILE MATERIALS DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT  
STATEMENT

**Radiation:** In general, it appears that the conclusion drawn in the programmatic environmental impact statement (PEIS) to the effect that there are no major radiological consequences of any of the alternatives is reasonable. Both the doses modeled and the probability of these doses are small. This conclusion seems particularly warranted in the case of routine operations.

In the case of accidents, while the conclusion of little or no risk is still plausible, some questions do arise. The PEIS does not clearly differentiate the safety risks associated with each alternative if an accident were to occur. This is of some note because, as the PEIS notes, accidents are of major concern to the public and the decisionmaker. For example, based upon the information presented it is unclear why a decisionmaker would choose vitrification as a preferred technology since it is more costly, requires an additional processing step, and produces more waste. The increased safety of this alternative, in case of accident, is not transparent in the analysis. We recommend that the final document contain more explicit accident risk information for the alternatives. The accident scenarios assume a worker a kilometer away from the accident site. Is this a reasonable assumption? What is the basis for this? At least in the case of Hanford, the effect of a facility accident on the maximally exposed individual in the general population is a hundredfold less than the worker already a kilometer away. What assumptions produce this result? Again, more discussion of how the MELCOR Accident Consequence Code System (MACCS) model is applied would add to the confidence one has in the results. It is clear that given the small dose the model predicts and the very low assumed probability of the more serious accidents (a severe earthquake has a one-in-ten million chance of occurring) the resulting risk is small and not of concern. The EIS needs to document more fully why these assumptions and others associated with the accident scenario are reasonable, and how these and other inputs are used by the MACCS model.

**Cumulative Impacts:** The handling of the discussion of cumulative effects leaves questions unanswered. For example, in discussing Pantex (Vol II, pg 4-860), which the PEIS notes may have the most severe problems associated with cumulative effects, the number of fatal cancers is not added because the exact locations of facilities has not been determined, and therefore summing may be "conservative". Surely, the initial estimation of effects in each of the various environmental impact statements (EISs) must have assumed some location. If these locations are different from EIS to EIS the risks could be summed. If one or more of the potential functions occupy the same land, the issue might arise as to whether there is sufficient desirable/suitable land at the site to accommodate the multiple intended uses, even if the total acreage seems adequate. What is the real saturation point of highly utilized facilities such as Savannah River Site and Pantex? The discussion of cumulative impacts begs the question. Notwithstanding this issue, and given the general claim in the PEIS to be conservative, it would seem that adding radiation risks would be warranted. A further issue is the cumulative effect of several new activities on the accident scenario. Would accidents at one co-located facility result in damage to and exposure

2/09.09.08

3/09.09.08

1/09.09.08  
cont.

4/09.09.08

5/09.01.01

6/09.09.08

M-179

09 09 08

## Comment Number 2

In the Draft PEIS, there is more detailed information on the health risk assessment for normal operation and anticipated accidents in Section M.5, and a technical report prepared exclusively for this project, *Health Risk Data for Storage and Disposition of Weapons-Usable Fissile Materials PEIS*, November 1996, referenced in the PEIS as HNUS 1996a. The information included in the appendix and technical report includes a brief description of accident scenarios, health risks for involved workers, the MEI, and the potential cancer fatalities for the general population in the region (up to 80 km [50 mi]).

More explicit accident risk information was added to the environmental consequences (Chapter 4), including explanations of the location of the MEI and the relationship (relative distances) to the noninvolved workers.

09 09 08

## Comment Number 3

The 1,000-m (3,281-ft) distance of a noninvolved worker from the nearest release point of radioactive material is a representative distance which has been used in calculations at all sites. It provides a reasonable reference distance for calculations at both large and small sites. Estimating exposures from a release point at closer distances may not be very accurate because of building effects on dispersion (that is, wake-stream effects).

Also, more detail on how the MACCS code was applied is added to the Final PEIS, Appendix M, and Environmental Impact Methodology sections of Chapter 4. In addition, a topical report for the accident assessments was prepared and added to the current Health Risk Data topical report.

09 09 08

## Comment Number 4

The impacts of these actions have not been summed because the exact locations of the facilities for planned actions may change. In addition, because each of these facilities is sited in a different location, the location of the MEI for each is also different. The MEIs have been selected to maximize the potential dose for a given facility. Since the MEI would have to be resident at more than one location simultaneously in order to receive the maximum dose from each facility, summing the doses would be misleading. The offsite population and total site workforce doses have not been summed because the population distribution and workforce totals as analyzed vary among the actions.

2

Enclosure 2

from other facilities? How does this affect the total risk from a site?

**Plutonium Disposition Technology Alternatives (S-13 to S-16 and S-22 to S-36):** Although there is a detailed explanation of the environmental impacts for the various technical alternatives for plutonium disposition in the text and in the summary tables, there is no discussion of the level of knowledge and applications experience with fissile materials of the Department of Energy (DOE) or other parties with the various technologies. There is no discussion of the level of uncertainty associated with the proposed alternatives, and what this uncertainty would mean in terms of potential environmental impacts. In summary, it would help the reader to know the feasibility of the technologies (e.g., which technologies are experimental or pilot projects) and the timeframe for development (e.g., short or long-term feasibility).

**Environmental Justice:** Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires special attention to be given to subsistence consumption of fish and wildlife. "Federal agencies, whenever practicable and appropriate, shall work in a coordinated manner to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risk associated with the consumption of pollutant-bearing fish and wildlife. Agencies shall consider such guidance in developing their policies and rules." Recent studies show that the Indian people at the Columbia River Basin practiced traditional patterns of life that may have affected their exposure to radioactive releases from Hanford. Traditional activities such as hunting, fishing, food gathering and cultural activities may have affected tribal members' exposure to Hanford's releases. DOE is initiating a study at the Savannah River Site to analyze the types and amounts of Savannah River fish consumed since it recognizes that some people eat fish caught near and downstream from the Savannah River Site and that those fish may be contaminated. Consumption issues are important to address in this PEIS because of their uniqueness in minority and low-income populations and the detrimental range of impacts they may have.

6/09.09.08  
cont.

7/01.04.00

8/09.12.06

M-179

09 01 01

Comment Number 5

Cumulative impacts at each analysis site were revised in the Final PEIS to include the total land area required by the other DOE programs. This land area is compared to total site area.

09 09 08

Comment Number 6

It is DOE's requirement for collocated facilities that the facility design preclude an accident at one facility from damaging another nearby facility on the same site. Such protective designs include physical isolation measures, such as a buffer zone, between the facilities. Using protective measures, the probability of having such accidents severe enough to damage a nearby facility would be extremely small (less than  $1.0 \times 10^{-8}/\text{yr}$ ). Based on the DOE's *Recommendations for the Preparation of Environmental Assessments and Environmental Impacts Statements*, May 1993, such low probability accidents rarely need to be examined in this PEIS.

01 04 00

Comment Number 7

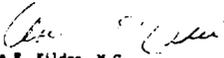
The PEIS evaluates the environmental impacts of a range of alternatives for materials storage and disposition. A more detailed technical discussion of these alternatives, along with related cost and schedule requirements, was provided in a Technical Summary Report issued by DOE in July 1996. The report provides further details on the feasibility of the technologies and the timeframe for development.

09 12 06

Comment Number 8

The potential environmental impacts of DOE activities on populations engaging in subsistence consumption could vary greatly depending on the precise location of a storage or disposition facility at a particular site, and the technology employed for the treatment or disposal of wastes at such a facility. In a prior NEPA review, incorporated herein by reference, DOE reviewed fish and wildlife consumption at Hanford, INEL, NTS, ORR, and SRS. At these sites, DOE found the potential impacts associated with the consumption of fish and wildlife to be small or to be no different than the potential impacts on the general population (DOE 1995v: 5.20-11). Section 4.5 of the Final PEIS has been modified to include this information.

UNITED STATES HOUSE OF REPRESENTATIVES, FLINT, MI,  
 CONGRESSMAN DALE E. KILDEE  
 PAGE 1 OF 1

<p>407 BAYBURN HOUSE OFFICE BUILDING        WASHINGTON, DC 20515-2209        (202) 225-2211        TDD (202) 225-4</p> <p>SENATE OFFICE        400 NORTH BARDMAN, PLATT # 10        FLINT, MI 48906        (313) 239-1437        TOLL FREE TO FLINT OFFICE        1-800-486-7395        1000 N. FERRY STREET        PORTLAND, MI 48661        (313) 275-8527</p>	<p><b>DALE E. KILDEE</b>        (H 05870)</p> <p><b>Congress of the United States</b>  <b>House of Representatives</b>        Washington, DC 20515-2209</p>	<p><b>ISSUES</b></p> <p><b>ECONOMIC AND EDUCATIONAL OPPORTUNITIES</b></p> <p>EARLY CHILDHOOD, YOUTH &amp; FAMILIES        EMPLOYEE, EMPLOYER RELATIONS</p> <p><b>RESOURCES</b></p> <p>NATIVE AMERICAN &amp; INDIAN AFFAIRS        NATIONAL PARKS, FORESTS &amp; LANDS</p> <p><b>SENATOR</b>        CONGRESSIONAL ALTERNATIVE CAUCUS</p>
<p>May 8, 1994</p>		
<p>The Honorable Hazel O'Leary        Secretary        U.S. Department of Energy        1000 Independence Avenue, S.W.        Washington, D.C. 20585</p>		
<p>Dear Secretary O'Leary:</p>		
<p>I am writing to you on behalf of the residents who live within the Sixth Congressional District. I am concerned about one of the options presented in the reactor category of disposition alternatives in the Storage and Disposition of Weapons-Usable Fissile Materials Draft Programmatic Environmental Impact Statement (PEIS).</p>		
<p>It is my understanding that this statement proposes to store a plutonium-based mixed oxide fuel in the Canadian Deuterium Uranium (CANDU) reactor located on the shore of Lake Huron near Eincardine, Ontario. According to the report, one of the proposed routes to transport this fuel, from the State of Washington to Ontario, would be through the State of Michigan, and through heavily populated areas in my congressional district.</p>		
<p>By using a nationwide route of transporting and storing the plutonium in the CANDU reactor, many people across the nation and in the State of Michigan could be at risk. Transportation of a volatile and high level carcinogenic creates a significant threat to citizens and should only be considered when absolutely necessary. I urge the Department to examine other access points to Canada that are less densely populated. The many legitimate public health and safety issues raised by this proposal cannot be ignored.</p>		
<p>1/10.00.00</p>		
<p>I appreciate your prompt attention to this matter. Please do not hesitate to contact me or Michele Arnold of my staff at (202) 225-3611 if you require additional information. I look forward to hearing from you.</p>		
<p>Sincerely,</p> <p></p> <p>Dale E. Kildee, M.C.</p>		
<p>PHOTO BY MICHELE ARNOLD</p>		
<p>M-292</p>		

10 00 00

Comment Number 1

Under NEPA, DOE is required to evaluate a range of alternatives for Pu disposition. In that regard, the disposition of Pu in a CANDU reactor is one of nine different disposition alternatives analyzed in the PEIS. Six specific sites and a generic site are evaluated for fabricating MOX fuels for Pu disposition. As a result, the transportation analyses performed in the PEIS consider multiple routes from potential fuel fabrication sites to potential reactor sites. Section G.6 provides a description of the DOE safe secure transport system. The design of the vehicles and the transportation operation procedures are classified; the selection of the routes and coordination with State and local governments are contained within these procedures. However, there has never been a failure of this system to provide safe secure transportation during more than 20 years in operation.

For emergency response circumstances, all shipments will be coordinated with appropriate State and local officials. If requested, DOE will assist appropriate officials with response plans, and, if necessary, with resources in accordance with guidelines established in DOE Order 5530.3. DOE has developed a Radiological Assistance Program, also outlined in DOE Order 5530.3, to provide assistance in all types of radiological accidents. Regional Radiological Assistance Program plans include coverage of the States and provide for maintaining and executing emergency response plans.

UNITED STATES HOUSE OF REPRESENTATIVES, MT. CLEMENS, MI,  
CONGRESSMAN DAVID E. BONIOR  
PAGE 1 OF 1

DAVID E. BONIOR  
10TH DISTRICT, MICHIGAN

WASHINGTON OFFICE:  
2207 RANKINS CROSS BUILDING  
WASHINGTON, DC 20516  
TEL.: (202) 226-7106  
FAX: (202) 226-1189  
TTY AVAILABLE



HOME OFFICE:  
58 NORTH WILSON, SUITE 506  
MT. CLEMENS, MI 48043  
TEL.: (513) 468-3233  
FAX: (513) 468-7880  
TTY AVAILABLE  
888 HURON STREET  
PORT HURON, MI 48060  
TEL.: 987-9888  
FAX AVAILABLE

Department of Energy  
Office of Fissile Materials Disposition  
P.O. Box 23786  
Washington, D.C. 20026-3786

With respect to the Storage and Disposition of Weapons-Usable  
Fissile Materials Draft Programmatic Environmental Impact Statement, I  
would like to submit the following comments.

These specifically relate to the Canadian Deuterium Uranium  
Reactor Alternative under consideration by DOE. Selection of this  
alternative would raise the possibility that radioactive materials would be  
transported across the Blue Water Bridge that links Port Huron, Michigan  
and Sarnia, Ontario. I must strongly object to the prospective use of this  
route, which would involve crossing a body of water that connects the  
Upper and Lower Great Lakes System over a busy bridge with a high  
volume of traffic. In my opinion, this route would expose not only a  
densely populated area to an unwarranted risk, but the largest combined  
source of fresh water in the world to an ecological disaster of unknown and  
possibly unimaginable proportions.

1/10.00.00

I would appreciate it if my comments could be entered into the  
official record of these proceedings.

Sincerely,

  
David E. Bonior  
Member of Congress

F-010

10 00 00

Comment Number 1

Under NEPA, DOE is required to evaluate a range of alternatives for Pu disposition. In that regard, the disposition of Pu in CANDU reactors is one of nine different Disposition Alternatives analyzed in the PEIS. Six specific sites and a generic site are evaluated for fabricating MOX fuels for Pu disposition. As a result, the transportation analyses performed in the PEIS consider multiple routes from potential MOX fuel fabrication sites to potential reactor sites. Although the Port Huron/Sarnia border crossing is mentioned in the PEIS as a convenient point for the CANDU fuel shipments to pass from the United States to Canada, our analysis also reflects other possible routes.

The Draft PEIS did not identify a Preferred Alternative for Pu disposition. A Preferred Alternative is identified in the Final PEIS and a disposition decision is expected to be made by the end of the year. The decision will take into account environment, safety (including transportation), and health factors as well as technical, cost, schedule, and nonproliferation considerations. After the ROD (which will include technology approaches) is expected to be reached in late 1996, follow-up analyses, negotiations, and specific agreements over several years will be required before implementation.

UNITED STATES HOUSE OF REPRESENTATIVES, AMARILLO, TX,  
CONGRESSMAN WILLIAM THORNBERRY  
PAGE 1 OF 5

Thank you for allowing me the opportunity to make a few remarks.

Many of the others who will testify  
will discuss the outstanding record of the Pantex plant,  
the unparalleled level of community support which the plant enjoys,  
and the willingness to consider other missions  
as we sort out the nuclear weapons complex after the Cold War.

I'm going to focus on some broader questions  
which certainly affect Pantex  
but also the larger security needs of the country.

I do so not because I disagree with the other points  
or because I don't think they are important.  
Pantex's record, its people, its community support,  
and its openness to other possibilities are its key strengths  
and no one else can match them.

But during my tenure in Congress, *as a member of the Nat. Sec. Center  
which oversees the  
weapons program,*  
I have attempted to make a serious study  
of our nuclear weapons complex,  
in part because I represent one of its crown jewels  
and in part because I believe  
that a modern, effective nuclear capability  
is absolutely necessary to our national security.

I won't say that I have learned all I can or intend to,  
and I won't represent to you that I know all the answers  
during this time of change and turmoil.

But I am confident that I know enough to raise some serious questions  
that relate to the subject today and to our children's security.

TX-040

This is, of course, a time of great change  
brought about by the end of the Cold War,  
by the fact that the DOE was not as careful  
in the past as it should have been,  
and by this administration's decision to stop all nuclear testing.

Stockpile Stewardship and Stockpile Management

In my view, stockpile stewardship and stockpile management  
are important for the nation  
regardless of whether we conduct nuclear tests or not.

We should use a number of methods to make as sure as we can  
that our nuclear weapons are safe and reliable.  
In doing so, we are making a serious mistake  
if we neglect to factor in the importance  
of highly skilled workers at production plants.

I tend to agree with those who argue that we need smart people in labs  
and maybe even that we need smart people at two labs  
to compete against one another.

But every bit as much as we need smart people in labs,  
we need experienced, knowledgeable people in production plants  
who know how to take a design or a procedure  
and produce a product that meets the requirements  
safely and efficiently  
time after time  
so that we have weapons that are safe and reliable  
on which we can stake our children's freedom.

That's what people at plants like Pantex do.

TX-040

UNITED STATES HOUSE OF REPRESENTATIVES, AMARILLO, TX,  
CONGRESSMAN WILLIAM THORNBERRY  
PAGE 3 OF 5

It's like if you're building a house,  
you need architects to draw up the blueprints and to consult with,  
but there is absolutely no substitute  
for skilled carpenters, and plumbers and painters  
who know how to get the work done,  
who know what problems there may be  
in translating the blueprints and procedures into precise components;  
and who have a proven track record  
of having done it --- time after time.

I am afraid that an undercurrent in DOE today,  
that sometimes even rises to the surface,  
is a lack of appreciation  
for the importance of those workers on the assembly line  
at Pantex and elsewhere.

If we lose them, we are a weaker nation  
and no number of PhD's at the labs  
will replace what we've lost.

I find it incredible that DOE would ask more and more  
of at least one of our production plants  
and yet allocate less money for it to fulfill its mission.

If we can't keep the trained, experienced personnel at Pantex,  
the country won't reach its goals for Stockpile Stewardship and Mgmt  
We will begin to lose confidence in our nuclear deterrent,  
and we will have been penny wise and pound foolish.

I am also concerned  
that we are just focusing on dragging out the life  
of current weapons  
without taking positive steps

TX-040

toward replacing our existing weapons  
which will all too soon be at the end of their intended design life.

A real question is whether we will be able to build nuclear weapons again  
and how.

There are many improvements which could be made now,  
others which we will want to make in the near future,  
and all the while we have to be prepared  
to deal with changes in Russia, China and elsewhere.  
I'm not sure we're ready.

High Explosives

Let me address the one issue in the PEIS  
for which no preferred alternative was included,  
that is high explosives.

When you compare apples to apples,  
no one seriously disputes  
that the most cost effective option  
is retaining the existing mission at Pantex.

The sole justification to moving high explosives  
to Los Alamos and Livermore  
is that we need to keep knowledge and competence  
of high explosives in the Labs.  
OK - but we need to keep it at the production level too.

You can do all the research you want  
and have all the knowledge you can handle,  
but if you can't reliably and safely translate that knowledge  
into real production,  
you have nothing.

TX-040

UNITED STATES HOUSE OF REPRESENTATIVES, AMARILLO, TX,  
 CONGRESSMAN WILLIAM THORNBERRY  
 PAGE 5 OF 5

There is no reason in the world  
 that the Labs can't continue to send people to Pantex as needed  
 for the manufacture of high explosives,  
 but to remove high explosives  
 completely out of the production complex  
 would be a big mistake.

Disposition -

The issue of what we're going to do  
 with the excess plutonium and uranium is of key concern here.

As you know, we've got several thousand pits stored here  
 with more being added every day.

I am disappointed that the PEIS gives so little guidance  
 on what's to be done.

1/08.03.00

We need to get on with making these key decisions.

Two weeks ago at Los Alamos,  
 I was able to see firsthand some of the work involved in the Arics project.

We have some very promising technologies,  
 but the country needs leadership,  
 and our area needs confidence that DOE knows what it is doing  
 and is doing the right thing.

As long as I am in the Congress,  
 I will be involved in making these decisions  
 and I will do everything I can  
 to see that our area is protected,  
 to see that our nation is secure,  
 and to see that our children have the opportunity to live in freedom.

TX-040

08 03 00

Comment Number 1

The PEIS is an analysis of the environmental impacts that could occur if DOE implemented a Proposed Action, in this case, storage and disposition of weapons-usable fissile materials. The PEIS is used by the decisionmakers along with other information to make the best possible decision on which of the alternatives, if any, should be taken to accomplish the Government's goals and needs.

UNITED STATES SENATE, STATE OF TEXAS,  
SENATORS PHIL GRAMM AND KAY BAILEY HUTCHISON  
PAGE 1 OF 2

PHIL GRAMM  
Texas

United States Senate  
WASHINGTON, D.C. 20510-4302

May 5, 1996

The Honorable Hazel O'Leary  
Secretary  
U.S. Department of Energy  
Forrestal Building  
1000 Independence Avenue, S.W.  
Washington, DC 20585

Dear Secretary O'Leary:

Thank you for the opportunity to comment on the U.S. Department of Energy's (DOE) Programmatic Environmental Impact Statements (PEISs) on Stockpile Stewardship and Management (SSM) and Storage and Disposition (S&D) of Weapons-Usable Fissile Materials. Please also consider this our comment on the Pantex Site-Wide Environmental Impact Statement, since most of the issues addressed in these documents are identical.

First and foremost, we are adamant that any current and future functions at Pantex be conducted in a safe and environmentally sound manner. Our first priority is to ensure that any expansion at Pantex be implemented in a way that does not impair the health or safety of area residents or have an adverse effect on the environment. These goals serve as a prerequisite to any current and future activities at Pantex, including expansion.

1/09.00.04

We are pleased that DOE selected Pantex as the preferred alternative for assembly/disassembly, thereby abandoning earlier plans to transfer those functions to the Nevada Test Site (NTS). However, by failing to recognize Pantex as the preferred candidate site for new and/or consolidated stockpile management facilities, the DOE overlooked the best site for maintaining the integrity of the U.S. nuclear stockpile and attaining maximum efficiencies and cost savings.

Pantex is perhaps the most cost-effective alternative for any new construction of SSM facilities. First, labor costs, utility rates, and water and land availability at Pantex, as well as public support, are more amenable than those at any other Complex site. It is appropriate to consider Pantex as an alternative site for all future defense-related facilities to complement activities at the national labs (such as the planned Atlas Facility and plutonium pit fabrication site at Los Alamos National Laboratory (LANL)). DOE makes no mention of a strategic plutonium reserve that we believe is important to our future national security needs, even though the PEIS mentions that strategic storage should be co-located with disassembly. We believe Pantex should be the preferred site for such a mission in coordination with its management functions. The location of additional defense-related activities at Pantex would ensure that core technical capabilities are preserved at a location that can secure them at the most efficient cost to the American people. In its deliberations, DOE should insist that budgetary comparisons between Pantex and other sites are accurate, and include capital, transportation, training, remediation, and other costs.

M-236

09 00 04

Comment Number 1

Potential environmental consequences of each Pantex alternative were analyzed in the PEIS. Results of these environmental analyses will be given full weight, along with other factors such as cost, technical risk, schedule, and national security requirements, in the process of selecting the storage strategy and site and disposition strategy and technology for the Fissile Materials Disposition Program. Pantex will continue to operate in compliance with all Federal, State, and local requirements.

3-1093

Comment Documents  
and Responses

UNITED STATES SENATE, STATE OF TEXAS,  
 SENATORS PHIL GRAMM AND KAY BAILEY HUTCHISON  
 PAGE 2 OF 2

Consistent with the strengths identified above for increased stewardship and management duties, the high explosives (HE) functions should also remain at Pantex. Because the production assembly/disassembly functions remain at Pantex, the HE fabrication duties should be present at the corresponding site. After all, the SSM draft admits that Pantex must retain HE capabilities to process the inventories already on site from dismantling. Therefore, the least expensive alternative is to maintain HE functions at Pantex. We adamantly disagree with the statement in the PEIS that there are no advantages to siting high explosives at Pantex rather than the national labs. The capitol outlay alone necessary for transfer is cost prohibitive. In addition, should future need arise for new weapons production, it will be critical to have the HE facilities at the weapons production/assembly site.

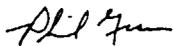
As the sole DOE-authorized facility for assembly and disassembly of nuclear weapons, Pantex has historically handled these functions in a safe and efficient manner for more than 40 years. One of the challenges faced after dismantling a significant portion of the nuclear stockpile is the processing or disposal of the materials that remain. In meeting this challenge, Pantex could continue to store plutonium which is already at the site and upgrade facilities for any and all storage options being considered by DOE with minimal cost and difficulty. Pantex currently safehouses more than 8,000 surplus pits, and plans are being made to ship additional pits from Rocky Flats to Pantex. It makes little sense to re-create storage facilities at another site and then unnecessarily transport large amounts of plutonium across the county from Pantex.

We also believe Pantex should be designated the preferred site for any disposition options and related functions. It makes budgetary and policy sense to site disposition where storage already exists. Furthermore, it makes no sense from any perspective, budget or otherwise, to site strategic storage at one site and surplus at another. Pantex should be selected for both storage functions. Pantex has the necessary safety, security, and surveillance capabilities to accommodate an expanded role with minimal costs and it is the production site closest to Los Alamos, the planned pit fabrication site.

2/08.03.01

Based upon these reasons, we respectfully urge DOE to designate Pantex as the preferred alternative site for all existing and new stockpile management and stewardship functions as well as consolidation of all plutonium storage and disposition and any related functions. Thank you again for the opportunity to comment on these documents.

Yours respectfully,



PHIL GRAMM  
 United States Senator



KAY BAILEY HUTCHISON  
 United States Senator

08 03 01

Comment Number 2

The Department of Energy acknowledges the commentors' support of Pantex. Decisions related to future missions at Pantex will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

UNIVERSITY OF TEXAS, AUSTIN, TX,  
THOMAS C. GUSTAVSON  
PAGE 1 OF 4



BUREAU OF ECONOMIC GEOLOGY  
THE UNIVERSITY OF TEXAS AT AUSTIN

University Station, Box X • Austin, Texas 78713-8524 • (512) 471-1534 or 471-7721 • FAX 471-0140  
10100 Burnet Road, Bldg. 150 • Austin, Texas 78758-4497

April 28, 1996

U.S. Department of Energy  
Office of Fissile Materials  
P.O. Box 23785  
Washington, DC 20026

Dear Sir or Madam:

The following are review comments on the "Storage and Disposition of Weapons-Usable Fissile Materials Draft Programmatic Environmental Impact Statement" from staff at the Bureau of Economic Geology of The University of Texas at Austin.

General Comment:

Sections 3.5.4. and 3.5.5., which describe water resources and geology and soils, do not provide adequate information for the reader to determine if environmental impacts could result from proposed alternative actions at Pantex.

1/09.00.04

Specific Comments:

Page S46, para. 3. Potential impacts of the long-term storage alternative at Pantex depend greatly on waste disposal practices in addition to the natural characteristics of the site. Although the Ogallala is a valuable and critically important ground-water resource, the presence of the resource does not necessarily make it vulnerable to impacts of waste storage. Detailed studies by the Bureau of Economic Geology and other entities have shown that recharge to the perched and Ogallala aquifers is focused through playas or artificially ponded areas such as ditches and that recharge in upland or interplaya areas is negligible. Recharge occurs where surface water accumulates and develops sufficient hydraulic head over sufficient time to drive waters below the zone of evapotranspiration. Recharge of water or contaminants may also occur beneath manmade excavations such as ditches and landfill sites where runoff can accumulate (these are roughly analogous to playas) or as the result of leaking underground storage tanks. Appropriate engineering practices to prevent releases from storage sites and placement of storage facilities in upland (interplaya) areas at the Pantex Plant should limit the potential for adverse impacts to water resources at Pantex. As long as no wastes are introduced into the playas, buried on site, or placed in an area where water can flow through the wastes or pond in contact with the wastes, contaminants should not be transported into the subsurface and the Ogallala should not be impacted by Pantex activities. Proper engineering and adequate monitoring and maintenance would, however, minimize impacts of long-term storage on the Ogallala at the Pantex Plant.

2/09.04.04

F-026

09 00 04

Comment Number 1

The information provided in the PEIS provides the decisionmaker with adequate information to select a site-specific, long-term storage alternative. This is particularly true considering the programmatic nature of this document and the fact that neither of these resources is considered to be a key discriminator in the long-term storage decision.

09 04 04

Comment Number 2

Current and future operations at Pantex are not expected to affect the water quality of the Ogallala Aquifer. However, since this aquifer is being depleted (that is, the current withdrawal is exceeding the current recharge), Pantex operations contribute to the depletion of the Ogallala Aquifer and are analyzed in the PEIS.

UNIVERSITY OF TEXAS, AUSTIN, TX,  
 THOMAS C. GUSTAVSON  
 PAGE 2 OF 4

U.S. Department of Energy  
 Office of Fissile Materials  
 May 3, 1996  
 Page 2

- Figures 3.5.4-1 and 3.5.4-2. Playas are incorrectly labeled as dry lakes on these maps. Playas should be described as ephemeral lakes, as they are in Figure 3.5.1-1. Most playas, including playas 2, 3, 4, 6, and Pantex Lake, hold water for 1 to 3 months per year. Playa 1 holds water throughout the year because it receives discharge from the Pantex waste water treatment plant. 3/09.04.04
- Figures 3.5.4-1 and 3.5.4-2. These maps indicate that the southern boundary of the Pantex site includes the rights-of-way for both U.S. Highway 80 and the Burlington Northern and Santa Fe Railroad. Compare with figure 3.5.1-1 where the southern boundary is shown correctly. 4/09.04.04
- Page 3-164, para. 2. Data from seismic surveys and playa basin cores acquired by the Bureau of Economic Geology suggest that playas 3 and 5 and Pantex lake are surface expressions of local subsidence related to dissolution of underlying Permian salt beds. 5/09.05.04
- P. 3-164, para. 1. All playas shown in figures 3.5.1-1, 3.5.4-1, and 3.5.4-2 except playa 3 are approximately 900 to 1000 m in diameter. 6/09.05.04
- P. 3-164, para. 2. The lithology of the Ogallala Formation is not described. The description should include a brief discussion of the complex heterogeneity of the Ogallala because the variation in sediment types controls ground water flow in the formation. The significance of the fine-grained zone as well as gravels in buried channels beneath the plant should be explained. 7/09.05.04
- P. 3-164, para. 2 or 3. No attempt is made to describe the role of salt dissolution and subsidence in the formation of playa basins. High sulfate loads in streams draining the region indicate that these processes are active regionally. No mention is made of the potential effects, if any, of dissolution-induced subsidence at the plant. 5/09.05.04 cont.
- P. 3-164, para. 5. No attempt is made to point out that Randall clay soils are Vertisols and that deep desiccation cracks and root tubules, which are potential pathways for recharge, are characteristic of these soils. Furthermore, these soils have a udic moisture regime, which means that water moves down through the soil at some time in most years. That is, recharge occurs through even these clay soils. 8/09.05.04
- Page 4-167, para. 1. It is stated that the TNRCC projects that there will be adequate water until the year 2040. In fact this projection is probably from a Texas Water Development Board report from the early or mid-1980's. 9/09.04.04
- Page 4-167, para. 3. It is stated that "No additional impacts to groundwater quality are anticipated because there are no direct discharges to groundwater". This seems at least a little misleading in two areas. First, exactly how does one define direct discharge? The contaminants east of Zone 12 south document a fairly direct pathway for recharge water from the surface to the aquifer. Second, the current plans for treating contaminated water at the plant rely on the reinjection 10/09.04.04

F-026

09 04 04 Comment Number 3

Figures 3.5.4-1 and 3.5.4-2 were corrected in the Final PEIS show playas as ephemeral lakes.

09 04 04 Comment Number 4

Figures 3.5.4-1 and 3.5.4-2 were corrected in the Final PEIS.

09 05 04 Comment Number 5

Considerable attention has been given to the possible origin of playas. Gustavson et. al. summarized playa development as follows: "These landforms are the result of a series of intermittently active processes, including wind, fluvial erosion and lacustrine deposition, pedogenesis, dissolution of soil carbonate, salt dissolution and subsidence, and animal activities, that collectively produced the typically shallow and roughly circular playa basin on the High Plains. We infer that playa basins are stable landforms that, once initiated, remain as part of the landscape." Recent work in Pain 1994 using shallow seismic data has determined that the structure beneath the playas at Pantex shows displacement of Ogallala strata attributed to dissolution of underlying salt beds.

Salt dissolution is a process that has resulted in major post-Permian structures. In Carson County, a large depression is filled with sediment of the Ogallala Formation. Presence of the Ogallala deposits in the depression indicates that the basin existed prior to Ogallala time and that the local dissolution was underway prior to or during the deposition of the Ogallala Formation.

The following text has been added to Section 3.5.5 of the Final PEIS: "Recent work using shallow seismic data has determined that the structure beneath the playas on Pantex and adjacent areas shows displacement of Ogallala strata. This displacement is attributed to the dissolution of underlying salt beds." With this addition, the discussion of salt dissolution in the PEIS is considered adequate considering the programmatic nature of this document and the fact that this resource is not considered to be a key discriminator in the long-term storage decision.

U.S. Department of Energy  
Office of Fissile Materials  
May 3, 1996  
Page 3

of treated water into the aquifer. This injection would also qualify as direct discharge to the aquifer.

Page 4-194, para. 1. Data from seismic surveys and plays basin cores acquired by the Bureau of Economic Geology suggest that plays 3 and 8 and Pantex lake are surface expressions of local subsidence related to dissolution of underlying Permian salt beds. Estimated average subsidence rates are low (about 0.01 mm/yr), but vertical movement may be episodic.

Page 4-859. The amount of ground-water decline that will result from projected production rates is given as 1.5 in/yr. What is the source of this number. The writer also fails to mention that this incremental increase will be in addition to the drawdowns resulting from the Amarillo well field. Current rates of decline in the area of the Pantex well field are approximately 2 ft/yr. It would seem appropriate in a discussion of ground-water resources to include the impact of the Amarillo well field on the ground-water resources at the Pantex Plant.

If you have any questions concerning these comments please call me at (512) 471-0232.

Sincerely yours,



Thomas C. Gustavson  
Senior Research Scientist

TCGdc

cc: R. Muider, Governor's Office  
T. Grimshaw, BEG  
J. Raney, BEG  
D. Ratcliff, BEG

10/09.04.04  
cont.

5/09.05.04  
cont.

11/09.04.04

F-026

The potential effects, if any, of dissolution-induced subsidence at Pantex is addressed in Section 4.2.4.5 of the Final PEIS. The potential impacts due to subsidence (resulting in sinkholes and/or surface rupture) at Pantex are considered negligible since salt dissolution is a slow process relative to human activities and most active salt dissolution in the region is concentrated near the Eastern Caprock and at the Canadian River Escarpments.

**09 05 04                      Comment Number 6**

The Department of Energy concurs with the commentor. As a result, the text in Section 3.5.5 of the PEIS has been modified as follows: "The playas are about 500 to 1,000 m (1,640 to 3,280 ft) across with clay bottoms and depths to 9 m (30 ft)."

**09 05 04                      Comment Number 7**

The following text has been added to Section 3.5.5 of the Final PEIS to provide a very general description of the Ogallala Formation lithology: "consists of interbedded sands, silts, clays, and gravels." A more detailed discussion of the lithology of the Ogallala Formation is more information than necessary to evaluate impacts for a programmatic review. The geology and soils section (Section 4.5) and the groundwater section (Section 4.6) of the Draft Pantex EIS (DOE/EIS-0225 D, March 1996) has a more detailed discussion of the lithology and groundwater flow characteristics of the Ogallala Formation.

**09 05 04                      Comment Number 8**

The Randall clay soils are generally found in the bottom of the playas. The playas are a significant part of the surface and subsurface hydrologic system at Pantex. The fact that Randall clay soils at Pantex contain potential pathways for groundwater recharge is considered in the estimates of annual recharge rates to the Ogallala Aquifer. Discussion of aquifer recharge is contained in Section 3.5.4 of the PEIS.

**09 04 04**                      **Comment Number 9**

The projection is from a 1993 draft of the document entitled *High Plains Aquifer System of Texas - 1980 - 1990 Overview and Projections*. The authors are Ashworth and Peckham of the Texas Water Development Board, which has since been renamed the TNRCC. In the context used in the Draft PEIS, it is appropriate to refer to the current name of the organization.

**09 04 04**                      **Comment Number 10**

For the purposes of this PEIS, a direct discharge to groundwater would be injection of water to the aquifer via a well; recharge pathways are not considered to be direct discharges. The plans to re-inject treated groundwater to the perched aquifer would qualify as a direct discharge to groundwater. The text in the No Action Alternative section (Section 4.2.4.4) has been modified to reflect this planned activity.

**09 04 04**                      **Comment Number 11**

As discussed in Chapter 4 of the PEIS, the groundwater decline estimates were based on a previous study of the Amarillo well field which documented a 1.8-m/yr decline when withdrawals averaged 18.5 billion liters (l)/yr. Assuming a linear relationship (which is valid to obtain estimates for use at the programmatic level), a 0.0001-m/yr decline could be expected for each million liters withdrawn.

The PEIS analyzes the impacts from the Proposed Actions at Pantex and not those from other local uses. Pantex operations contributing to the depletion of the Ogallala Aquifer are analyzed in the PEIS.

**WAKELY, LILA, LAVA HOT SPRINGS, ID**  
**PAGE 1 OF 1**

Comment ID: P0010  
Date Received: April 18, 1996  
Name: Lila Wakely  
Address: Lava Hot Springs

Transcription:

I do not want more waste stored in Idaho. No more. We've got too much. | 1/08.03.01

P-010

**08 03 01**

**Comment Number 1**

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

WALLIS, WALTER, PALO ALTO, CA  
PAGE 1 OF 1

01 04 00

Comment Number 1

Comment noted.

To: disposal fissile materials department of energy From: Walter Wallis, P.E. 415 321-4748 3/8/96 8:45:44 Page 1 of 1

**W**alter E. [Gene] Wallis  
2844 WAVERLEY STREET, PALO ALTO, CA 94306-2442  
(415) 321-GRIT (4748) FAX & VOICE  
E-MAIL - UNCLEGENE@MSN.COM

Department of Energy  
Fissile Material Disposal

March 8, 1996

Gentlefolk:

If an asteroid is detected in a collision course with the Earth, it is almost certain that any plan to divert will require forces in the nuclear range, and that there will be very little time to assemble the material required.

I suggest that consideration be given to establishing, under multi-national monitoring, a repository of bomb-grade material determined to be sufficient both for the propulsion and for the demolition or diversion of an asteroid. If we need it and yet we have already made it unavailable as some plans now suggest, we will kick ourselves until the day we die, especially if that death could have been avoided.

1/01.04.00

*Walter E. Wallis*

F-001

627 Rowell Lane  
Pleasanton, CA 94566

May 2, 1996

J. David Nulton  
Director, NEPA Compliance and Outreach  
Department of Energy  
Office of Fissile Materials Disposition  
P. O. Box 23788  
Washington, DC 20026-3788

Dear Mr. Nulton: *Dave*

Thank you for the opportunity to comment on your 15-cm-thick(!) PEIS compendium on the various ways that you have considered for storing, dispositioning, or doing nothing about various kinds of DOE-owned fissile materials. I will restrict my response to only a few salient comments with respect to excess weapon plutonium disposition in the hope that they are sufficiently concise that you read them, and more hopefully, that you consider them positively and take the appropriate action.

- The most serious flaw in the PEIS is the almost absolute disconnection from the real issue, the "clear and present danger" represented by abundant excess weapon plutonium in Russia. [See last sentence, p. S-7]. This is a fatal flaw. As I pointed out in my comments (October 1994, copy attached) to the DOE Notice of Intent to engage in this PEIS, it is not consistent to consider excess weapon plutonium to be a "clear and present danger" and at the same time engage in the bureaucratic morass of a formal PEIS exercise. PEIS efforts were not expended for the Persian Gulf War, The Haiti Occupation, the Somalia Intervention, the on-going Bosnia Peacekeeping, etc. None of these major Federal actions has constituted a "clear and present danger" to the national security of our country. Disposition of excess weapon plutonium in Russia, on the other hand, is a serious national security issue for Americans. We have already allowed valuable time to slip away. We must begin bilateral efforts at once (certainly not unilateral efforts as indicated in the PEIS, p. S-1), even if it means spending U. S. money in Russia to accomplish this international plutonium disposition mission.
- The complete absence of quantitative schedule considerations (except for a 50-year temporary storage criterion) does not provide a basis for either distinguishing between alternatives or assessing the endurance of the "clear and present danger" represented by excess weapon plutonium.
- The National Academy of Sciences has suggested that the cost of disposition of excess weapon plutonium should be considered in the context of our national security budget. However, the PEIS does not provide comparative costs of the alternatives. In fact, screening criteria are only listed for long-term storage! With no cost data to evaluate, how is the public (or DOE) to assess the viability of the various alternatives? On the other hand, the fast reactor alternative (see below) was summarily ruled out in the PEIS because it would be more costly.

1/13.00.00

2/07.00.00

3/07.02.00

M-136

13 00 00

Comment Number 1

The Department of Energy has an ongoing effort to assist the Russians in dealing with the "clear and present danger," including a joint study to assess Pu disposition technologies, and plans for joint demonstrations of some of these technologies to remove the uncertainties of their viability. At the same time, DOE also has the responsibility to comply with NEPA and prepare environmental analyses of the various reasonable alternatives for public review and comment. Analyses on the cost, schedule, technical, and Nonproliferation Policy impacts are presented in separate documents. Taken together, these analyses will support DOE's ROD on the path forward for implementation of the President's Nonproliferation Policy.

07 00 00

Comment Number 2

Schedule data, along with technical and cost data, were provided in Technical Summary Reports of both storage and disposition beginning in late July 1996. The cost data provided in these reports included estimated transportation costs.

07 02 00

Comment Number 3

Cost data, along with technical and schedule data, were provided in Technical Summary Reports of both storage and disposition beginning in late July 1996.

WALTER, CARL E., PLEASANTON, CA  
PAGE 2 OF 6

- A considerable amount of effort was expended by DOE (over thirty million dollars) in the 1992-95 time period to assess the capability of reactor alternatives for disposition of excess weapon plutonium. Work was performed by the major reactor designers under contract to DOE. This work was subsequently evaluated by DOE in the Plutonium Disposition Study. A report on Phase 1 of the Study was published in July 1993, and the report on Phase 2 was to have been published in October 1994. The PEIS includes a 58-page listing of references, however neither of the DOE Study evaluations (in which I participated) are included. I understand that the Phase 2 Study evaluation exists as a draft report, but has been held back to insure its political correctness. Another good reference is the summary prepared by Ron Omberg and myself in February 1993 of the work performed by the DOE Plutonium Disposition Task Force. In the spirit of DOE "openness", the availability of this information should be made known to the public.
- Despite the absence of quantitative schedule considerations, the fast reactor (among others) was discounted as a comparative alternative for disposition, on the basis that it would be more time-consuming. The PEIS does not reference any of several published papers by MINATOM and other Russian officials that state that a fast reactor is Russia's only acceptable alternative for disposition of their excess weapon plutonium while producing valuable power. Russia has made it very clear that is the approach they will take. Why then would disposition of U. S. plutonium in a fast reactor not be a timely approach?

It is apparent that my comments on the NOI had no implicit or explicit effect on the PEIS process. Is there a record of the official action taken with respect to my NOI comments? May I expect to hear from you, or otherwise receive a reply to this present letter? Again, thanks for the opportunity to comment. I believe that Americans would be forever thankful that excess weapon plutonium were dispositioned in Russia during the next ten years. This could be, if in fact we consider their inventory to be a clear and present danger and a threat to our national security. Otherwise, our debtor government should stop borrowing additional money to waste on more studies and the execution of bureaucratic procedures.

Sincerely,

  
Carl E. Walter

4/08.00.00

5/01.03.00

6/08.02.00

M-136

08 00 00                      **Comment Number 4**

All of the source documents used in preparing the PEIS are available to the public in DOE Public Reading Rooms or upon request to DOE. DOE has used open, publicly available information to the maximum extent possible. No commercial organization's proprietary information was used in preparing the PEIS.

01 03 00                      **Comment Number 5**

The Integral Fast Reactor concept uses a reactor fuel cycle design still under development; however, the development program was recently terminated by the Administration and Congressional action. Since Pu disposition can be accomplished using existing technologies, there is no justification for developing this advanced technology.

08 02 00                      **Comment Number 6**

The comment on the NOI was reviewed as part of the scoping process on this PEIS. The acceptance of the comment is noted in DOE's *Scoping Meeting Comment Summary Report* (DOE/MD-001) and the resolution of that comment is reported in the PEIS *Implementation Plan* (DOE/EIS-0229-IP).

627 Rowell Lane  
Pleasanton, CA  
94568

October 12, 1994

U.S. Department of Energy  
c/o Oak Ridge Institute for Science and Education  
P. O. Box 117  
Oak Ridge, TN 37831-0117

Attention: Robert Menard, EESD

Dear Mr. Menard:

Following are my comments on "The Notice of Intent (NOI) to prepare a Programmatic Environmental Impact Statement (PEIS) titled "Storage and Disposition of Weapons-Usable Fissile Materials". These comments were solicited concurrently with publication of the NOI in the Federal Register, v. 59, n. 118, p. 31985, June 21, 1994.

I offer these comments as an informed private citizen and a registered nuclear engineer in the State of California. I have over 38 years of engineering experience dealing with nuclear materials and systems. For the past three years I have participated in various studies concerning disposition of excess weapon plutonium. I have four concerns with respect to the approach to disposition of excess weapon plutonium that is outlined in this NOI.

**1. PEIS: An Unnecessary Delay**

At the highest level of my concerns is the considered necessity by DOE to invoke the NOI/PEIS/ROD procedure in the matter of disposition of excess weapon plutonium. DOE cites the recent NAS study on management and disposition of excess plutonium as the basis for the action they propose. Yet the NAS admonition of a "clear and present danger" posed by excess weapon plutonium, while explicitly cited, is implicitly ignored by DOE. The danger to the U.S., of course, is the presence of plutonium in Russia. If in fact there is a "clear and present danger", then a major Federal action such as disposition of plutonium in the U.S. (and more importantly to instill in Russia a sense of urgency) should be exempt from the time-consuming NOI/PEIS/ROD process. A responsible government cannot on the one hand proclaim danger, and on the other hand proceed with "business as usual". It is important to begin at once to prudently dispose of our excess plutonium so that we may, through negotiation and treaty, exact similar actions in Russia at once, while a presumably receptive Russian government is in place. There is no mention in the NOI about how disposition of U.S. excess weapon plutonium would be tied to actions taken by Russia with their excess weapon plutonium. Time is of the essence to get agreement with Russia and commence disposition there as well as in the U.S. I note that, while the recent Persian Gulf War would appear to have been a major

M-136

Federal action, NOI/PEIS/ROD procedures were circumvented even in the absence of a clear and present danger to the U.S. but with an assured negative impact on the human environment. If Russia also adopts a "business as usual" attitude about disposition, should this be a worry to the U.S.? I think so.

## 2. Storage: Distraction from Disposition

But if no urgency is perceived (i.e. there is no clear and present danger), and the DOE is not deterred from proceeding with the NOI/PEIS/ROD process, I am concerned that the PEIS includes in its title "Storage". In the text, storage generally is long-term storage (duration undefined) unless it is interim storage, which is defined to apply in the "near-term" (duration also undefined). DOE's expressed interest in storage of all kinds associated with disposition is in direct conflict with the policy promulgated in the Presidential Decision Directive (PDD-13) of last September that states: "...eliminate where possible the accumulation of stockpiles of...plutonium...", even though this policy is explicitly referenced in the NOI. This storage issue forms the next level of my concerns. It is abundantly clear that "interim storage" and "long-term storage" are included in the "no-action" alternative that would normally be addressed in a PEIS relating to the Defense Program and does not need to appear in the title of a PEIS relative to a Disposition Program. Certainly, storage is not a new requirement for the Defense Program. Storage is an existing Defense Program responsibility, that was incurred some fifty years ago when we started making weapon plutonium and continued to aggregate until we stopped making it recently. Excess weapon plutonium is a new topic.

What is new, is disposing of the U.S. weapon plutonium that is now considered excess in concert with similar action by Russia. Clouding the issue of "disposition" by including "storage" in the title of the NOI (as a matter of fact in the lead position in the title) stimulates the perception that storage is the more important topic and disposition may not ever occur. (For example, consider the perception of a local news reporter to the advertisement for the local public workshop - article attached). My concern is that actual disposition of weapon plutonium will be delayed indefinitely, or at best tens of years, in the U.S. and in Russia as a result of DOE's fixation on long-term storage as a viable solution, or at least a necessary intermediate step to disposition. The NOI statement "Because disposition options will take decades to carry out..." implies that the duration of the disposition process is not a subject for negotiation or determination - that it is not a variable that can be adjusted. But this is false. With appropriate negotiations between U.S. and Russia, disposition could begin now, and be completed within ten years. The "will take decades" attitude toward disposition will become a self-fulfilling prophecy. Following our lead, disposition in Russia might also take the form of long-term storage. In view of the conditions in Russia, this is not a desirable outcome. So if the NOI/PEIS/ROD process continues, at least the emphasis of the process should be only on disposition and not also on long-term storage. With regard to disposition, there should be a strong tie to a negotiated similar program in Russia. The NOI does not address how this will be accomplished.

**3. Action: Not Convolved Management and Study, Study....**

I believe that the excess weapon plutonium disposition program is being poorly managed by DOE. This was a major concern of the Office of Technology Assessment (OTA) in their September 1983 report "Dismantling the Bomb and Managing the Nuclear Materials". OTA concluded that ultimate disposition of excess plutonium from dismantled warheads is essentially a civilian mission and that "...the DOE organization that has been carrying out the weapon production mission (Defense Program) is not well suited to take on the new material disposition mission". Disposition of excess weapon plutonium should be tied to the Defense Program of DOE only at an interface that makes the excess material available to the Disposition Program. OTA suggested that a new organization outside of DOE manage excess materials or that a new organization within DOE be established. DOE quickly did the latter (but staffed the new organization with a number of Defense Program personnel and assigned to it responsibility for storage of all weapon-usable fissile material, not just excess material), and started the third study on disposition in as many years. DOE must take action, not engage in yet another study.

**4. Best Disposition Method: Obviously Fission**

The best method for plutonium disposition is already clear to those who have considered the issues. Only the fission process can be used to practically irreversibly alter the isotopic composition of weapon plutonium. Only in this way is the risk of diversion of this material reduced to that already present in commercial spent fuel. Also, plutonium contains a large amount of energy, which only a derelict or misinformed DOE would not utilize. One cannot throw away energy on the one hand and on the other hand claim to nurture a philosophy of conservation of energy. One cannot on the one hand use electricity and champion the environment, and on the other hand bury plutonium. Certainly, Russia will not bury their weapon plutonium, but will eventually burn it in nuclear reactors. We should help as we can to insure that this "happens sooner rather than later", to borrow a term from the NAS study. It is also abundantly clear from recent presentations by various knowledgeable speakers from France, England, and Japan that they will use their plutonium beneficially. We should recover plutonium from the excess weapon plutonium inventory for feed material for reactor fuel as soon as possible. We should initiate fabrication and testing of MOX fuel elements in existing reactors as soon as possible. We should already have started these actions two years ago. No wonder OTA lacks confidence in DOE!

Thank you for the opportunity to comment. I look forward to your response.

Sincerely,



Carl E. Walter

M-136

# THE VALLEY

## Feds to address storage

By Paul Ellis  
STAFF WRITER

LIVERMORE — Federal officials touring the country in search of a final resting place for most of the nation's nuclear bomb-making material will hold a public meeting here Wednesday.

The Lawrence Livermore National Laboratory has 880 pounds of plutonium and 400 pounds of highly enriched uranium. President Clinton has declared "surplus" and now the question is where to store it.

"We're essentially talking about all of our weapons material," lab spokesman David Schwogler said.

Long-range storage options range from keeping the

material at the lab to burying it. Eight nuclear testing sites have also been identified as potential storage sites for the nuclear bomb material, including the Nevada Test Site. No disposal sites have been identified in California.

Other options include diluting the highly enriched uranium with lower grade commercial uranium and using it in nuclear reactors. Irradiating the plutonium in a reactor or using it as nuclear fuel as well are also options being considered.

"This is why the public is involved," U.S. Department of Energy spokesman John Beluardo said. The federal government is preparing an environmental im-



LFD

Tri-Valley Herald

Page A-9  
Tuesday  
September 27, 1994

## of lab nuclear material

pact report designed to weigh the pros and cons of the storage options, Beluardo said. By law, public testimony must be considered before the report is prepared.

The public workshop will be held at the Livermore Holiday Inn, 720 Los Flores Road, from 1 to 9 p.m. It is divided into two sessions with a two-hour break starting at 4:30 p.m.

"There are more than 40 people signed up to speak," Schwogler said.

Wednesday's meeting is designed more as a workshop than a formal public hearing, Beluardo said. Energy officials will give a presentation followed by a question-and-answer session. Each session then will be

divided into two small group discussions, one dealing with storage the other with disposition.

Written comment will also be accepted and weighed equally to public testimony, Beluardo said. Written comments should be mailed to the U.S. Department of Energy, c/o Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, Tenn. 37831-0117; attention Robert Menard EESD. Written comments have to be postmarked by Oct. 17 to be considered.

Beluardo said the environmental report process is expected to take more than a year to complete. Once a report is submitted and accepted, the disposal will take up to 50 years to complete.

85 Claymore Lane  
Oak Ridge, TN 37830  
June 3, 1996

To: DOE-Office of Fissile Materials Disposition  
From: Barbara A. Walton  
Subject: Draft Programmatic Environmental Impact Statement (PEIS), Storage and Disposition of Weapons-Usable Fissile Materials

General Comments:

- |   |            |
|---|------------|
| 1. The release of this Draft PEIS at the same time as the Stockpile Stewardship and Management Draft PEIS is unfortunate. Holding concurrent public hearings is unacceptable. | 1/08.02.00 |
| 2. Fig. S-15, on page S-37, is missing the Electrometallurgical Treatment Alternative.  | 2/16.00.00 |
| 3. The locations chosen for ORR on pages 2-38 and 2-81 are extremely bad; I hope the other potential sites have not been similarly treated.                                   | 3/01.00.00 |

Preferred Alternatives:

- |   |            |
|---|------------|
| 1. I was encouraged by the lack of preferred alternatives in this draft PEIS, this encourages public input and indicates an open mind on the part of DOE.   | 4/08.02.00 |
| 2. I support the Upgrade at Multiple Sites Alternative for Long-Term Storage. I do, however, have a reservation about the potential environmental impact, at Pantex, on the Ogallala aquifer and would be supportive of some consolidation at NTS using the P-Tunnel. This may also enable inclusion of the RFETS material. | 5/08.03.01 |
| 3. I am unequivocally opposed to the collocation of Pu and HEU.   | 6/08.03.01 |
| 4. A preferred alternative for disposition is much more problematic; it may be desirable to separate it from the process, as was done with the Disposition of HEU, in order to reach a timely decision on the Long-Term Storage.  | 7/08.03.01 |
|   | 8/01.00.00 |

Discussion of Disposition Alternatives:

- |  |             |
|--|-------------|
| 1. No Action would, in effect, make long-term storage indefinite, difficult and costly. This is not acceptable.  | 9/08.03.01  |
| 2. The Deep Borehole needs more study on geological consequences. Immobilized Disposition may be a viable alternative, but not by the DOE's scheduled ROD for this PEIS of late 1996.  | 10/09.05.08 |
| 3. Immobilization, especially Electrometallurgical Treatment, appears promising, BUT MERELY CREATES HIGH-LEVEL WASTE, which has not yet been addressed (it was outside the scope of the Draft Waste Management PEIS). Therefore, I consider this option not viable at this time.   | 11/08.03.01 |
| 4. Reactor options in the US are not politically acceptable at this time. I believe this may change in the long run, as global impacts of fossil fuel usage become better understood by the US public. It is also not economically viable; the blending of HEU will provide domestic reactors with ample fuel in the near term. I suggest quietly pursuing the CANDU Reactor option for political viability. | 12/08.03.01 |
|  | 13/08.03.01 |

*Barbara A. Walton*

M-254

08 02 00                      **Comment Number 1**

The Department of Energy acknowledges the commentor's concern about the integration of public meetings on draft EISs. The joint meetings on the Storage and Disposition PEIS, the Stockpile Stewardship and Management PEIS, and the Pantex EIS were held using an integrated format at the request of several organizations and citizen advisory boards. They stated that such meetings "would be more convenient and provide a less confusing format for public participants. It would avoid duplication, permit a much more efficient use of the public's time and allow a more informed decision about the issues."

16 00 00                      **Comment Number 2**

Based on comments received, the Summary of the Draft PEIS was revised. All revisions made are included in the Summary of the Final PEIS.

01 00 00                      **Comment Number 3**

Comment noted.

08 02 00                      **Comment Number 4**

Comment noted.

08 03 01                      **Comment Number 5**

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

08 03 01                      **Comment Number 6**

The Department of Energy acknowledges the commentor's support for new missions at the NTS. 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.

Comment Documents  
and Responses

**08 03 01** **Comment Number 7**

The Department of Energy acknowledges the commentor's opposition to the Collocation Alternative. 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 8**

Separating storage from disposition would not effectively meet the purpose of and need for the Proposed Action. Planning for storage of the surplus Pu pending disposition is closely related to that for the disposition activities and would be affected by the technology(ies) selected to implement the Proposed Action. DOE is confident that a decision can be made on disposition technologies at this time, and is continuing to expand a range of small scale tests and demonstrations of some Pu disposition technologies to remove uncertainties in viability.

**08 03 01** **Comment Number 9**

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 05 08** **Comment Number 10**

The deep borehole complex is not defined for a specific or representative site. Therefore, a limited assessment of the environmental impacts was done for the geological and other resources. Should either of the Deep Borehole Alternatives be selected, a siting study would be conducted in coordination with a site-specific discussion of environmental (including geological) conditions and impacts. The identification and acceptance of a site location would require extensive site characterization to ensure that the primary objective of the deep borehole complex, hydrologic isolation from the biosphere, would be met.

**08 03 01                      Comment Number 11**

The Department of Energy acknowledges the commentor's opposition to the Immobilization Alternatives. Decisions on disposition alternatives will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

**08 03 01                      Comment Number 12**

The Department of Energy acknowledges the commentor's opposition to the Electrometallurgical Treatment 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.

**08 03 01                      Comment Number 13**

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

WASHINGTON PUBLIC POWER SUPPLY SYSTEM, RICHLAND, WA,  
 J. V. PARRISH  
 PAGE 1 OF 6



WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 268 • 3000 George Washington Way • Richland, Washington 99352-0268 • (509) 372-1000

May 7, 1996

Gregory P. Rudy, Acting Director  
 Office of Fissile Materials Disposition  
 Department of Energy  
 P.O. Box 23786  
 Washington, D.C. 20026-3786

Re: Comments on Draft FEIS on Storage and  
 Disposition of Weapons Usable Fissile Materials

Dear Mr. Rudy:

On March 8, 1996, the Department of Energy ("Department" or "DOE") published in the Federal Register a notice of availability of a draft Programmatic Environmental Impact Statement ("draft PEIS") on the potential environmental impacts of various alternatives for the storage and disposition of surplus weapons-usable fissile materials. 61 Fed. Reg. 9443 (March 8, 1996). The notice also announced a series of public meetings to discuss and receive comments on the draft PEIS and an opportunity for written public comment on the draft PEIS.

The Washington Public Power Supply System ("Supply System") is interested in this matter as it relates to the use of existing commercial light water reactors for the disposition of surplus weapons plutonium. The Supply System has submitted responses to the Department's request for expressions of interest in plutonium disposition (60 Fed. Reg. 64,104 (Dec. 13, 1995)) and an unsolicited proposal to use the Supply System's operating WNP-2 reactor to conduct a lead use assembly MOX fuel program, and has had numerous other interactions with the Department in furtherance of the Supply System's willingness to assist the Department with its plutonium disposition mission. Most recently, the Supply System participated in the public meetings on the draft PEIS which were held in Richland, Washington; Las Vegas, Nevada; Amarillo, Texas; and Washington, D.C.. In addition to comments made by Supply System representatives at these several public meetings, the Supply System offers the following written comments on the draft PEIS.

See Letter to Mr. Howard Canter from Mr. William G. Council dated August 25, 1995, with enclosure.

F-035

Comments on the Draft PEIS

The Supply System commends the Department on the thorough and detailed consideration of potential environmental impacts of various plutonium disposition options in the draft PEIS. We believe that the draft PEIS generally gives appropriate treatment to the environmental impacts of the several technologies being seriously considered by the Department for plutonium disposition, and that the draft PEIS clearly demonstrates that the option of using existing commercial light water reactors poses the fewest incremental environmental impacts of any of the options considered. To further increase the usefulness of the PEIS in support of the expeditious implementation of a plutonium disposition program, the Supply System offers the following specific comments:

- The Supply System urges the Department to finalize the PEIS promptly and to move to a Record of Decision and Request For Proposals in an expeditious manner.

As the draft PEIS recognizes, a plutonium disposition program is necessary to implement the President's Nonproliferation and Export Control Policy in a safe, reliable, cost-effective, technically feasible, and timely manner. Draft PEIS at 1-5. Prompt action is necessary to demonstrate the United States' commitment to these objectives which will, as the draft PEIS notes, "set[] a model for proliferation resistance" and "enable the United States to . . . negotiate reciprocal actions with other nations for the disposition of surplus weapons-usable Pu." Draft PEIS at 1-5. Indefinite storage of this material, or pursuit of options which cannot be implemented for many years, will not satisfy these objectives. The option of using existing commercial light water reactors, on the other hand, is safe, reliable, and cost-effective, is the only technically proven disposition option, and can be implemented in the most timely manner.

- The Supply System encourages the Department to go beyond "technology selection" and to include (or reference), to the extent possible, readily available environmental data and analyses associated with project-specific options.

To some extent, the Department has already addressed this issue, by including "representative" site-specific data on siting and operating characteristics of existing reactors (derived from actual plant data, including WNP-2 information (Draft PEIS at 3-345)) and similar data for at least one partially completed reactor. The Department makes it clear that these sites are being considered "for analysis only" and

1/08.03.01

2/08.03.01

3/01.04.00

F-035

08 03 01

Comment Number 1

Comment noted.

08 03 01

Comment Number 2

The Department of Energy acknowledges the commentator'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 04 00

Comment Number 3

Comment noted. The decision will be based not only on environmental analyses, but also on analyses of technical, cost, schedule, and policy aspects of the reasonable alternatives as reflected in the Technical Summary Report issued by DOE beginning in late July 1996 and the Nonproliferation Report in the fall of 1996. Should the Existing LWR Alternative be selected, DOE would issue a public notice to solicit proposals for implementing this alternative. The information the commentator describes would be very useful should this alternative be selected.

WASHINGTON PUBLIC POWER SUPPLY SYSTEM, RICHLAND, WA,  
 J. V. PARRISH  
 PAGE 3 OF 6

that their consideration does not represent a DOE proposal or preference. Draft PEIS at 3-17. The Supply System encourages the Department to include any additional environmental data which would support subsequent consideration of a site-specific or project-specific option, such as, for example, references to existing NEPA analyses for operating nuclear reactors, especially for reactors whose licensees have expressed interest to DOE in participating in the plutonium disposition mission. While we recognize that the Department does not intend to select a specific project or site in the PEIS, such project-specific or site-specific information could conceivably be sufficient to support such a decision in the future, without the need for another (e.g., "tiered") EIS, or to narrow the scope (and hence speed the completion) of any such EIS.

3/01.04.00  
 cont.

- In a similar vein, the PEIS should expressly recognize that for certain site-specific or project-specific options, such as use of the WNP-2 reactor, many of the project-specific environmental impacts are already considered in the draft PEIS.

With respect to WNP-2, the draft PEIS already analyzes the environmental impacts of a pit disassembly/conversion facility and a fuel fabrication facility at the Hanford site (where WNP-2 is located). In addition, the draft PEIS considers cumulative environmental impacts of such a program at Hanford (and finds Hanford second only to the Nevada Test Site in terms of desirability on this point). The draft PEIS also incorporates data on the environmental setting at WNP-2. Draft PEIS at 3-345. The PEIS should recognize that these elements, when combined and added to the existing EIS for WNP-2 operation, constitute an essentially complete consideration of the environmental impacts of a WNP-2 MOX fuel use program.

4/01.02.00

The PEIS should also recognize that WNP-2 is the only operating commercial reactor located at one of the representative sites for which environmental impacts of a MOX fuel cycle have already been analyzed in the draft PEIS. Recognition of this fact in the PEIS need not be viewed as a DOE expression of preference but merely "for analysis only," in the same manner that the draft PEIS treats data on the partially completed Bellefonte plant. As discussed above, however, the analysis could conceivably be used at some later date to support, or simplify environmental analysis of, a site-specific or project-specific decision.

F-035

01 02 00

Comment Number 4

Comment noted.

- The Department's choice of a technology or technologies for plutonium disposition, which is to be made in the final PEIS, should be informed by consideration of the practical availability of, and the sufficiency of existing environmental analyses of, site-specific or project-specific options.

In drawing on environmental information and analyses for existing reactors such as WNP-2, the Department need not express a preference in the PEIS but rather could simply acknowledge the existence of environmental analyses for certain site-specific options in order to reach a more fully informed decision on the most desirable plutonium disposition technology or technologies. The fact that the analysis in the draft PEIS and other NEPA documents already addresses virtually all environmental impacts of a particular technology at the site-specific or project-specific level (as it does for use of MOX fuel at WNP-2) should enhance the desirability of the reactor-use technology in general. A choice of technology should be based not only on comparison of representative generic environmental impacts, but rather should also involve consideration of the practical issue of whether and when a particular technology can be implemented. For the reactor-use option, unlike the other technologies being considered, the site-specific environmental impacts have been largely evaluated (since they are not expected to differ significantly from the environmental impacts of current operations), and the technology has been proven and is available for implementation as soon as the supporting facilities are completed.

In its analysis of the reactor-use option in the final PEIS, the Department should utilize the most current available data on the throughput capability of boiling water reactors. Current data show greater throughput capability than is assumed in the draft PEIS, and hence would support either a more expedited plutonium disposition schedule or a program requiring less reactor capacity.

- The draft PEIS should include environmental data on the Fuels and Material Examination Facility ("FMEF") which is located on the Hanford Reservation and should seriously consider use of the FMEF as a MOX fuel fabrication facility in support of the reactor-use option.

The FMEF presents several key advantages over construction of new MOX fuel fabrication capability: it is essentially complete and would require relatively little capital investment to provide near-term MOX fuel fabrication capability; it is located on the Hanford Reservation, which

3/01.04.00  
cont.

5/06.02.09

6/01.02.00

F-035

06 02 09

Comment Number 5

The throughput capabilities reflected in the PEIS for both PWRs and BWRs are conservative MOX core designs. More advanced core designs exist that can accommodate higher throughputs. The PEIS fuel cycles are idealized designs which bound environmental impacts.

01 02 00

Comment Number 6

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 bound 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 for variants which includes "Modification/completion of existing facilities for MOX fabrication."

Utilization of FMEF for the Upgrade Alternative would not preclude its use to also support Pu disposition activities, for either Reactor or Immobilization Alternatives.

WASHINGTON PUBLIC POWER SUPPLY SYSTEM, RICHLAND, WA,  
 J. V. PARRISH  
 PAGE 5 OF 6

would minimize transportation, handling, and security costs if other disposition facilities were co-located at Hanford; and, perhaps most importantly, the FMEF could be utilized as a "glove box" facility, which could be used to fabricate MOX fuel from the output of the MOX disassembly/conversion facility, but, unlike a typical "canyon"-type MOX fuel fabrication facility, would not be capable of reprocessing spent MOX fuel. Therefore, the facility could support a MOX fuel plutonium disposition program without being able to be characterized as a vehicle for domestic reprocessing.

6/01.02.00  
 cont.

- The Department's preliminary observations regarding the possible need to utilize both the reactor-use and vitrification options support a decision to centralize the plutonium disposition program on the Hanford Reservation.

The Supply System agrees with the statement in the draft FEIS that some forms of plutonium may not be suitable for MOX fuel use, such that the disposition program may best be accomplished using a combination of the reactor-use and vitrification alternatives (Draft FEIS 3-7). In view of this conclusion, the Department should recognize the efficiencies of co-locating the two technologies near the source of much of the in-process plutonium (i.e., at Hanford) where the two disposition processes (with one using the WNF-2 reactor for MOX fuel consumption) and their waste streams could be treated in an integrated fashion.

7/08.03.01

- The Supply System encourages the Department to establish, at the outset, a detailed program for treatment of all waste streams associated with the plutonium disposition program.

The Department should anticipate and fully address cleanup and waste disposal issues associated with the plutonium disposition program. The waste streams for plutonium conversion and fuel fabrication and/or vitrification facilities should be fully characterized and specified, and a facility for treatment of those waste streams should be included in the program. The Supply System envisions a waste treatment facility which is co-located with the disassembly/conversion, conversion, and fuel fabrication facilities on the Hanford reservation. The facility could be constructed at the outset of the disposition program. The facility could then be used in part to process existing Department wastes unless and until its full capacity was needed to process disposition wastes, and then again once the disposition mission was completed. In this way, the plutonium disposition program would be fully integrated into the

8/01.02.00

F-035

08 03 01                      Comment Number 7

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

01 02 00                      Comment Number 8

The design of facilities for the selected Pu disposition alternatives will include consideration of waste minimization and treatment of the associated waste streams.

WASHINGTON PUBLIC POWER SUPPLY SYSTEM, RICHLAND, WA,

J. V. PARRISH

PAGE 6 OF 6

Department's defense cleanup program in a timely and cost-effective manner.

- To support the process of selecting a disposition technology or technologies, the Department should proceed with activities which would further confirm the relative desirability and near-term availability of the reactor-use option, including (1) implementation of a mixed oxide ("MOX") fuel lead use assembly program in a commercial reactor and (2) use of a commercial reactor as the lead plant to commence the ERC licensing process for use of MOX fuel in a commercial reactor.

These actions would provide additional information on the time required for implementation of a MOX fuel use program and would identify any unanticipated technical or licensing issues, which would further inform a decision on the relative desirability of the reactor-use option, without prejudicing the technology selection decision or overcommitting to the reactor-use option prior to the time of technology selection. The information gained through these actions would also support prompt implementation of the reactor-use option, if ultimately selected.

We appreciate the opportunity to comment on these matters of extreme importance to global nuclear non-proliferation. We look forward to the issuance of the final FEIS and to further opportunities to assist the Department in prompt implementation of a plutonium disposition program.

Respectfully yours,



J.V. Parrish  
Chief Executive Officer

WASHINGTON PUBLIC  
POWER SUPPLY SYSTEM

8/01.02.00  
cont.

9/08.03.00

F-035

08 03 00

Comment Number 9

The Department of Energy is, or will soon start, conducting a series of technical demonstrations on certain aspects of some alternatives for the purpose of verifying technical parameters and information. This information will be used in the decisionmaking process and implementation of an alternative if it is selected.

WERTH, KENNETH F., ARVADA, CO  
PAGE 1 OF 3

 United States Department of Energy	
NAME: (Optional)	<i>Kenneth F. Werth</i>
ADDRESS:	<i>6895 Flower ST Arvada Co. 80004</i>
TELEPHONE:	<i>(303) 424-0700</i>
<p><i>I Kenneth F. Werth attended the public meeting on the afternoon of March 26-76 in Arvada, Co. on the Draft PEIS for the Storage and Disposition of Weapons-Usable Materials. I find two of the three Alternatives, Deep Borehole and Reactoria, not acceptable in the Storage and Disposition of Plutonium and SNM Metals and Oxide Materials.</i></p> <p><i>(1) Consent = Deep Borehole. If we are ever going to solve this nuclear waste problem, this government of the United States should relax its single minded focus on irreversible geological burial, and turn to some form of secure Storage and Disposition that allows both continuous monitoring by a spy satellite, and be retrieval if it has to. Deep geological borehole burial, does not "resolve" waste management problems for our children, grand children, and future generations but ironically that entombment, does precisely the reverse.</i></p> <p><i>(2) Reactoria = The conclusion for Plutonium and Highly Enriched Uranium as a Reactor fuel, used as a United States option, would be a serious hindrance to achieving an interim global halt to reprocessing or to non-proliferation goals, long-time frame, and high technical uncertainty. The United States has already given up civilian use of plutonium for non-proliferation as well as for economic reasons. If we are ever going to translate our position to a global leadership role, over Russia and China on this crucial issue, it would be wise</i></p>	

1/14.00.00

2/01.06.00

F-003

14 00 00

Comment Number 1

While there may be certain advantages to surface storage, geologic disposal of HLW is the focus of Federal waste management programs both here (the NWSA as amended) and abroad (Collective Opinions in 1985, 1991, and 1995 by the Radioactive Waste Management Committee of the Nuclear Energy Agency [in cooperation with the IAEA]). Since most of the Pu disposition alternatives result in a material form destined to be transported to a domestic NWSA-HLW repository (exceptions include the CANDU Reactor and Borehole Alternatives), DOE included comparability analyses in Appendix H of the PEIS to illustrate that these alternatives have the potential to be accepted at such a repository. Any alternatives which were determined to significantly exceed (or fall short of) the Spent Fuel Standard were eliminated during the screening process which produced the PEIS reasonable alternatives.

01 06 00

Comment Number 2

Comment noted.

April 1, 1996

for the United States, to look at Security Concerns that leaves no currently feasible solutions, to rid these materials for good, that present problems of potentially increasing proliferation threats, creating new environmental problems, and/or aggravating old ones, at huge costs in the billions of dollars. I would then suggest that the United States should formally declare excess plutonium a security, economic, and environmental liability, and for use in its use in weapons.

(3) I would support two concepts that I have proposed. One is in the building of a Flats Pyramid Type Facility "above ground" that would incorporate all of the Plutonium and Highly Enriched Uranium Materials, by a vitrification process in glass, or Ceramic immobilized, that would be fused in the 6 to 8 hollowed out cores of the 40-ton blocks of (Granite) that then would be placed in the center of the Flats Pyramid Type Facility to store Nuclear Waste, that every site in the United States has millions of cubic yards of that will have to be dealt with if we are going to solve this Nuclear Waste problem, that has plagued our nation for the last 50 years.

Second = Criteria a Concept for the Complete Storage, Disposition, Containment, and Transportation of Plutonium and Highly Enriched Uranium, Vitrified in borosilicate glass, or Ceramic immobilized, in 6 to 8 hollowed out cores of 40-ton blocks of (Granite).

This concept would solve all of the Storage, Disposition and Containment problems, and then be transported by rail or truck, to remote areas of the Southwestern Desert region, or the

2/01.06.00  
cont.

1/14.00.00  
cont.

F-003

WERTH, KENNETH F., ARVADA, CO  
PAGE 3 OF 3

April 1, 1996

Plates of 1/4" thick, stacked 5 or 6 high, would provide a low cost, low maintenance, and long-term storage, disposition, and containment method for all nuclear waste, including spent nuclear fuel rods; it would then be monitored by a stationary spy satellite, that would be placed in orbit 22,000 miles above the earth.

This nuclear waste could be monitored by one central signal station that would be controlled by the United States government; this concept would also be a added barrier against theft and terrorism.

This proposal for these two concepts, has taken a lot of thought from me, one person, in trying to solve this nuclear waste problem that has plagued the United States, and the rest of the world for the last 50 years.

"Please Respond"

Sincerely  
Kenneth F. Werth

P.S. You have already taken my concept for the flat top pyramid type facility

1/14.00.00  
cont.

F-003

March 25, 1996

Kenneth F. Werth  
(303) 424-0790

A State-of-the-Art alternative for long-term Storage and Disposition of Fissile Materials and Low Level Nuclear Waste, in a six year staged Construction Sequence.

My concept is in the building of a flat top pyramid type facility, that could be utilized at a number of sites across our nation, in the Storage and Disposition of all Low Level, Low Level Mixed, Rubble, and Encapsulated Plutonium and SNM Metal and Oxide Materials.

The construction, on 12 acres, of a 920' x 862' cubic foot above ground flat top pyramid type facility, would incorporate, (35, 224) 40 ton blocks of (Granite) cut 10 feet in length, 7 feet in width, and 6 feet in height, that would hold all of the Nuclear Waste, (1, 968, 237) cubic yards, on each site, as a Monitored and Retrievable, interim Storage Facility, or for long-term, if no other sites are found.

All of the Plutonium and SNM metals and Oxide's materials, would be vitrified in glass, or be ceramic immobilized and encapsulated in 40 ton blocks of (Granite), and placed in the center of all the Low Level Nuclear Waste, surrounded by a large number of solid 40 ton blocks of (Granite).

1. My Conceptual Vision is in a statement about the Treatment, Disposal, and Storage of Nuclear Waste that has been a problem that has not been properly handled since the inception of the Nuclear age, and should not be left as a legacy for our children, and grandchildren, or future generations.

1/14.00.00

CO-001

14 00 00

Comment Number 1

The Department of Energy applied a screening process along with public input to identify a range of reasonable alternatives for analysis in the PEIS, and utilized technical reports and analyses from national laboratories and industry to develop a final list of alternatives. Details were published in a separate report, *Summary Report of the Screening Process to Determine Reasonable Alternatives for Long-Term Storage and Disposition of Weapons-Usable Fissile Materials* (DOE, March 1995).

March 25, 1996

(2) Unmonitored and retrievable disposal of Nuclear Waste plays on the "out of sight, out of mind" theme and is neither morally nor technically acceptable, leaving citizens to believe that the site has been cleaned up of all Nuclear Waste.

(3) All low level, Plutonium and SNM Metals and Oxide Materials will be stored in a manner that allows for continuous monitoring and retrieval.

(4) An above ground Flatop Pyramid Type facility will provide Storage and Disposition of all low level, Plutonium and SNM Metals and Oxide Materials, and will be seen as the first "State-of-the-Art" on-site Storage and Disposition facility in the world.

(5) (Granite) is readily available nation wide, and its use will save billions of dollars, without diverting construction materials, such as concrete from traditional uses, in continuing development on our infrastructure. Work could begin almost immediately in one or more locations, and be completed in a shorter period of time than with conventional methods and materials.

(6) Onsite above ground Flatop Pyramid Type Facilities for Storage and Disposition of Nuclear Waste, could easily be monitored by a spy satellite placed in a stationary orbit 22,000 miles above the earth.

(7) Interstate transportation of Nuclear Waste will be eliminated across, other state's borders.

(8) The 900' x 868' cubic foot above ground Flatop Pyramid type facility, on 18 acres of land

1/14.00.00  
cont.

CO-001

March 25, 1996

versus the more than 120 acres, estimated to be needed for an underground waste dump. If estimates of waste quantity are not accurate at each site, the flat top Pyramid type facility, can be built on less land use, and capped at a lower level, or additional levels can be added. Flat top Pyramids can be sized for each site based on the estimated quantities of waste to be stored.

(9) The W.I.P.P. site in New Mexico will be stalled for years of public outcry, litigation concerning over border transportation, limited storage space, and other issues, will doom this project, if it hasn't done so already.

(10) If we are ever going to solve this Nuclear Waste problem, this government of the United States should relax its single minded focus on irreversible geological burial and turn to some form of secure storage and containment, that allows both continuous monitoring by a spy satellite, and be retrieval if it had to be. Deep geological borehole burial, does not "resolve" waste management problems for our children, grandchildren, and future generations, but ironically, that entombment, does precisely the reverse.

My proposal, for this concept is the "Questionnaire" regarding Criteria for screening Storage and Disposition Alternatives.  
"Please Respond"

Sincerely  
Kenneth F. Werth  
6895 Flower ST  
Arvada Co 80004

1/14.00.00  
cont.

2/08.03.01

CO-001

08 03 01

Comment Number 2

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.

WERTH, KENNETH F., ARVADA, CO  
PAGE 4 OF 6

DESIGNED BY  
Kenneth F. Werth (303)424-0740  
L-W-H  
900'x800' Pyramid constructed of 10'x7'x8' blocks of GRANITE

Level	X Blocks	Y Blocks	No. Blocks	Total Blocks	CY Enclosed	Total CY	Elev	Comments
1	80	122	10980	10980	0	0	6	Solid Blocks
2	80	122	10980	21960	0	0	12	Solid Blocks
3	89	121	420	22380	160,472	160,472	18	
4	88	120	416	22796	157,294	317,766	24	
5	87	119	412	23208	154,148	471,913	30	
6	86	118	408	23616	150,784	622,697	36	16 Capsules
7	85	117	404	24020	147,700	770,397	42	16 Capsules
8	84	116	400	24420	144,894	915,291	48	
9	83	115	396	24816	141,872	1,057,162	54	
10	82	114	392	25208	138,880	1,198,042	60	
11	81	113	388	25596	135,820	1,331,862	66	
12	80	112	384	25980	132,800	1,464,662	72	
13	79	111	380	26360	130,092	1,595,049	78	
14	78	110	376	26736	127,224	1,722,267	84	
15	77	109	372	27108	124,388	1,848,655	90	
16	76	108	368	27476	121,582	1,968,237	96	
Top	76	108	8208	35684	0	1,968,237	102	Solid Blocks

Land Area of Base - Approx 18 Acres

SIX YEAR STAGED CONSTRUCTION SEQUENCE

YEAR ONE AND TWO

MOBILIZE = SITE PREPARATION, ACCESS ROADS, RAMPS  
EXPAND AND INCREASE CAPACITY OF QUARRY BEGIN  
QUARRYING AND SHAPING BLOCK'S BEGIN PLACING  
LEVEL ONE BLOCK'S (10,900 BLOCK'S)

YEAR THREE = PLACE SECOND LEVEL BLOCK'S (10,900 BLOCK'S)

PLACE THIRD LEVEL BLOCK'S (420 BLOCK'S) BEGIN  
DEMOLISHING CONTAMINATED FACILITIES, PLACE AND COMPACT  
RUBBLE AND LOW LEVEL NUCLEAR WASTE (160,472 CY) PLACE  
FOURTH LEVEL (416 BLOCK'S) AND PLACE AND COMPACT RUBBLE  
AND LOW LEVEL NUCLEAR WASTE IN LEVEL FOUR (157,294 CY)

YEAR FOUR = PLACE BLOCK'S AND COMPACT RUBBLE AND LOW

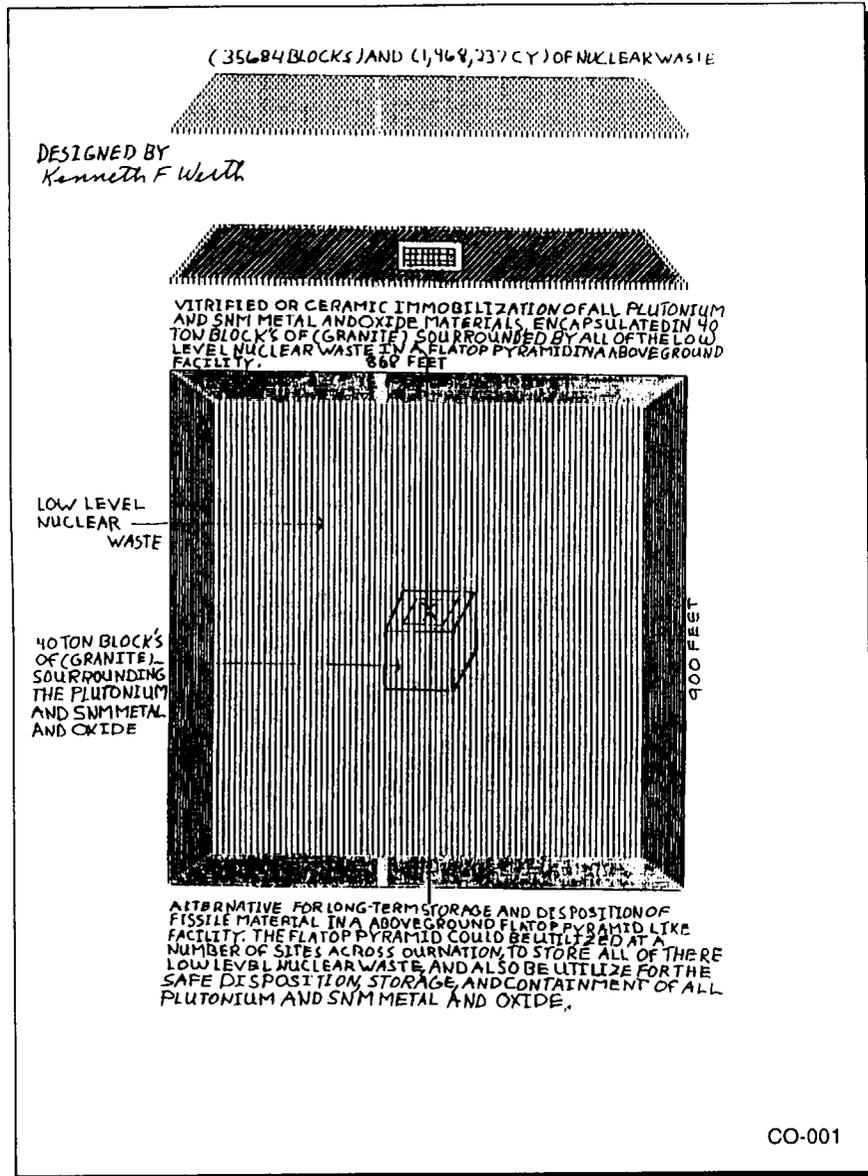
LEVEL NUCLEAR WASTE IN LEVELS FIVE AND SIX (820 BLOCK'S)  
AND (304,932 CY) PLACE BLOCK'S OF ENCAPSULATED PLUTONIUM  
AND SNI METAL ANOXIDE IN LEVELS SEVEN AND EIGHT OF (64  
BLOCK'S) CONTAINING (200 CY) OF HIGH LEVEL WASTE PLACE  
BLOCK'S AND COMPACT RUBBLE AND LOW LEVEL NUCLEAR WASTE  
IN LEVELS SEVEN AND EIGHT (804 BLOCK'S) AND (292,594 CY)

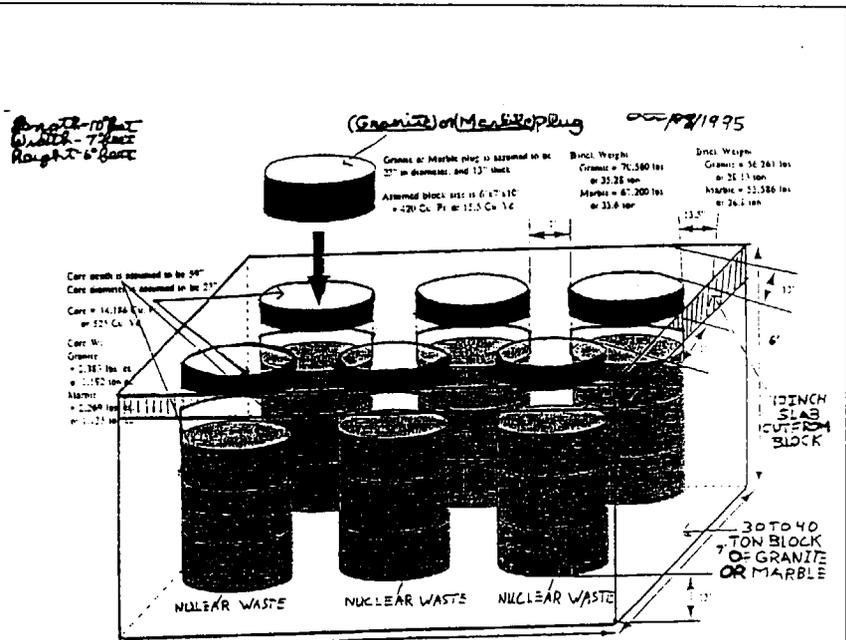
YEAR FIVE = PLACE BLOCK'S AND COMPACT RUBBLE AND LOW

LEVEL NUCLEAR WASTE IN LEVELS NINE, TEN, ELEVEN, TWELVE,  
AND THIRTEEN (1940 BLOCK'S) AND (679,754 CY)

YEAR SIX = PLACE BLOCK'S AND COMPACT RUBBLE AND LOW LEVEL

NUCLEAR WASTE IN LEVELS FOURTEEN, FIFTEEN, AND SIXTEEN LEVEL  
(1116 BLOCK'S) AND (372,194 CY) PLACE TOP LEVEL (8208 BLOCK'S)  
FOR A TOTAL OF (35684 BLOCK'S) AND (1,968,237 CY) TOTAL





VITRIFIED IN BOROSILICATE GLASS OXIDATION/DISSOLUTION OR CERAMIC IMMOBILIZATION OF ALL PLUTONIUM AND SMO METAL AND OXIDE MATERIALS ENCAPSULATED IN 40 TON BLOCKS OF GRANITE IN THE CENTER OF THE FLAT TOP PYRAMID

DESIGNED BY  
Kenneth F. Werth

CO-001

**WESTINGHOUSE SAVANNAH RIVER CO., AIKEN, SC,  
RICHARD R. TANSKY  
PAGE 1 OF 2**

Date: Wed, 1 May 1996  
Subject: FORUM Form - incoming

#serial\_no = 164  
#MailTitle = FORUM Form - incoming  
#name = Richard R. Tansky  
#title = Site Training Manager  
#company = Westinghouse Savannah River Co.  
#addr1 = 116 Sugarberry Rd.  
#addr2 =  
#city = Aiken  
#state = SC  
#zip = 29803  
#phone = 803 208-0773  
#fax = 803 208-0843  
#email = rtansky@csra.net  
#ctype = public  
#subject = Potential Savannah River Involvement

\*\* The following is the text of the Author's Comment.

Savannah River Site should be selected for interim and long term Pu and HEU storage for the following reasons:

| 1/08.03.01

Site Infrastructure - Continuing investments in the site's infrastructure make SRS a logical choice for locating Pu and HEU.

Community Support - The surrounding community strongly supports the continuation of the use of SRS to support the nation's defense programs involving special nuclear materials.

Workforce Readiness - SRS has demonstrated a commitment to upgrading the knowledge and skills of its workforce and currently had the best trained and therefore the best prepared workforce to take on new missions regardless of the technology used.

Management Commitment to Safe Operations - Both the site's radiological and industrial safety record speak volumes about the ability of the site to safely and reliably carry out complex, high-tech missions with minimum risk to the environment and surrounding population.

Environmental Impact Baseline Knowledge - The investment in understanding and monitoring the ecology of the SRS puts this site in front in terms of being able

E-005

08 03 01

Comment Number 1

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

**WESTINGHOUSE SAVANNAH RIVER CO., AIKEN, SC,  
RICHARD R. TANSKY  
PAGE 2 OF 2**

to assess environmental impacts and responding to and mitigating them.

Expertise in Fissile Materials - The site experience in the safe production, handling, and storage of both Pu and U, as well as other nuclides, point to SRS as an obvious choice for continuing and expanding this work.

It will be important for the DOE to deal with the disposition issue concurrently with the storage issue in order to overcome the legitimate concerns of the local and state governments that these materials will be accumulated without a certain disposition decision. Therefore, SRS should be chosen for both the disposition and the pit storage missions with the above factors as a basis.

1/08.03.01  
cont.

#END comment

E-005

ROCKY FLATS  
STORAGE & DISPOSITION OF  
WEAPONS-USEABLE FISSILE MATERIALS  
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

FORMAL PUBLIC COMMENTS

Westminster City Hall  
4800 W. 92nd Avenue  
Westminster, Colorado

Tuesday April 30, 1996

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 2 OF 32

I N D E X

Speakers from Audience:

Kenneth Werth - Resident of Arvada, Colorado

Thomas M. Rauch - American Friends Service Committee

Jim Stone - Rocky Flats Cleanup Commission

Tom Marshall - Rocky Mountain Peace Center

Allan Trenary - Rocky Flats Citizens Advisory Board

Sam Cole - Physicians for Social Responsibility

Officiates:

Carl Sykes

Mariane Anderson

P R O C E E D I N G S

MR. SYKES: Well, we're going to go ahead and start tonight's meeting. The purpose of tonight's meeting is to obtain formal comments for the Material Disposition Programmatic Environmental Impact Statement for the Disposition of Fissile Materials. Even though we don't have a whole lot of focus here tonight, the people from the Material Disposition Office have asked me not to interact with anybody but just to get formal comments so that that will facilitate their answering these questions formally.

We do have a court reporter here, so your comments will be recorded verbatim. And essentially what we're going to do is take the transcript from the court reporter and send it on to headquarters, and this will be part of the Material Disposition Programmatic Environmental Impact Statement. It will be part of that, the response document that they will create for that.

After everyone's given their statements, especially with such a small group here, we can certainly talk informally. But for the formal part of this, basically I can--I'm just going to sit here and smile while you read your formal comments. So I apologize, you know, not being able to answer questions.

Go ahead, Mariane.

MS. ANDERSON: Kenneth Werth, please come to the

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
 KENNETH WERTH, ET AL.  
 PAGE 4 OF 32

(inaudible).

MR. WERTH: Oh, okay.

MS. ANDERSON: Oh, and also, at the beginning of each comment, you need to give your name and state that this is your formal comment for the Storage and Disposition PEIS, okay?

MR. WERTH: Okay. My name is Kenneth Werth and I'm a 60-year resident of Arvada, citizen of Arvada. And I'd like to comment on my vision for the Rocky Flats Environmental Technology Site. I believe that every site that has generated nuclear waste is going to have to take care of their own waste, high-level and low-level nuclear waste. And I've never heard of a concept like I have drawn up in my two and a half years of attending most of Rocky Flats Citizens Advisory Board meetings, and a lot of other ones.

And I've drawn up this flat-top pyramid criteria. It will be an above ground monitored and retrievable storage facility. It would be--the first one would be above ground flat-top pyramid type facility made up of 40-ton blocks of granite, cut 10 feet in length, 7 feet in width, and 6 feet in height. And the engineering feasibilities would be:

A) A 470 by 315 square foot facility situated on approximately base area of 3.40 acres, would incorporate 7,410 blocks, is a total number of 40-ton blocks of granite.

1/14.00.00

M-235

14 00 00

Comment Number 1

The Department of Energy appreciates the commentator's submission of the conceptual design of the flat-top pyramid storage facility. However, one of the screening criteria for storage, technical viability, calls for a high degree of confidence that the facility must provide safe and secure storage of nuclear materials for at least 50 years. The structural integrity of this design is not proven, and the size and shape of the facility could attract unwanted attention. Since there is an urgent need for implementation of the Proposed Action, and existing facilities and design can accomplish the storage mission, it would not be prudent to use additional time and cost to develop and demonstrate new designs.

And it would encapsulate 291,416 cubic yards of low-level, low-level mix, level, and transuranic waste in bulk form, leaving the facility center as a place to store 64 high-level nuclear waste capsules of plutonium and highly enriched uranium.

B) would be a 500 by 460 square foot facility situated on approximately a base area of 4.85 acres, would incorporate 9,960 total number of 40-ton blocks of granite, and encapsulate 521,432 cubic yards of low-level, low-level mix, level and transuranic waste in bulk form, and the same number of 64 high-level nuclear waste capsules.

And C) a 900 by 868 square foot facility situated on an approximate base area of 18 acres, would incorporate 35,684 total number of 40-ton blocks of granite, and encapsulate 1,968,237 cubic yards of low-level, low-level mix, level, and transuranic waste in bulk form, and also incorporate a higher number than the 64 high-level nuclear waste capsules.

And I'm just coming to the calculation of this project. It would be in a six-year sequence of getting the program started, excavating the roads and the ramps. And a structure like this, if you had a lower number of nuclear waste that you would have to store, you could cut out a couple levels of the structure, flat-top structure. And I'm basing this structure on seventeen levels, and the two lower

1/14.00.00  
cont.

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 6 OF 32

levels would be built above ground and they would be solid blocks of intertwining floors on the first and second levels. And then as you could start on the third level, going up the sixteen levels, 120 feet high, you could get this, especially 900 by 868 square foot facility, you could put over 1,961,000 cubic yards in it. And this would be an above ground facility.

And now I'm talking about the cost. If you would lay it out in a six-year sequence, this here one, 900 by 868, that would incorporate 35,684 total number of 40-ton blocks, would encapsulate 968,237 cubic yards. And based on a six-year building time frame, that there structure could be built for about--probably about \$300 million at \$9,000 a block. And I think that there's a quarry up in Wyoming right now that has 800 quarry all kinds of granite that they could quarry these here blocks between \$9,000 and \$10,000 a block.

And as stated, is the cost realistic? Really, if you look at--see, you're also going to have to address the low-level nuclear wastes. People ain't going to let that sit out there and be driven downstream from the Rocky Flats site with these 100-mile-an-hour winds to Westminster or Arvada, Edgewater, Lakewood, Golden, Douglas County. See, the citizens just ain't going to sit downstream from that and let you bury that waste.

I haven't completed all my analysis of this scheme,

1/14.00.00  
cont.

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 7 OF 32

but I think it would be worth looking at.

MS. ANDERSON: Thank you, Mr. Werth.

Next is Tom Rauch.

MR. RAUCH: My name is Thomas M. Rauch, R-A-U-C-H.

I'm on the staff of the American Friends Service Committee in Denver. These are my comments for the Draft Storage and Disposition of Weapons-Usable Fissile Materials Programmatic Environmental Impact Statement. Amen.

I'm very grateful to the Department of Energy for scheduling this second public comment hearing in order to provide more time for citizens to review the Draft Storage and Disposition of Weapons-Usable Fissile Materials PEIS prior to offering their comments. I'm very disappointed there are not more people here tonight and very grateful that you've come out on another evening to give another evening of your time for this.

I have four main points I would like to make, and I'll present a written copy of my statements to the reporter.

First, a major priority is that plutonium and highly enriched uranium be stored and disposed of in ways that pose least threat to human health and the environment. The health and safety of the persons charged with handling these materials should be given special attention. I want to emphasize this point, not because I think Department of Energy employees and contractors will do their work in a way

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
 KENNETH WERTH, ET AL.  
 PAGE 8 OF 32

that is dangerous to themselves, but because I fear that the federal government, especially the Congress, will cut funds for storing and disposing of these materials just as the Congress is presently making substantial cuts in funds for waste management and environmental restoration at DOE nuclear weapons facilities. The current attitude in Washington is to increase funds for DOE weapons programs while cutting funds for dealing with the legacies of 50 years of the nuclear arms race. This attitude is immoral, short-sighted, and very dangerous for people and the environment. The Department of Energy must have as its primary goals effective and safe waste management, effective and safe environmental restoration, and effective and safe storage and disposition of weapons-usable fissile materials. The DOE should cease all efforts at research, development, testing, engineering, and production of new nuclear weapons--activities that are proposed in the DOE's Stockpile Stewardship and Management Program.

Secondly, a major--second major priority is to assure that the weapons-usable fissile materials are stored and disposed of in ways that make them most resistant to the possibility of nuclear weapons proliferation. I'm not an expert on these technical issues, but I think I can suggest that materials from retired weapons should be treated in such a way, perhaps contaminated or diluted or both, that makes

2/01.06.00

M-235

01 06 00

Comment Number 2

That is the goal of this effort.

their reuse for weapons difficult and/or dangerous.

My third point, storage and disposition options should be chosen so as to minimize the waste generated by these activities. The vast quantities of waste produced by nuclear weapons production and still awaiting safe storage and disposition remind us of the folly of producing additional wastes if this can be avoided. So I urge the DOE to put more resources into testing the viability of glassification as a means of disposing of plutonium. My sense is that the DOE has up to this point put most of its resources into the option of using these fissile materials as fuel in reactors for commercial purposes. Such use, I am concerned, would create even more waste materials and would also involve proliferation risks.

Number 4: The present administration has declared certain amounts of plutonium and highly enriched uranium to be "surplus" and a waste. I urge that all of the materials in the present stockpile be declared "surplus" so that the United States may move expeditiously, along with other nuclear powers, to fulfill the commitment made in 1970 in the Nuclear Non-Proliferation Treaty. Article VI of that treaty, which was continued in force indefinitely at the 1995 renewal conference, states: "Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an

3/08.03.01

4/05.00.07

5/01.00.00

M-235

08 03 01

Comment Number 3

The Department of Energy acknowledges the commentator'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 00 07

Comment Number 4

Comment noted.

01 00 00

Comment Number 5

Comment noted.

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 10 OF 32

early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."

Twenty-six years have passed since the United States and other nuclear powers made that commitment to nuclear disarmament. If the United States were to declare all of its present fissile materials "surplus," such a declaration would signal the U.S.'s intention to move toward nuclear disarmament and would also encourage the U.S. to step up the pace of multilateral disarmament efforts.

My final point is to Department of Energy headquarters and the secretary. The Department of Energy as a participant on the Nuclear Weapons Council, which makes decisions about the size and shape of the U.S. nuclear weapons arsenal, can and should play a lead role in calling for even lower stockpile numbers than the stockpile of 1,000 nuclear weapons, which is presented as an option in the Draft PEIS for Stockpile Stewardship and Management. I commend the DOE for listing this option, which is much lower than the START II protocol of 3,500 weapons. But I urge that even lower options, including a zero option in line with a declaration that all weapons-usable fissile materials are "surplus," be considered in all present and future planning.

The Department of Energy, by its role on the policy-making Nuclear Weapons Council, does not simply "fill

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 11 OF 32

orders\* given by the Department of Defense and approved by Congress and the president. The Department of Energy participates in making nuclear weapons policy and so cannot avoid responsibility for decisions about numbers of weapons in the present and future arsenals. I urge the Department of Energy to press for lower stockpile numbers, including a zero option, in Nuclear Weapons Council deliberations.

Again, I thank the Department for this additional hearing, and thank you, especially, for your presence here tonight.

MS. ANDERSON: Thank you, Mr. Rauch.

Mr. Stone, Jim Stone.

MR. STONE: Good evening, ladies and gentlemen, my name is Jim Stone, I am the technical advisor of the Rocky Flats Cleanup Commission.

I have finished reading the PEIS on the stewardship of fissile material and also the storage and disposition of fissile material. And I wasn't going to come to this meeting, but at the last minute it occurred to me that I had a couple of things to get straight in my mind.

DOE has been authorized to surplus tons of plutonium and high-level uranium. Now, the high-level uranium has a value on the power market, so there's no mention of destroying it or putting it in any kind of a permanent disposal mode. But there is a number of tons,

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
 KENNETH WERTH, ET AL.  
 PAGE 12 OF 32

maybe 10 percent of our inventory of plutonium, that is going to be surplus. It seems to me it is logical to take that much tonnage out of Rocky Flats, and maybe some other small site that doesn't have the capability of storing this material properly, and dispose of it.

6/08.03.00

Now, when you get through with this public presentation or participation on this PEIS, you're going to review it for a couple months and then decide where you're going to ship it, because in the PEIS documents it lists Rocky Flats as "no action". So we're obliged to store it properly, because we're in a very dangerous mode with the proximity of a large metropolitan area. So we've got to do something with it.

Planning to modernize Building 371 and maybe a number of other schemes I'm not familiar with. But that is wasted money when you think that it's going to be temporary, hopefully months, not years, but it may be years. But we do know that at least that amount of plutonium that is stored at Rocky Flats is going to be surplus and going to be permanently disposed of somewhere.

I ask DOE to consider allowing--giving Rocky Flats the latitude to dispose of it there, cut the cost, get it done with, and so that we can get on with the cleanup. Maintaining this material is really a bottleneck to the cleanup operation. We have a lot of serious work to do at

M-235

08 03 00

Comment Number 6

In accordance with existing agreements, DOE is moving toward the removal of all weapons-usable fissile materials from RFETS. This is the reason that all alternatives for long-term storage in the PEIS include the environmental impacts of the removal of the materials from RFETS.

Rocky Flats, and this only impedes progress and wastes a lot of money.

Now, let's see. I will write this up and send it in at a later date, before the 7th, but that's my general concern.

I really wanted to ask you, what is your time schedule, but since you're not authorized to make a reply, I won't get that answered. I doubt if it's established yet. And then after the six months or two months of review time, you may come up with a different answer. So we've got to wait on that. 7/07.00.00

But we don't have to wait to say we know you're going to dispose of at least 20 tons of plutonium. Rocky Flats has 14 tons, get rid of it any way you can. We'll honor your suggestions and get on with it so that you don't have to delay your cleanup program.

Thank you. Any questions?

MR. SYKES: I'll let M.D. formally reply to your comments, but if you do stick around, we can talk about the time tables after the meeting's over.

MR. STONE: Alright, thank you.

MR. SYKES: Um-hmm. Thank you.

MR. STONE: Incidentally, Stone Environmental Engineering Services, which I'm the vice president of engineering, would be glad to give you a design on how that

M-235

07 00 00

Comment Number 7

Generally, the goal is to complete disposition within 25 years after the ROD. The storage decision will be for long-term storage, up to 50 years. Schedule data, along with technical and cost data, were provided in Technical Summary Reports of both storage and disposition beginning in late July 1996.

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 14 OF 32

can be disposed of. We have focused too narrowly on the concepts that come out of headquarters. They don't have a hell of a lot of imagination there, in my estimation. I don't doubt that they've got the technology, but they don't have much imagination, and I suggest that we expand on that a bit. Thank you.

MS. ANDERSON: Thank you, Mr. Stone.

Is there anyone else who would like to offer formal comment at this time?

(Pause.)

MS. ANDERSON: Would you please state your name and that this is your formal comment for Storage and Disposition of Fissile Materials PEIS?

MR. MARSHALL: How long do I have?

MS. ANDERSON: A week to ten days.

MR. MARSHALL: I can do as long as I want here, till they shut down tonight?

MS. ANDERSON: We've got water.

MR. MARSHALL: What's that?

MS. ANDERSON: We've got water.

MR. MARSHALL: Oh, good. Okay.

MS. ANDERSON: Start with your name, please.

MR. MARSHALL: I thought I was going to have a little while to prepare.

My name's Tom Marshall, I work with the Rocky

M-235

**WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 15 OF 32**

Mountain Peace Center in Boulder, Colorado. These comments are on the Department of Energy's Draft Programmatic Environmental Impact Statement for Storage and Disposition of Weapons-Usable Fissile Materials. These comments are not intended to be exhaustive. We will be submitting further written comments. I did, however, want to touch on a few points this evening.

The first of these, and the primary point that I would like to make, is that what we have here is not really a Programmatic Environmental Impact Statement on Storage and Disposition of Surplus Fissile Materials. We do not have any viable disposition options outlined in this PEIS. There are problems with every--with all of the disposition options listed, the MOCS option, the immobilization option, and the deep borehole option.

We have a serious challenge in front of us. I'm going to go back to these options and talk a little bit about some of the deficiencies. But we have a serious challenge in front of us right now. We have a window of opportunity in which the U.S., working with Russia and the other former Soviet Union states, can move to remove a good portion of the fissile materials, and therefore eliminate, to a certain degree, concerns about proliferation of these materials, making the world overall a safer place. If we had a viable disposition option at this time, it would be wise to take it.

M-235

3-1141

*Comment Documents  
and Responses*

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 16 OF 32

3-1142

but we don't, as I said.

The MOCS option is the worst of those listed and it should be rejected outright. Some of the problems with the MOCS option are: that it's costly, it's going to cost more than other options listed; it would take longer than the immobilization option to implement; it will generate a lot of high-level waste that we don't currently have an answer for; it's dependent upon a repository that we don't have and we have no idea when we're going to have it; it creates numerous opportunities through the processes that it will have to go through for theft of plutonium; and perhaps the most--the worst part of this option is that it could--it stands to set up a plutonium economy, it creates the illusion that there is some value in this material and could encourage other countries to use it as--to see it and use it as a resource. It would send the wrong message to the rest of the world. What we need to be doing at this point is telling the rest of the world that this material is dangerous material, it needs to be taken out of circulation, and that it is a waste. This option doesn't do that.

The immobilization option also has problems as a disposition option.

The one thing I didn't mention about the MOCS option, all of these options can be reversed. There's not one of them that can't be reversed. Under the MOCS option,

M-235

you can reprocess the spent fuel and extract those. So any country can do that. It would obviously be harder for a sub-national group.

Same goes with the immobilization option. Either vitrified or ceramified material could be--the plutonium in that could be extracted. So as a disposition option, at this point it's not a proven option. It, too, at this point is dependent upon a repository that we don't have.

The deep borehole option needs far more research, and conceivably, that option, too, could be reversed.

So what we're left with, then, is a long-term storage EIS, and that's not bad. I think that what we need to do is recognize that we don't have viable options for disposition right now, and we need to identify ways to store our surplus fissile materials in a manner that reduces the risk of proliferation as much as possible.

One fault of the FEIS in analyzing long-term storage is that it looks at only one sort of container, what's commonly called the 50-year can. We should not be limited in that way of thinking. And if we are admitting that we don't currently have viable disposition options, that raises a whole host of alternatives. And what we have in front of us right now, currently considered a disposition option, is immobilization. Immobilization should be looked into further as a long-term storage option which would reduce

M-235

**WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 18 OF 32**

the risk of proliferation.

And the few technologies that should be considered are vitrification and ceramification. We have a fair amount of research done on that. We can move quickly to implement that. The electrometallurgical processing should be rejected because it would involve bringing plutonium to a metal state, which if we're thinking about proliferation concerns is not wise. It is also a complicated process which is not congruent with the notion of safety for workers and protection of workers' health.

It would be wise at this point for the U.S. Government to set up at least one pilot plant, one pilot scale facility, to test vitrification of plutonium and one to test ceramification of plutonium. It might be wise to set up more than one of each. But that is what should be done, at a minimum.

So to review, there should not be an option selected under disposition. The MOCS option should be rejected immediately. We should be looking at long-term storage options. We should consider immobilization options as long-term storage options. There is further research needed on these options to determine just how we do that, whether we mix highly radioactive substances, such as cesium, in with them, whether we add other poisons, such as alpha emitters, whether we put a highly irradiated jacket around

| 8/08.03.00

| 9/08.03.01

| 10/08.03.01

M-235

**08 03 00                      Comment Number 8**

The Department of Energy acknowledges the commentor's support for continued storage of surplus Pu (No Action Alternative). Decisions on disposition will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

**08 03 01                      Comment Number 9**

The Department of Energy acknowledges the commentor's opposition to the Reactor Alternative using MOX fuel. Decisions on disposition of weapons-usable fissile materials will be made based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

**08 03 01                      Comment Number 10**

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.

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 19 OF 32

the glass or ceramic matrix rather than mixing that in. And in order to make these determinations, we need to establish pilot plants to further develop the technology. We should move quickly on this option while further exploring final disposition options.

11/01.00.00

Thanks. As I said, we will be submitting further written comments.

MS. ANDERSON: Thank you, Mr. Marshall.

Is there anyone else that would care to make formal comment at this time?

(Pause.)

MR. WERTH: Oh, I would like to comment on Tom Marshall's--if I'm able.

MS. ANDERSON: Okay, Mr. Ken Werth.

(Inaudible conversation outside the range of the microphone.)

MR. WERTH: I got this comment form for the Storage and Disposition of Draft PEIS, and I would voice Tom Marshall's concern. And I find two of the three alternatives, deep borehole and reactors, unacceptable in the storage and disposition of plutonium and S and M metals and outside materials. Comment: deep boreholes, if we are ever going to solve this nuclear waste problem, this Government of the United States should relax its single-minded focus on irreversible geological burial and turn to some form of

12/08.03.01

M-235

01 00 00

Comment Number 11

Comment noted.

08 03 01

Comment Number 12

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

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 20 OF 32

secure storage and disposition that allows both continuous monitoring--and I've looked at this monitoring. Why couldn't the United States have spy satellites that's been placed in the stationary orbit 22,000 miles above the earth, and they can pinpoint this kind of structure that we'd be looking at, and we could have continually monitored surveillance of this here facility? And it should be retrievable, if it had to be. (Inaudible) borehole burial does not resolve waste management problems for our children, grandchildren, and future generations, but ironically, that entombment does precisely the reverse.

Reactors: The conclusion of plutonium and highly enriched uranium as a reactor fuel used as a United States option would be a serious hindrance to achieving an internal global halt to reprocessing or to non-proliferation goals, long time frame and high technical uncertainties. The United States has already given up civil use of plutonium for non-proliferation, as well as for economic reasons.

If we are ever going to translate our position to a global leadership role over Russia and China on this crucial issue, it would be wise for the United States to look at all the security concerns. That leaves no currently feasible solutions to rid these materials for good that present problems of potentially increasing proliferation threats, creating new environmental problems, and/or aggravating old

ones at huge costs, in the billions of dollars.

I would then suggest that the United States formally declare excess plutonium a security economically and environmentally liability and forswear its reuse in weapons. I would support two concepts, and that would be one in the building of a flat-top pyramid type facility above ground that would encapsulate all the plutonium and highly enriched uranium materials by 40-ton blocks of granite. And it would be a concept for the complete storage, disposition, containment, and transportation of plutonium and highly enriched uranium vitrified in glass or ceramic immobilization in six to eight hollowed out cores of 40-ton blocks of granite. This concept would solve all the storage, disposition, and containment problems and then be transported by rail or truck to remote areas of the southwestern desert region or the Salt Flats of Utah, stacked five or six high, would provide a low-cost, low-maintenance, and long-term storage disposition and containment method for all this high-level nuclear waste.

You could--there is thousands of tons of spent nuclear fuel rods that the United States Government is going to also have to look into, and this would be an ideal method to address that, too. But I'm concerned about all the high-level waste out there.

We should also start considering what we're going

13/14.00.00

14 00 00

Comment Number 13

Comment noted.

M-235

3-1147

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 22 OF 32

its use will save billions of dollars without diverting construction materials such as concrete from its additional use in continuing the development of our infrastructure. Work could begin almost immediately in one or more places and could be completed in a shorter period of time than with conventional methods and materials.

An above-ground pyramid will provide safe storage of spent nuclear fuel, plutonium, and highly enriched uranium, and will be seen to be the first state-of-the-art facility, on-site storage facility, in the world. And I mentioned a 900-foot by 868-foot above-ground pyramid proposed on only 18 acres of land. Then it's more than 120 acres that's needed for an underground waste dump. You call it cells, but I call it a waste dump. And that's the way it should be looked at.

If estimates of waste quantity are not accurate, the pyramids can be kept at a lower level or additional levels can be added if more waste is accumulated out there. Pyramids can be sized for each site based on the estimated quantity of waste to be stored.

The last one. The work site in New Mexico will be stalled for years by public outcry, litigation concerning transportation, and other issues that will doom this project, if it hasn't done so already.

That's all I've got to say.

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 23 OF 32

MS. ANDERSON: Thank you, Mr. Werth.

Any further public comment?

(Pause.)

MS. ANDERSON: Mr. Marshall.

MR. MARSHALL: Tom Marshall, Rocky Mountain Peace Center. Just one small point--well, one quick point, it's not a small point, that I forgot to mention before. When Mr. Canter was out at a previous hearing, the issue of cost estimates for the MOCS option was brought up, and we were told at that time that those are still being developed and that they will be factored into the final PEIS. And I'd simply like to lodge a complaint about that at this point. Any factors which are going to go into the decision-making on this PEIS should be out for full public review so that the public can make informed comment on that. That's it, I just wanted to make sure that that point got into the record. Thanks.

MS. ANDERSON: Thank you.

MR. SYKES: Well, unless someone else shows up for formal comments, I'd like to talk to a few of you all, and we can now just have informal conversations, I guess, unless someone else shows up.

(Off the record.)

MR. SYKES: I want to make one point, and that is the Office of Material Disposition did ask that the comments

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.

PAGE 24 OF 32

be non-interactive, so we ask you to go ahead and make your formal comments, and then afterwards we can certainly discuss things, answer questions, and have interaction. But as for the formal comment, just you state it and--

MR. TRENARY: I've only got a--

MS. ANDERSON: He's in a hurry.

MR. SYKES: --very short period of time here that I can attend this meeting tonight. I regret having missed the other comments that were made earlier by other people, since I couldn't be here earlier due to baby-sitting problems I had tonight.

My name is Allan Trenary and I live over by Rocky Flats, I live off of 100th and Simms. I'm very concerned about the cavalier attitude that the government has taken in many instances when it comes to nuclear weapons and fissile materials in general. Sometimes I feel in my heart that they--that the government's got the attitude, "Well, hey, we were going to have a nuclear war with this stuff and we'd never be responsible for it anyway, so carry on and do what you have to do." And I realize that there are a lot of people who are wholeheartedly and honestly working on this to come up with a good solution to our problems.

I work with some Russian people, and one of them is a civil engineer from Kiev, and he helped with the evacuation of the people from around Chernobyl. And talking to this man

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 25 OF 32

is a very sobering and frightening experience, because their numbers of refugees were in the tens of thousands. In the event that something terrible is to happen at Rocky Flats, it would be millions of people that would have to be moved. And the costs are just so astounding to clean up the messes currently there in a way that there's nothing--if nothing happens, the costs will be astronomical. And I see bickering over these issues, when this is--this is our future. This is our children's future.

And I would really in my heart want to see this addressed in a fashion which is even handed. When you have the EPA arresting a man back east for spilling apple juice in the sewer and not reporting it in his paperwork and we have all this transuranic waste that's slated to go into either WIPP or Yucca Mountain or wherever, and these things I've been hearing about for years that haven't happened yet and, you know, people don't want it to go across their state lines and people don't want it on their highways, so they're not going to want it in their state. I want to see some serious efforts made in containing these materials.

The hydrogen gas building up in the tanks in Building 371 is a very frightening concept to me should something happen. Sure, it might not directly contaminate the people here, but it will have a further--a larger mortgage on Building 371. And these tanks, as I understand,

M-235

**WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 26 OF 32**

are in a contaminated room which are--you have to have breathing apparatus to get to it, and just recently have begun to be tapped and analyzed. Well, how long have these tanks been sitting idle? Why wasn't this addressed sooner?

When I talked to Isaac, this man I work with who helped clean up after Chernobyl, the vastness of this issue just--it's tremendous. And we really need to ask the government to focus a little bit more attention on getting this taken care of. I see them meddling with regulations and stuff concerning the EPA, and they don't seem to hold themselves accountable to these laws. I want to see the government starting to be accountable to themselves to the level which they consider the private citizens to be required to be accountable for environmental damage and things like this that are just cavalierly thrown out.

14/01.00.00

The Leiden-Wignight Mine (phonetic), whoever put 16 billion cubic feet of natural gas, our entire natural gas supply for the Denver metropolitan area, is stored in a coal mine which is in very close proximity to Rocky Flats. This is strategic insanity. If there was actually a war and somebody hit that thing in the middle of winter, we'd all freeze to death, not to mention the possibility of what else could happen with the proximity to Rocky Flats. I've been told that there are radionucleides and radioactive contamination in the water that seals the bottom of this

15/09.04.07

M-235

01 00 00

Comment Number 14

Comment noted.

09 04 07

Comment Number 15

Groundwater, including radionuclide-contaminated groundwater, would not come into contact with natural gas used for home utilities. Therefore, any contaminated groundwater at the mine would not affect the local natural gas supply.

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 27 OF 32

mine. Is this affecting our natural gas that we all use to heat our homes and to heat our water?

15/09.04.07  
cont.

Sometimes I feel as though the government has gotten to the point of criminal negligence when it comes to the hazards that are out there at Rocky Flats for the citizens. I know I'm using some strong language in these statements, but how else are we to feel at times. I'm very thankful for the opportunity to be able to speak with you on these issues and thankful for the opportunity to be involved with the Rocky Flats Citizens Advisory Board. And I just sincerely hope that it's for real and it's not just a show, that we're actually causing some impact by what we do by coming out here and talking to you people.

When Leroy tells me that the monitoring has gone down, or at least the reporting on the monitoring of the emissions from Rocky Flats are not being regularly received or something. When I went up to Rocky Flats recently, the low-level waste containment buildings, which are like these heavy plastic greenhouses, were all in shards and the wind was blowing them and they were flapping, I have to wonder if this might not have something to do with the reason why the monitoring might be slacking off a little bit as the fact that we might be getting a little bit more stuff going around right now because of the damage to these facilities.

You know, I don't want to ramble, I realize there

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 28 OF 32

are other people that need to speak, and once again, I would like to thank you all for allowing me to participate and put forward my views. But once again, I really want to emphasize that it's time to start seeing these government agencies having to toe the line that we, the private citizens, are expected to toe when it comes to these environmental protection laws.

And you can't tell me that in the name of national security we shouldn't know these things, or in the name of national security that we should accept toxic levels of contamination as just something that we have to live with in order to be safe, as I don't accept that, and I'd hope that you don't accept that. And hopefully everything will go find and we'll eventually get these materials out of here. But in the meantime, please, let's get them stored in a way to where they're not--we don't have plutonium vulnerabilities at Rocky Flats.

Let's--you know, it's very frightening to me to think that it's been since 1989 or so since this has all been shut down and we're now getting around to it seven years later, doing something cohesive about it. You'd think that it would have started right now, you know, but it's taken this long. Hopefully, by the year 2015 or so, it will be all gone. I have that--I hold that as being a real possibility, and I appreciate that there is a day.

M-235

Thank you very much, I appreciate your time.

MS. ANDERSON: Thank you, Mr. Trenary.

Mr. Cole.

MR. COLE: My name is Sam Cole, I'm the director of the Colorado Chapter of Physicians for Social Responsibility, here tonight to comment on the Draft PEIS on the Storage and Disposition of Special Nuclear Material.

I appreciate the DOE's willingness to listen to the community about what's going to be done with plutonium at Rocky Flats. I just wish the community was here. And I just think it's too bad that they aren't--that more people aren't here and we aren't hearing from more people. I think that it's an issue that concerns people, but I don't know why they're not here. And I'd like to see the DOE do a better effort to getting turnout.

First thing that I would like to say in regards to the disposition of the plutonium that we have out at Rocky Flats, there are three guiding principles that I think the DOE should abide by: number one, that the plutonium should be disposed of or dispositioned in a way that least harms the environment, least--there is the least public exposure to prevent any sort of health effects or environmental contamination; number two, that whatever disposition option the DOE chooses that it--that the plutonium is regarded with no use, in other words, the option makes plutonium--or treats

16/01.00.00

M-235

01 00 00

Comment Number 16

Comment noted.

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
 KENNETH WERTH, ET AL.  
 PAGE 30 OF 32

plutonium as a waste, and not as anything that's an asset or has any use; and the third guiding principle is that whatever option DOE chooses, that option should prevent as much as possible the reuse of plutonium in nuclear weapons and no, in DOE's words, "proliferation," as proliferation-resistant as possible.

16/01.00.00  
 cont.

And we support the National Academy of Sciences' recommendation that surplus plutonium abide by the spent fuel standard, abide by the stored weapons standard, but we also support that it adopt the nuclear waste standard, meaning that whatever option is chosen produces the least waste out of all the options.

And that leads me to the option that the Department of Energy is considering, which is using plutonium--to turn it into a fuel to be used in reactors. That would produce a very diluted but a still radioactive waste of much greater magnitude than we should have to bear. Therefore, that's one reason why the fuel option should be rejected.

17/08.03.01

Another reason is it gets plutonium some legitimacy, it gives it a use, it makes it an asset. That's a real mistake if you want to prevent the proliferation of nuclear weapons around the world, because you start legitimizing the use of plutonium and other countries are saying that they're using their plutonium for civil purposes, it's going to be very hard to know if they may be using it

M-235

08 03 01

Comment Number 17

The Department of Energy acknowledges the commentor's opposition to the Reactor Alternatives. However, NEPA requires that DOE look at all reasonable alternatives and, therefore, reactor burning must be considered. Decisions on the disposition of weapons-usable fissile materials will be based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 31 OF 32

for military purposes. So we don't think it's worth the risks that the fuel option would entail.

And that leads me into, well, what should you do with the plutonium? And we support immobilizing the plutonium, possibly vitrifying it. This stabilizes the plutonium, it treats it as a waste, it prevents--it prevents the reuse of plutonium as much as the reuse of plutonium can be prevented by embedding it in glass, and therefore addresses the proliferation aspect in a way that the fuel option does not.

And as far as Rocky Flats goes, we think that issues around Rocky Flats should be addressed in the PEIS, since plutonium will be at Rocky Flats for years to come. I call it the long term, and I think that the DOE should waste no time in considering the disposition options for plutonium while it's at Rocky Flats, such as start vitrifying it, start doing something that will make it more proliferation resistant and more stable.

Thank you.

MS. ANDERSON: Thank you.

Are there any other formal comments at this time?

(No audible response.)

MS. ANDERSON: Thank you for coming.

(Whereupon, the public comments portion of the meeting was concluded.)

12/08.03.01  
cont.

M-235

WESTMINSTER CITY HALL COMMENTS, WESTMINSTER, CO,  
KENNETH WERTH, ET AL.  
PAGE 32 OF 32

REPORTER'S CERTIFICATE

I, LYNNE DERBY, do hereby certify that I was present at and recorded the proceedings in the foregoing matter; that I thereafter reduced my recorded tapes to typewritten form, comprising the foregoing transcript; further, that the foregoing transcript is a full and accurate record of the proceedings in this matter on the date set forth.

Dated in Denver, Colorado, this 5th day of May, 1996.

Lynne Derby

  
United States Department of Energy

NAME: (Optional) C.E. White Jr.  
ADDRESS: P.O. Box 50616, Idaho Falls, ID, 83405-0616  
TELEPHONE: (208) 532-5656

With the facilities that are in place and the expertise available the INEL is the most appropriate facility for these programs. We also have in place an agreement between our governor & the Federal Gov't, backed by the Federal Court system which should eliminate some of the friction.

I am NOT in favor of bore holes on the INEL site due to our aquifer, which is the "lifeline" of the entire area of our state. The glass or ceramic consolidation is best for us. The A-NI-W facility here is an excellent source of facilities and expertise on the plutonium question.

Due to downsizing of other programs the INEL has the space and the people (experts) available to handle this better than any of the other facilities being considered.

I am a retired Construction Mgr./Engineer who has been involved in the civil and power work, the programs at NTS (Yucca & Jackson Flat) and the INEL. Most of the people that would be in opposition to the INEL being involved are not really cognizant of the operation and the SAFETY of the INEL site.

1/08.03.01

2/08.03.01

M-047

08 03 01                      Comment Number 1

The Department of Energy recognizes the commentator'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 01                      Comment Number 2

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

WILCOX, ROBERT H., MARTINEZ, GA  
PAGE 1 OF 1

711 Pevero Abbey Circle  
Martinez, GA 30907  
May 3, 1996

Department of Energy  
Office of Fissile Materials Disposition  
P.O. Box 23786  
Washington, D.C. 20026-3786

I appreciate receiving a copy of DOE/EIS-0229-D, "Storage and Disposition of Weapons-Usable Fissile Materials - Draft Programmatic Environmental Impact Statement", dated February 1996. I wish to make a few comments on the subject, which I believe are most pertinent to DOE decisions on plutonium storage and disposition:

1. In regard to material which is being preserved for possible future weapons use, it would be advisable not to store it all in one place. The national security interests should take precedence over other considerations and the uncertainties of the long term future would suggest that we do our utmost to preclude relatively easy targeting by some particular adversary of this most valuable national resource.

1/08.03.01

2. Plutonium is a most valuable commodity. That which is not needed for weapons should, under appropriate safeguards, be made available to fuel power reactors, a concept which is already well along in development at many places outside our borders. (In other words, those options which implicitly or explicitly regard it as a waste should not be pursued.)

2/08.03.01

3. While there are no doubt pros and cons to using plutonium in each different type of reactor, DOE would be well advised not to decide which type will get its plutonium. Rather, it should fashion a broad-scoped program to permit the private sector (again, under appropriate safeguards), in the U.S. and possibly beyond, to utilize the world's excess plutonium as an alternative fuel to U-235 in commercial reactors of all possible types.

3/06.00.09

4. Last, but by no means last, DOE should embrace and implement the recommendations of the American Nuclear Society's Special Panel Report of August 1995. History will judge it harshly if it does not do so.

4/01.00.00

Sincerely,



Robert H. Wilcox

M-138

08 03 01                      **Comment Number 1**

The Department of Energy acknowledges the commentor's opposition to the Collocation Alternative. Decisions on storage of weapons-usable fissile materials will be based upon 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 Pu disposition in reactors. Decisions on disposition will be made based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

06 00 09                      **Comment Number 3**

Comment noted.

01 00 00                      **Comment Number 4**

The Department of Energy appreciates the effort of the American Nuclear Society's Plutonium Panel and has taken many of the ideas and suggestions presented into consideration.

**Comment Form**  
 United States Department of Energy

NAME: (Optional) RODNEY C. WILCOX  
 ADDRESS: 40 CADENCE CT, AIKEN, SC 29801-7210  
 TELEPHONE: (803) 698-1456

SRS SHOULD RECEIVE A MAJOR PORTION/ROLE IN EACH OF THE RESULTING DECIDED PROGRAMS AS DETERMINED IN THE RECORD OF DECISION. SUCH AS THE PROGRAM FACILITIES, INFRASTRUCTURE, AND EXPERIENCE THAT IS NEEDED FOR SAFE, SECURE, COST EFFECTIVE AND INSPECTABLE OPERATIONS, MAINTENANCE, AND SATISFACTORY DISPOSITION OF WEAPON- USABLE FISSILE MATERIALS. IN GENERAL THE SUPPORT FROM ADJACENT COMMUNITIES IS VERY FAVORABLE AND THIS NEEDED SUPPORT WILL GREATLY ASSIST DOE IN ACCOMPLISHING THE DESIRED MISSIONS.

FOR BETTER REASONING, THE EXCESS WEAPONS GRADE PLUTONIUM SHOULD BE UTILIZED TO MAKE MIX FUEL. SMALL REACTORS SHOULD BE ELIMINATED AND REPLACED TO ALLOW SUCCESSFUL USE OF MIX FUEL.

1/08.03.01

2/08.03.01

SR-001

**08 03 01 Comment Number 1**

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



Anna Marie Wink  
17201 FM 245  
Amarillo, Texas 79107

May 6, 1996

To the United States Department of Energy  
Office of Missile Materials Deposition  
P.O. Box 23786  
Washington, D.C. 200026-3786

I am sure you receive all sorts of pleas from Pantex  
employees and Amarillo business people to  
expand Pantex activities in any manner.  
Why not? These employees could not earn  
comparable wages at any other place, and this  
does bring residents to the business community.

Great minds produced Atomic energy of which  
they had no knowledge of its long term effects  
on human life or the environment. Thus every  
area of nuclear production was and is  
contaminated - some uninhabitable sacrificial  
zones of wastelands.

My point is enough of this United States has  
been sacrificed to the Nuclear Process. The plants  
and resources already in use. Make do with  
what you have. Do not mess up or use up  
more land or water resources. Pantex Plant  
sits on the Ogallala Aquifer, the only source of  
water to many people and agricultural areas  
in a semi arid area of great agricultural  
production. Nothing should be done to risk  
contamination to the water or environment  
of so great an area of God's good earth.

Thank you for your time.

Anna Marie Wink, 72 year resident of Carson and  
Patterson streets

1/08.03.01

2/09.00.04

M-156

08 03 01

Comment Number 1

Comment noted.

09 00 04

Comment Number 2

Current and future operations at Pantex are not expected to affect the water quality of the Ogallala Aquifer. However, since this aquifer is being depleted (that is, the current withdrawal is exceeding the current recharge), Pantex operations contribute to the depletion of the Ogallala Aquifer and are analyzed in the PEIS. Also, current and future operations at Pantex are not expected to impact the soil used for agriculture and farming in the Pantex region.

**WOMBYN**  
**PAGE 1 OF 1**

United States Department of Energy	
NAME: (Optional)	WOMBYN
ADDRESS:	EARTH
TELEPHONE: ( )	
	I WOULD LIKE TO EXPRESS MY TOTAL DISAGREEMENT TO DISPOSING OF SURPLUS PLUTONIUM OR URANIUM IN ANY DEEP BOREHOLES. DOING ANYTHING OF THE SORT WILL JEOPARDIZE THE FUTURE OF LIFE ON EARTH AS WE KNOW IT. OUR WATER IS PRECIOUS WE CAN ONLY DRINK 1% OF IT NOW. EVEN BURYING THAT WASTE 10 KM DEEP WILL DESTROY OUR WATER AND WITHOUT IT WE WILL ALL DIE. YOU SCIENTISTS CAN MAKE YOUR CALCULATIONS SOUND GOOD BUT IN REALITY IF THESE PLANS TAKE PLACE YOU ARE PUTTING A DEATH SENTENCE TO ALL THE FUTURE GENERATIONS TO COME. YOU CANNOT LIVE WITH THIS HIGH RADIOACTIVITY IT IS NOT IN ITS NATURAL STATE AND ONCE YOU HAVE ALTERED IT YOU CANNOT RETURN IT TO THE NATURAL STATE. IF YOU PEOPLE THINK IT'S SAFE THEN WHY NOT BURY IT UNDER THE COMPANIES + DECISION MAKERS?! INSTEAD, UNEQUIVOCALLY IT IS PUT ON NATIVE LAND OR OTHER POOR COMMUNITIES WHERE THEY ARE POWERLESS TO FIGHT BACK AND EASILY SWAYED BY BIG DOLLARS.
	IT IS UNSAFE TO MOVE IT, YOU DON'T KNOW HOW TO CONTAIN IT SAFELY EVERYTHING TRIED SO FAR HAS MELTED OR LEAKED SO LEAVE IT WHERE IT IS AND MONITOR IT STOP PRODUCING NUCLEAR ANYTHING.
	ADDITIONAL OPTION: REVERSE IT.

1/08.03.01

2/09.12.08

3/01.00.00

4/14.00.00

NV-001

**08 03 01**                      **Comment Number 1**

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.

**09 12 08**                      **Comment Number 2**

None of the Proposed Alternatives would involve burying nuclear waste on native land or poor communities. All of the storage alternatives are proposed for siting on existing DOE sites and do not involve burial of waste materials. None of the DOE sites have been analyzed as a repository for disposal in this document. If any of the sites were to be used as a repository, further NEPA documentation would be performed, as required.

**01 00 00**                      **Comment Number 3**

Comment noted.

**14 00 00**                      **Comment Number 4**

Comment noted.

WOMEN STRIKE FOR PEACE, WASHINGTON, DC,  
KATHRYN A. CRANDALL  
PAGE 1 OF 3

To: USDOE Office of Fissile Materials

From: Women Strike for Peace

Date: May 7, 1996

RE: Storage and Disposition of Weapons-Usable Fissile Materials Draft  
Programmatic Environmental Impact Statement

Women Strike for Peace was founded on Nov. 1, 1961 as a one day strike to protest the arms race. Many of the 100,000 women who came out of their kitchens and left their jobs to strike were concerned about the threat to children's health from Strontium 90 - a radioactive fallout from nuclear weapons' testing. Today, we continue our fight against nuclear, and other, threats to our children, ourselves and future generations.

While it is good news that plutonium is being removed from weapons and the process of disarmament has begun, keeping plutonium out of weapons and the environment is a formidable task. The U.S. should work to meet our obligations under the Nuclear Nonproliferation Treaty by working toward disarmament. This means the plutonium stockpile from dismantled weapons will grow, so we must analyze how to effectively deal with plutonium. Unfortunately, this PEIS so far is an inadequate analysis that does not facilitate informed public participation. Women Strike for Peace is especially concerned that DOE is also considering alternatives, like the use of plutonium in reactors, that exacerbate nuclear proliferation problems.

The Problems With MOX

Plutonium in MOX can still be diverted into nuclear weapons. The International Atomic Energy Association (IAEA), considers MOX to be of "direct use" in nuclear weapons. This means that plutonium in MOX can be transformed much too easily to plutonium in a nuclear warhead. Also, in the storage, transport and use in reactors, MOX must be secured and handled as weapons material.

Using MOX in reactors is against stated U.S. Nonproliferation policy. President Clinton has 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." (Sept. 1993) Developing MOX would drastically alter this policy, and encourage other countries to further develop plutonium use in reactors. Already there is a developing international MOX industry, operating hand in hand with reprocessing. Before the U.S. jumps into the fray, we ought to consider whether we want increasing use of MOX all over the world, even in countries like North Korea, or Iraq.

The US has no facility to develop a MOX fuel that could be run in a commercial reactor. A MOX fabrication facility would have to be built, or a current facility adapted. The costs of such a facility has not been adequately analyzed and presented to the public. All of the transportation impacts have not been thoroughly considered in the PEIS. Potentially plutonium from around the country, and perhaps other countries, would be brought to a fabrication facility. If multiple reactors, or foreign reactors such as Canada's CANDU were to use MOX, then there is also concern about transport of MOX to those reactors. Also, because there is currently no U.S. MOX fabrication facility, the PEIS assumes that if an existing light water reactor in the U.S. were to use MOX fuel, a "timely supply" of MOX fuel would have to be sought while an U.S. fabrication facility is developed. This means DOE would send U.S. plutonium to Europe where MOX fuel would be developed and then sent back to the U.S. reactors (PEIS Summary pp. 15, 32).

1/01.06.00

F-036

01 06 00

Comment Number 1

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.

WOMEN STRIKE FOR PEACE, WASHINGTON, DC,  
KATHRYN A. CRANDALL  
PAGE 2 OF 3

<p><u>MOX in commercial reactors is a concern.</u> Because MOX is a direct use weapons grade fuel, its use in commercial reactors would turn many utility nuclear energy plants into de facto weapons facilities. Increased security in prevent diversion of plutonium would be required.</p>	2/08.03.01
<p><u>High Level Waste generated from MOX is likely to be a serious problem.</u> Commercial Spent Fuel generated from MOX reactors is supposed to go to a waste repository. The Development of a repository has been fraught with difficulty. There is no guarantee that a suitable repository will exist for even more high level waste generated from MOX reactors. Simply stating that it will go to a repository, which does not yet exist, is not good enough. Currently overburdened sites in USDOE's nuclear weapons complex are likely to end up with this waste if a repository is not available.</p>	3/09.11.08
<p>One alternative in the PEIS is to use Canadian CANDU reactors. According to the PEIS, Canada would then be responsible for the waste generated from the reactors. This encourages international commerce in plutonium (as does any alternative calling for plutonium or MOX shipment to and from Europe.) It may also set a dangerous precedent for the U.S. to give up control of weapons material to other countries, and it brings up a question of fairness: Why should Canadian citizens take plutonium and waste that they did not develop?</p>	
<p><u>Instead of MOX, plutonium should be declared a waste and immobilization alternatives developed.</u> We should declare plutonium a waste and ensure that it is not used in weapons, or in reactors. By doing this in the U. S. we can also take a leadership role in preventing an international industry and commerce in plutonium that would be increasingly difficult to control.</p>	4/01.04.00
<p>Immobilization technologies should be vigorously pursued because these technologies provide the greatest ability to isolate plutonium from the environment, and prevent proliferation of weapons material. Immobilization technologies should be developed and shared with other countries. Meanwhile, storage of plutonium should maintain plutonium so as to prevent harm to the environment and diversion into weapons. This means that transportation and its risks, especially international transportation, should be avoided.</p>	
<p><u>Public Participation and Openness in the PEIS Process</u> This PEIS lacks credibility because DOE has not furthered informed public participation in the process.</p>	
<p><u>DOE secretly solicited the nuclear industry in pursuit of MOX.</u> In December, 1995, DOE included in a Request For Expressions of Interest for Tritium Production, a solicitation in pursuit of commercial reactors that would like to use MOX. This action, taken between the Plutonium Disposition PEIS Scoping Hearings and the draft PEIS, was done without notice to the public or incorporation into the PEIS. Not until March 29, 1996 were Expressions of Interest (EOI's) released. This solicitation indicates a substantial furtherance of MOX despite the fact that DOE has not chosen a preferred alternative. No EOI process has been followed for any of the other disposition alternatives.</p>	5/08.00.00
<p><u>DOE is not including cost studies and nonproliferation studies for public scrutiny along with the PEIS.</u> Cost studies and nonproliferation studies are going on outside of this PEIS process. Since these studies will effect the outcome of the PEIS, they must be made publicly available so that citizens can make informed comments on the PEIS. Given that the need for action on plutonium disposition is based upon proliferation concerns (PEIS Summary, S-1 to S-4, and PEIS pp.1-4 to 1-6), there is an appalling lack of consideration of proliferation impacts throughout this PEIS. Full cost analyses of all PEIS alternatives should be done and available for public comment.</p>	6/08.00.00
<p><u>DOE should extend the comment period and hold hearings in additional locations.</u> Additional time is needed for the public to fully consider the PEIS, especially with additional cost and nonproliferation information</p>	7/08.01.00

F-036

08 03 01                      **Comment Number 2**

The Department of Energy acknowledges the commentor's concern about the disposition of Pu using existing LWRs (commercial). Decisions on the disposition of weapons-usable fissile materials will be based on environmental analyses, technical and economic studies, national policy considerations, and public input.

09 11 08                      **Comment Number 3**

The PEIS acknowledges the fact that constructing and operating a MOX fuel fabrication facility would increase the wastes generated at any site selected for analysis. The wastes generated for the MOX fuel fabrication facility are presented in Section E.3.2.3. The impacts associated with operating the MOX fuel fabrication facility are presented in Section 4.3.5.1.10.

01 04 00                      **Comment Number 4**

Comment noted.

08 00 00                      **Comment Number 5**

The Preferred Alternative for Pu disposition, as stated in the Final PEIS, includes Reactor Alternatives. 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.

08 00 00                      **Comment Number 6**

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 the fall of 1996. Each of these analyses, along with the environmental analysis and public input, will be integrated into DOE's decisionmaking process.

**WOMEN STRIKE FOR PEACE, WASHINGTON, DC,  
KATHRYN A. CRANDALL  
PAGE 3 OF 3**

Hearings ought to be held in additional locations. For example actions at Hanford should require hearings throughout the Northwest (Seattle, Portland, Spokane etc.) Now that some of the potential reactor sites for MOX are known, hearings in those areas should be considered.

8/08.02.00

These comments were prepared by: Kathryn A. Crandall, J.D.  
for  
Women Strike for Peace  
110 Maryland Ave. NE, #102  
Washington D.C. 20002  
  
(202) 543-2660

Please inform Women Strike for Peace of any extension in the comment period.

F-036

**08 01 00**

**Comment Number 7**

At the request of several organizations and individuals, the public comment period was extended to a total of 92 days.

**08 02 00**

**Comment Number 8**

To obtain public comments on the Draft PEIS, DOE held meetings near each of the potentially affected sites and a national meeting in Washington, DC. DOE also participated in meetings, open to the public, sponsored by different organizations at which the sponsor collected public comments which were forwarded to DOE. DOE created and advertised a number of methods for submitting comments for members of the public who could not attend a public meeting. These methods included fax, oral comments using a toll-free telephone number, mail, and the Internet.

WOOD, M. R., SEATTLE, WA  
PAGE 1 OF 2

Storage and Disposition of Weapons-Usable Fissile Materials Draft Programmatic  
Environmental Impact Statement (PEIS) Public Comment Form

Name (optional): M R Wood  
Address (optional): 608 W Mercer Place  
Seattle 98119

Please write down your comments and drop this form in the marked boxes before you leave tonight. These forms will be submitted to the Department of Energy as part of the formal comment on this PEIS. If you are unable to complete this form tonight, written comments can be mailed to:

Department of Energy  
Office of Fissile Materials Disposition  
P.O. Box 23786  
Washington, D.C. 20026-3786

or, you can call this toll-free number to leave comments by phone: 1-800-820-5156. Comments must be submitted by May 7, 1996.

The Department of Energy has identified three types of technologies as options for disposing of weapons-usable fissile materials. The Department has also considered a "no action alternative" which would result in long-term storage of these materials. Please write down your comments on the following three types of options for disposal and the storage option.

1. Materials Immobilization/Vitrification - Immobilize fissile materials by mixing them with glass, glass bonded zeolites, or ceramics.

It seems to me more readily recoverable in the manner than mixing with fuels.

1/08.03.01

2. Deep borehole disposal - Materials would be disposed in boreholes at least 2.5 miles deep, in geologically stable formations. Materials could be disposed directly into the deep borehole, or materials could be immobilized first, and then deposited into the deep borehole.

absolutely necessary

3. Reactor Options - Surplus plutonium/highly enriched uranium would be made into MOX fuel for use in nuclear reactors, destroying by fission a major portion of the weapons grade materials.

This seems to me to be the best. The audience is worried about the wrong problems - our real dangers are starvation and war due to the world's running out of oil and natural gas in a few decades, really during the lives of living children.

2/08.03.01

4. Storage Options - USDOE would continue existing storage practices for weapons-usable fissile materials at current locations and/or consolidate that storage at one or more of the designated sites.

This is too dangerous over long periods, even 50 years or 100 years

3/08.03.01

08 03 01 Comment Number 1

The Department of Energy acknowledges the commentator's support for the Vitrification 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.

08 03 01 Comment Number 2

The Department of Energy acknowledges the commentator's support for the Reactor Alternative using MOX fuel. Decisions on 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 3

The Department of Energy acknowledges the commentator's opposition to 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.

Please use this space to write down any additional comments on the Storage and Disposition of Weapon-Usable Fissile Materials Draft Programmatic Environmental Impact Statement.

*Use it, burn it, save oil and gas while we still have some to save.*

4/08.03.01

M-225

08 03 01

Comment Number 4

The Department of Energy acknowledges the commentor's support for Pu disposition in reactors. Decisions on disposition will be made based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

YEVSIKOV, VICTOR V., AND WELL, NIKITA I., BETHESDA, MD  
PAGE 1 OF 7

**Victor V. YEVSIKOV, Ph.D., Nikita I. Wells, N.E.**

5904 River Road  
Bethesda, MD 20816

Phone: 202-244-5041  
FAX: 301-370-9622

Mr. J. David Nulton  
Director  
Office of NEPA Compliance and Outreach  
Office of Fissile Materials Disposition  
U.S. Department of Energy  
1000 Independence Ave., SW  
Washington, D.C. 20585

Re: Plutonium Conversion Project

May 3, 1996

Dear Mr. Nulton,

As you well know, ever larger quantities of plutonium are being accumulated in Russia from the dismantling of nuclear weapons. Problems of plutonium storage arouse great concern all over the world. Scientists are expressing extreme concern about the unreliable and deplorable state of storage and accountability of fissionable materials as well as the poor security of nuclear facilities in Russia. It is very likely that terrorists, local thieves, or hostile nationalists may succeed in well organized thefts of plutonium of sufficient quantity to manufacture a nuclear bomb.

1/01.00.00

The unstable political situation in Russia may allow extremist political figures to receive access to fissionable materials. The poor economic situation of the country could force these politicians to sell the nuclear materials to third-world countries, regardless of international agreements. To prevent theft and sales of weapons-grade plutonium (WGP) it is necessary to transfer it, at the earliest possible time, into a form unsuitable for the manufacture of nuclear weapons, and reprocessing of which back into WGP would be extremely difficult.

2/13.00.00

In light of the above, it is very timely to consider the Russian process of converting WGP into mixed mononitrides (MMN). The exploitation of this process is fully supported by Victor Mikhailov, the Minister of the Russian Federation on Atomic Energy (MinAtom). The ease, safety, cleanliness of the conversion process, the benefit of long term storage, together with the overwhelming advantages of MMN over MOX are strong arguments in favor of mononitrides. Especially, we want to stress, that it is very hard to reconvert from MMN back to plutonium metal.

3/14.00.00

The last few months have turned up a number of questions and respective alternative solutions on possible WGP disposition considerations both in the U.S. and Russia, as well as it applies to global involvement. As far as we can see, no clear cut solutions on this problem have yet been obtained.

The MMN option should be considered as an alternative to the generally accepted process of WGP conversion to oxides. MMN is not to be used as a fuel in water cooled reactors, since, at temperatures greater than 300° C. MMN begins to react with the water to produce hydroxides, which are soluble in water. In the case a fuel rod

3/14.00.00  
cont.

F-017

01 00 00

**Comment Number 1**

Comment noted. An intent of DOE's Proposed Action is to serve as an example for Russia and other nations on how to conduct Pu disposition in a safe, secure, and timely manner. The United States currently is engaged in a joint study with the Russians to assess the technical feasibilities of the reasonable alternatives for Pu disposition, and is planning for a joint demonstration of some of the disposition technologies to remove uncertainties in viability.

13 00 00

**Comment Number 2**

The Department of Energy agrees. This is the purpose of DOE's Proposed Action.

14 00 00

**Comment Number 3**

During the screening process to select reasonable alternatives for evaluation in the PEIS, several Advanced Reactor Options, including mononitride reactors, were considered. However, because the technology of the mononitride reactors needs further development which would involve time and cost, this option was considered less reasonable than other reactor options using existing or more mature technologies.

YEVSIKOV, VICTOR V., AND WELL, NIKITA I., BETHESDA, MD

PAGE 2 OF 7

rupture fuel hydroxides will appear in the cooling water. One has to remember that the MMN option is specifically suited to convert Russian WGP to a safe form for interim storage or for ready made fuel (in the form of pellets) to be utilized in future generation reactors. MMN storage is superior to MOX both in time (MOX starts to deteriorate before 10 years) and in its physical/chemical/radiation storage properties.

The U.S. should consider picking up this Russian technology as an alternative, limited to the interim storage and conversion of MMN to MOX at a required time for utilization as fuel. It is important to consider the overall affordability of this project.

We propose that a feasibility study on the above stated process should be carried out including an in dept comparison of the pros and cons of MMN versus MOX, investigations on the chemistry of the processes, storage, safety, economics, ecological consideration, etc. Our suggestion is, therefore, to convert the plutonium to MMN for interim storage till the required time for conversion into MOX (and subsequent utilization as fuel in water cooled reactors). The first phase involves only a paper study and an overview of the process. The second phase carries out tests on the existing pilot plant (10 kg Pu per day capacity) which is to be relocated at the "Mayak" facilities.

We are looking forward to future discussions on this project, including the feasibility study mentioned above, and any appropriate financial support that may be required.

Yours very truly,



Victor Yevsikov



Nikita Wells

3/14.00.00  
cont.

F-017

3-1171

Comment Documents  
and Responses

Victor V. Yevikov, Ph.D, Nikita Wells, N.E.

5904 River Road  
Bethesda, MD 20816Phone: 301-244-6941  
FAX: 301-330-9611

## PROCESSING AND STORAGE OF WEAPON-GRADE PLUTONIUM.

## Introduction

At present there are large quantities of plutonium from the dismantling of nuclear weapons. Russia is presently known to have more than 180 metric tons and will have 200 tons by the year 2000. As a comparison, one needs to have only 4.7 kilograms of weapons-grade plutonium (WGP) in order to attain the critical mass for a nuclear bomb (250 cm<sup>3</sup> in volume). Problems of plutonium storage arouse great concern all over the world. Both Russian and American scientists as well as government officials are expressing their extreme distress about the unreliable and deplorable state of storage and accountability of nuclear fissionable materials as well as the poor security of nuclear facilities in Russia. It is very likely that terrorists, local thieves as well as Chechen (or other) nationalists may succeed in well organized thefts of metallic plutonium of sufficient quantity to manufacture a nuclear bomb. In addition, the political situation in Russia is unstable, where certain extremist political figures could come to power and receive access to fissionable materials. The poor economic situation of the country could force the extremist to sell the nuclear materials to third-world countries, regardless of international agreements.

To prevent theft and sales of WGP it is necessary to transfer it at the earliest possible time into a form unsuitable for the manufacture of nuclear weapons, and reprocessing of which back into WGP would be extremely difficult.

We propose to investigate a unique process for the conversion of Russian WGP to a secure and stable form. This process (as fully supported by MinAtom's Minister Mikhailov) would convert WGP into a plutonium-uranium (or zirconium)-nitride mixture: mixed mononitrides (MMN), which can be pressed into pellets for fuel elements (for use with liquid metal and gas cooled reactors) and weapons for easy long term storage. It is estimated that the MMN can be stored for at least 50 years. The Russians already have firm experience of MMN storage for 30 years. As a comparison, MOX can barely reach 10 years without decomposition. This interim span of 50 years would provide ample time to come up with new, appropriate, well thought out policies in the future processing, storage, and use of WGP.

## Disposition Alternatives.

Several disposition alternatives for WGP are now being considered both in the U.S. and Russia. These include disposal in geological formations (deep borehole), immobilization including vitrification, ceramic immobilization, burn-out in different types of reactors for the generation of electrical power, and interim or long term storage.

The vitrification and disposal of WGP in geological formations options, however, are not acceptable for Russia. Russia has decided to use WGP as fuel for the generation of electricity.

This brings out a number of important problems which need immediate clarification. First, the presence of the large amount of Russian WGP presents a threat and must be converted to a benign form unsuitable for weapons. It must be placed into interim storage for future use as fuel since facilities for plutonium burn up are not yet operational. This storage has to be in an acceptable, benign form to meet non-proliferation and safety standards. Secondly, the Russians have no commercial water cooled reactors which can utilize WGP in the form of MOX. MOX is a suitable fuel

for water cooled reactors as considered in the U.S., but cannot be used in existing Russian LWRs without considerable facility upgrade. The operational liquid metal cooled reactor (BN-600) can utilize WGP as mixed monocarbide fuel, but cannot use MOX due to safety considerations (since MOX can react with the liquid metal coolants in the case of accidental fuel element damage). Construction of the advanced design BN-800 reactors, which will be perfect for MMN use, unfortunately has been stopped due to financial problems. High temperature gas cooled reactors which can use both MOX as well as MMN, are only in the design stages (MinAtom and General Atomics joint project).

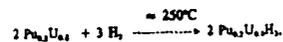
To summarize: Russian WGP should be stored in a safe form for up to 50 years in order to allow time for the design and construction of facilities for plutonium fuel production and utilization. Thus, if the storage time is up to 10 years, WGP can be stored in an oxide form to produce MOX fuel. But if the required storage time is up to 50 years - WGP should be stored in a MMN form which can be burned directly as fuel in advanced reactors or converted to other forms of fuel at the appropriate time.

#### Technology of Process

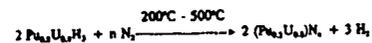
This process was developed initially in the Soviet Union in the beginning 1970's (no parallel developments were carried out in the US since there was no need to reprocess spent nuclear fuel). Since 1970's the process has been improved, simplified, made safe and efficient, cost and energy effective. The process has only recently been declassified (approximately 3 years) and now presents us with a unique opportunity to examine the advantages provided by the monocarbides for the easy handling, long term storage and use as a fuel in future generation reactors.

The manufacture of MMN is a continuous, ongoing process with its inherent multiple stages operating simultaneously. In the first stage of the process the weapon-grade plutonium is melted down with depleted uranium-238. The critical mass increases to a maximum with the consumption of plutonium from 15 to 30%. Immediately the plutonium is transformed into a state with a high critical mass which allows the safe operation of the process. MOX preparation technology does not allow the fast increase in critical mass in the initial stage. WGP does not need purification to remove alloying materials or long-life radioactive elements (including Am).

The second stage of the process performs hydrogenation of the mixed Pu and U with an argon-hydrogen gas mixture at a temperature of 250°C. The reaction starts instantaneously and provides complete destruction of the metal structure. A black powder is obtained with particles from 0.3-0.6 micron. This stage can be written as follows:



The third stage provides nitration. The product is carried by a feeder through a furnace for the nitration by a nitrogen-argon gas mixture. As a result MMN is produced in a form of powder with a controlled dispersion. The size of the particles depends upon the temperature and can be produced up to 500 micron. The nitration process can be written as:



The fourth stage is briquetting or pelleting. The powder of the mixed nitrides is pressed with the help of a fast acting press, burned and sintered in a nitrogen environment at the temperature of about 700 and 1400-1600°C correspondingly. The briquettes obtained are ready for storage. The maximum weight of the briquette is determined by the critical mass. In the opinion of the Russians, the most convenient storage shapes are cylinders with the mass of 30-40 kgs with a high content of Pu mass. From 25-27% more plutonium is contained in MMN than in MOX.

The fifth stage is the loading of the manufactured products into the containers, their sealing, seal inspection and shipment to the storage facility for long term storage. If necessary porous membranes can be installed in the containers to release helium.

F-017

YEVSIKOV, VICTOR V., AND WELL, NIKITA I., BETHESDA, MD  
PAGE 5 OF 7

**Existing Facilities**

The Russian presently have 3 operating test facilities and one high capacity pilot plant for the conversion of plutonium to MMN. The test facilities can process from 0.2 kg to several kilograms capacity. The pilot plant has a capacity of 10 kgs Pu per day (3.2 tons plutonium per year). Ideally only 1 year is required to convert all the Russian WGP into storage form utilizing just 30 of these pilot plants. Total cost is about 10 million dollars. But, more realistically, and economically feasible, 10 plants can do the job in three years. About a half-year is required for the manufacture of the first plant. The series production of the 30 plants requires about 2 years.

The pilot plant consists of 15 interconnected glove boxes containing ovens, furnaces, presses, spiral conveyers, filter systems, etc. and sophisticated instrumentation (mass spectrometers, gas analyzers, vacuum and radiation monitoring, etc.). The total cost of the pilot plant is estimated conservatively at \$ 300 K. The area that is occupied by the entire system is about 2,700 sq. feet (300 sq. m). The facilities of this class can be produced out of standard parts with the standard equipment by an ordinary machine fabrication plant. Russians have design documentation and production equipment. All of the processing equipment can be easily transported and can be delivered directly to the weapon dismantling site.

The pilot plant is movable, requires only 2 trucks, and may be transported and installed at the weapons-grade plutonium storage site. The containers with MMN can be stored on the same storage site.

**Ecological Aspects of the Process**

The processing procedure, compared to hydro-metallurgical and other techniques, is ecologically friendly. There are no liquid or gaseous wastes. Since the velocity of the working gases is low, radioactive wastes in the form of finely dispersed dust are easily captured by standard filters and then reprocessed and returned into the cycle. The Russians can produce MMN powder with particle size up to 500 micron, which excludes dust formation that accompanies the oxides production process. It is very important that the gas cycle is closed. All the gases used ( $H_2$ ,  $N_2$  and  $Ar$ ) are subjected to complete purification and returned into the process.

**MMN Storage Advantages.**

WGP storage in MMN form meets all the Russian requirements for storage with specific advantages as listed below:

- The reverse process of Pu extraction from the MMN form is much more complicated than from MOX. MMN goes through several additional stages as compared to MOX. Each stage contains liquid radioactive wastes. All long-life radioactive isotopes from the MMN crystalline structure are transferred to the reaction volume when MMN is dissolved. A direct MMN reduction process into metal Pu is unknown, but oxides can be reduced directly by Ca metal.
- Direct production of weapons (or a bomb) is impossible due to the high critical mass of more than 120 kilograms, which greatly exceeds the limits of bomb parameters.
- MMN provides suitable long-term storage (greater than 50 years).
- MMN may directly be used as a fuel for fast-neutron commercial reactors after storage with no further reprocessing. Fission products are not released during the fuel production process (milling, pressing and sintering) and remain in the MMN crystalline lattice.
- MMN fuel as pellets can be stored inside the fuel elements. The Russians have 8 years experience in this process.
- MMN storage is safe and well understood by the Russians who possess 30 years experience.
- MMN has stable chemical and physical properties, thus making storage safer compared to that of MOX.
- MMN has a high thermal conductivity. MMN contains about 27% more plutonium than that in MOX. Contact with water at temperature up to 200°C produces a dense protective oxide film.
- MMN is characterized by good radiation stability:
  - MMN releases of several tens of times less cesium and iodine as compare to MOX.
  - MMN captures fission products by a factor of 4-5 times greater than MOX.
  - $\alpha$ -radiation does not damage the MMN lattice, and Am, Np, Cm remain in the crystalline lattice.

**Utilization of MMN as Nuclear Fuel after Storage.**

MOX fuel may be successfully used in water-cooled reactors. The use of MOX in liquid metal cooled reactors is prohibited because it reacts with the metal coolants. Alternatively, MMN should not be used with LWR, but is excellent fuel for liquid metal reactors. MMN possesses a series of properties that are superior to that of MOX as shown below. This makes its use as fuel highly desirable.

- MMN is very compact with a high plutonium content. It contains more plutonium than MOX and can provide 25% more Pu burn-out.
- The use of Pu-Zr in MMN fuel in fast reactors provides up to 50% burning of Pu in the fuel.
- The storage area for MMN containers or fuel assemblies are about 25% smaller than that for MOX - this is economically favorable.
- MMN has high thermal conductivity, which increases with temperature. It is 10 to 18 times greater than that of MOX. This makes the process efficient and safe.
- MMN is chemically stable and does not react with metal coolants and stainless steel at high temperatures. MOX releases fission products, especially Cs, which interact with stainless steel of the fuel elements.
- MMN has minimal gas release during fuel operation - several times less than that of MOX.
- New design of reactors with MMN fuel prohibits the reproduction of Pu.
- After storage MMN can be used directly for metal-cooled reactors, as well as for reactor-burners, gas-cooled reactors, etc., without any further reprocessing.
- Actinides and fission products formed during storage are trapped in the MMN crystalline lattice and can be burned together with MMN fuel in fast reactors.

**Conclusions.**

Based on the facts and analyses as presented above, the Russian conversion process of WGP into MMN demonstrates its critical position in the international WGP non-proliferation arena. The international nuclear power community should seriously consider MMN's merits and advantages as an alternative form to be considered for interim and long term storage and future use as a nuclear fuel (especially for the consideration of WGP in Russia).

The above stated conclusion makes sense when one considers the following facts:

- No political decision concerning methods of plutonium management has yet been made either in U.S. or Russia.
- At present Russia has no facilities for utilizing WGP.
- The above process provides a possibility to solve the problem of safe and low-cost storage of WGP in compact form. Only MMN meets the requirements of long-term storage and subsequent WGP utilization.
- MMN production is highly efficient, safe, ecologically clean and economically advantageous.
- MMN storage is inexpensive, safe, long-term and ecologically clean.
- After storage MMN can be used directly as fuel or converted into any other types of fuel including MOX.
- During storage long-lived isotopes (including Am, Np, Cm) are formed in the MMN, but remain inside the crystalline lattice to be burned up together with the Pu in reactors.
- Although further investments are needed for completion of the Russian plutonium conversion facilities, the MMN option will provide the most economical solution.

F-017

**PROPOSED TASKS****Conversion of weapons-grade plutonium to mixed mononitrides (MMN)****Stage 1. Feasibility Study****• Task 1: Data Collection**

Assemble detailed technical data on the plutonium conversion into mixed mononitrides (MMN), details of the process, MMN interim and long term storage, including full documentation of the of existing and proposed facilities. This information will be obtained from existing data sources and through the on-site interviews with system developers.

**• Task 2: Technical Review**

The analyses and technical review of the plutonium nitride conversion: viability of the conversion process; focusing on the details of the formation MMN, material handling, interim and long term storage. Additional consideration will include facilities safety and environmental considerations. A determination of a cost estimate will be included.

**• Task 3: Generation of Report**

Preparation of a final report that will contain analysis, results, assessments and recommendations for each of the tasks performed under this project. Independent experts (National Laboratories, Universities, etc.) will be consulted as required.

**Stage 2. Practical Implementation**

- Task 1: Consolidation, Verification, Examination of Available Equipment and Instrumentation**
- Task 2: Transport of Equipment and Instrumentation to the "MAYAK" Facility.**
- Task 3: Installation of Equipment and Instrumentation at "MAYAK". Implementation of any Additional Requirements.**
- Task 4: On site Equipment Testing Using Depleted Uranium.**
- Task 5: Test Run Using Plutonium.**
- Task 6: Optimization and Fine Tune of process.**
- Task 7: Full Operation of System at Maximum Capacity (10 kg Pu/day).**

Dr. Victor Yevstikov, Nikita Wells - Phone (202) 244-5041, FAX (301) 320-9622

F-017

Gentlemen:

Kindly take note of my request not to allow use of mixed oxide fuel in commercial reactors, an extraordinarily irresponsible proposal, fraught with danger in transport, storage, and use as a process fuel.

I'd be pleased to learn that your EIS will not be implemented as proposed. (Storage and disposition of weapons usable fissile materials) will await such word from your office.

Sincerely,

Faith Young

 Faith Young  
1001 Dixon Springs Hwy  
Dixon Springs TN 37067-4001

June 6, 1996

1/08.03.01

M-270

08 03 01

Comment Number 1

The Department of Energy acknowledges the commentor's opposition to the Reactor Alternative using MOX fuel. Decisions on disposition of weapons-usable fissile materials will be made based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

**YOUNGHANS, LORRAINE, BEATTY, NV**  
**PAGE 1 OF 1**

Date Received: 03/27/96  
Comment ID: P0001  
Name: Lorraine Younghans  
Address: P.O. Box 833  
Beatty, Nevada

## Transcription:

My name is Lorraine Younghans, P.O. Box 833, Beatty, Nevada, and I don't think that you should be making a dump out of the Nevada Test Site. I think you oughta just shut it down and not do any more storage of nuclear wastes or any material thereof. Thank you. Goodbye.

1/08.03.01

P-001

08 03 01

**Comment Number 1**

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

ZELLER, MYRA  
PAGE 1 OF 1

Date Received: 04/03/96  
Comment ID: P0003  
Name: Myra Zeller  
Address: No address given

Transcription:

This is Myra Zeller. I'm calling because I think it's just ridiculous for us to keep stockpiling nuclear weapons. I don't see any reason at all that we need to keep doing this horrendous thing that is so inhumane to keep building up and building up weapons that are just intolerable. And I think that we're leading the world in the wrong direction. We're setting a poor example. We're spending \$6 billion, which should be spent in other ways. I think that it's a bad idea. I think that we need to destroy those weapons. We don't need to stockpile them, and I definitely don't think we need to build any more tritium reactors. Thank you.

1/15.00.00

P-003

15 00 00

Comment Number 1

Comment noted.

ZEPEDA, BARBARA, SEATTLE, WA  
PAGE 1 OF 1

Storage and Disposition of Weapons-Usable Fissile Materials Draft Programmatic  
Environmental Impact Statement (PEIS) Public Comment Form

Name (optional): BARBARA ZEPEDA  
Address (optional): 19372E AVE  
SEATTLE WA 98117

Please write down your comments and drop this form in the marked boxes before you leave tonight. These forms will be submitted to the Department of Energy as part of the formal comment on this PEIS. If you are unable to complete this form tonight, written comments can be mailed to:

Department of Energy  
Office of Fissile Materials Disposition  
P.O. Box 23786  
Washington, D.C. 20026-3786

or, you can call this toll-free number to leave comments by phone: 1-800-820-5156. Comments must be submitted by May 7, 1996.

The Department of Energy has identified three types of technologies as options for disposing of weapons-usable fissile materials. The Department has also considered a "no action alternative" which would result in long-term storage of these materials. Please write down your comments on the following three types of options for disposal and the storage option.

1. Materials Immobilization/Vitrification - Immobilize fissile materials by mixing them with glass, glass bonded zeolites, or ceramics.

SHOULD FULLY FUND UN & IAEA SO THAT INTERNATIONAL  
AGENCIES CAN ESTABLISH A TRANSPARENT US CORPORATION  
THAT MAKE ENOUGH MONEY ON WEAPONS & WIPSS BY MAKING  
THEir MISSILES ORIGINALLY AND ARM LENGTHS LIMITED &  
RAD MUST BE ESTABLISHED BY AGENCIES THAT DON'T PROFIT FROM THEM

2. Deep borehole disposal - Materials would be disposed in boreholes at least 2.5 miles deep, in geologically stable formations. Materials could be disposed directly into the deep borehole, or materials could be immobilized first, and then deposited into the deep borehole.

SEE UN CONVENTIONS ON ECOSYST PROTECTION & IDENTIFICATION  
OR THEM PRESENT & FUTURE EFFECTS.

3. Reactor Options - Surplus plutonium/highly enriched uranium would be made into MOX fuel for use in nuclear reactors, destroying by fission a major portion of the weapons grade materials.

WHERE ARE THERE ANY EXAMPLES OF A SAFE/COST  
EFFICIENT NUCLEAR PLANT OVER 50 YEARS FOR MORE  
THE 100% OF YEARS OR RADIOACTIVE HAZARD

4. Storage Options - USDOE would continue existing storage practices for weapons-usable fissile materials at current locations and/or consolidate that storage at one or more of the designated sites.

NEED IAEA PROTECTIVE STANDARDS & RECORDS IF US  
IS TO SET A STANDARD OF PROTECTIVE THAT WE WANT THE REST OF THE WORLD TO  
MAKE AVAILABLE TO ALL COUNTRIES AND TO ALL US CITIZENS  
IN WE ARE TO IMPLEMENT THE WEAPONS DISPOSITION  
RECOMMENDATIONS FROM THE ANS SEABOARD REPORT, 14, 43, 44, 45, 46, 47,  
AND PAGES 3 & 4. (KEY CONCLUSIONS AND RECOMMENDATIONS)

1/15.00.00

M-226

15 00 00

Comment noted.

Comment Number 1