

Given Secretary Pena's announcement that
Savannah River will be the site of the new plutonium
fuel manufacturing facility, it would seem that
perhaps we ~~should~~ ^{simply} just thank you for not siting new
plutonium manufacturing ~~in~~ in the Northwest
and take the rest of the evening off.

But ~~the~~ ^{the} same reason ^{why} it is bad for the Northwest
apply anywhere ~~else~~ ^{elsewhere}. MOX is the worst method
* It is slow - must be run ⁱⁿ ~~in~~ ^{plutonium} ~~reactor~~ ^{reactors} for fact
* It involves subsidizing nuclear power reactors
* It risks pure forms of plutonium falling into
the hands of people who wish to make
n-weapons, particularly as part of the
Russian ^{MOX} system
* It generates many additional tons and
gallons of extremely hazardous nuclear and
chemical wastes, and
* It costs a lot more than immobilization.
~~It~~ ^{immobilization} is really a very simple ~~discussion~~
problem to ~~consider~~ ^{consider} is a much better alternative.

what seems the decision in favor of MOX is ~~the~~
the collision of the Russian, ~~and~~ American,
and European nuclear power industries.

I would wish you, Mr. Knowlton to convey a
message to Secretary Richardson and Vice-President
Gore

1

ORD09

ORD09-1

Alternatives

DOE acknowledges the commentor's opposition to the MOX approach. DOE analyzed each environmental resource area in a consistent manner across all the alternatives to allow for a fair comparison among the alternatives and among the candidate sites for surplus plutonium disposition facilities. Use of MOX fuel in domestic, commercial reactors is not proposed in order to subsidize the commercial nuclear power industry. Rather, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors. The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract. The commercial reactors selected for the MOX approach include only those reactors whose operational life is expected to last beyond the life of the surplus plutonium disposition program.

Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. By working in parallel with Russia, the United States can reduce the chance that weapons-usable nuclear material could fall into the hands of terrorists or rogue states and help ensure that nuclear arms reductions will never be reversed. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again.

As described in Sections 2.18.3 and 4.28.2.8, additional spent fuel would be produced by using MOX fuel instead of LEU fuel in domestic, commercial

we are not fooled, this is not a non-proliferation program, it is not a conversion of swords into plowshares, but it is the attempt of the nuclear power industry to convert ~~the world's plutonium~~ to ~~use~~ a plutonium-fuel economy, ~~and~~ subsidized by the US government.

Please explain to Mr. Gore, who wants to be our ~~new~~ environmental president, that Northwest environmentalists ~~are not~~ ^{risking} ~~to~~ will figure out that this is a very dangerous ~~and~~ ~~deal~~ sweetheart deal for the nuclear power industry, ~~and~~ ~~we~~ ~~are~~ ~~not~~ ~~going~~ ~~to~~ ~~explain~~ ~~that~~ ~~to~~ ~~them~~, especially politically, Mr. Knowlton, that could very hazardous for him out here, as we begin to explain MOX and why it is a bad idea for our WFPSS II reactor here at Hanford.

Thank you.

ORD09

reactors. Spent fuel management at the proposed reactor sites is not expected to change dramatically due to the substitution of MOX assemblies for some of the LEU assemblies. Likewise, the additional spent fuel would be a very small fraction of the total that would be managed at the potential geologic repository. Although cost will be a factor in the decisionmaking process, this SPD EIS contains environmental impact data and does not address the costs associated with the various alternatives. A separate cost report, *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998), which analyzes the site-specific cost estimates for each alternative, was made available around the same time as the SPD Draft EIS. This report and the *Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document* (DOE/MD-0013, November 1999), which covers recent life-cycle cost analyses associated with the preferred alternative, are available on the MD Web site at <http://www.doe-md.com> and in the public reading rooms at the following locations: Hanford, INEEL, Pantex, SRS, and Washington, D.C. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

**POSITIONS AND STATEMENTS
PLUTONIUM PROCESSING AND MIXED OXIDE (MOX) FUEL**

"We oppose the processing, reprocessing and the production of mixed oxide fuel (MOX) in areas where there is possibility or risk of pollution and contamination of agricultural land, air, and groundwater."

State Policies of the Texas Farm Bureau. 1998. Pages 36-37, Section 137, Lines 24-28

American Farm Bureau Federation Policies for 1998, Page 112, Section 121, Lines 38-41

1

"The Party recognizes the value of alternative energy and supports continued private research and development of such sources, but we oppose the federal government using hazardous waste as an alternative energy source, such as the processing and/or reprocessing of plutonium and uranium for making Mixed Oxide fuel in agricultural areas and above major water sources."

Texas Republican State Party 1998 Platform for "Alternative Energy Sources"

2

"Since the manufacture of nuclear reactor fuel rods has usually led to environmental contamination of land, air, and water, and since the Pantex Plant near Amarillo, Texas is located over the Ogallala Aquifer, the country's largest aquifer, and in the midst of one of the country's largest grain-and-cattle-producing regions, the Democratic Party of Texas opposes the U.S. Department of Energy plan to produce Mixed Oxide (MOX) fuel from plutonium and uranium at the Pantex Plant, or any other form of plutonium processing."

Texas Democratic State Party 1998 Platform

3

"A consortium has been formed between Bechtel, BNFL International, and Westinghouse. GE chose not to participate. GE will not receive, store, process, transport, or take title to any material in any stage of the MOX process. I think you have other people to deal with on this one and not GE. Thank you very much."

Statement by General Electric Corporation Chairman of the Board Robert Welch at annual General Electric shareholders meeting, April 1998

4

ORD14

ORD14-1

MOX Approach

DOE acknowledges the commentor's opposition to the MOX approach to surplus plutonium disposition. U.S. policy dating back to the Ford Administration has prohibited the commercial, chemical reprocessing and separation of plutonium from spent nuclear fuel. The use of U.S. surplus plutonium in existing domestic, commercial reactors does not involve reprocessing (reprocessing is a chemical separation of uranium, transuranic elements [including plutonium], and fission products from spent reactor fuel and the reuse of the plutonium and uranium to produce new fresh fuel). This SPD EIS analyzes the potential environmental impacts associated with the MOX facility. As presented in Chapter 4 of Volume I and summarized in Section 2.18, potential impacts of construction and normal operation of the MOX facility would likely be minor.

ORD14-2

MOX Approach

Use of MOX fuel in domestic, commercial reactors is not proposed as an alternative energy source. Rather, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors.

ORD14-3

MOX Approach

Sections 4.17, among others, and 4.26.3 analyze impacts to the environment, including air, soils, and Ogallala aquifer due to construction and normal operation of the MOX facility at Pantex. There would be no discernible contamination of aquatic biota (fish) or drinking water resulting from the proposed surplus plutonium disposition facilities at Pantex, either from minute quantities of air deposition into small water sources or from any potential wastewater releases. Therefore, it is estimated that no measurable component of the public dose would be attributable to liquid pathways. Appendix J.3 includes an analysis of potential contamination of agricultural products and livestock and consumption of these products by persons living within an 80-km (50-mi) radius of Pantex. This analysis indicates that impacts of

operating the MOX facility on agricultural products, livestock, and human health at Pantex would likely be minor.

ORD14-4

MOXRFP

DOE acknowledges GE's decision not to participate in the MOX approach.

This is a comment on the hearings for recycling plutonium waste. You know, we're opposed to it out here. Mixing MOX oxide and burning plutonium in commercial (reactors) is very bad. I personally want to see the waste vitrified and not used in commercial reactors. It's a very bad idea. Citizens are really opposed to this and the Department of Energy simply goes on with madness and more madness. Very bad and dangerous idea and I'm a citizen in Portland, Oregon and I don't want it done, period.

1

PD036

PD036-1

Alternatives

DOE acknowledges the commentator's opposition to the MOX approach to surplus plutonium disposition. The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. To this end, surplus plutonium would be subject to stringent control, and the MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.



United States
Department
of Energy

Comment Form

NAME: (Optional) EVERETT ANTILA
ADDRESS: 345 NE 22 AV
TELEPHONE: (503) 288 8970
E-MAIL: antila@coho.net

U.D.E.

THE decision to eliminate all nuclear weapons
all nuclear power to proceed step by step in this
direction as a governmental policy of U.S.A
IS LONGER OVERDUE.

THE EARTH CAN NO LONGER SUFFER THE
probability OF ANOTHER "CHERNOBYL" IN
FACT THE "EXPLOSION" IN THE UKRAINE FROM
THE SAME NUCLEAR COMPLEX IS AGAIN POSSIBLE
BECAUSE OF THE UNKNOWN combination OF
elements brewing THERE. NATURALLY COAL &
OIL SHOULD BE REPLACED BY ENERGY OF
WIND, THERMAL & OTHER energy sources on which

1

ORD17

ORD17-1

Other

Consideration of the elimination of nuclear weapons systems and nuclear generated power in favor of renewable energy sources is beyond the scope of this SPD EIS. The scope of this SPD EIS is focused on analysis of alternatives on whether and how much U.S. surplus plutonium should be used as MOX fuel, which technology should be used for immobilization, where to construct the disposition facilities that are needed, and where to perform lead assembly fabrication and testing. By working in parallel with Russia to reduce stockpiles of excess plutonium, the United States can reduce the chance that weapons-usable nuclear material could fall into the hands of terrorists or rogue states and help ensure that nuclear arms reductions will never be reversed. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.



United States
Department
of Energy

Comment Form

#2

NAME: (Optional) EVERETT ANTILA

ADDRESS: _____

TELEPHONE: (___) _____

E-MAIL: _____

Funds as great as are spent on expensive
Nuclear Energy should transferred to
sustainable energy sources.

1

MOX IS DEFINITELY ADDITIONALLY MORE
COSTLY THAN THE ORIGINAL URANIUM &
SHOULD NEVER NEVER BE CONSIDERED
AS A FUEL.

2

ORD17

ORD17-2

MOX Approach

The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract. The commercial reactors selected for the MOX approach include only those reactors whose operational life is expected to last beyond the life of the surplus plutonium disposition program.

My name is Gloria Black and my phone number is (503) 629-5495. I would like to urge the support of cleanup of Hanford and also to say that I oppose the MOX and my feeling is that it's too dangerous to transport plutonium in the Northwest. And also we don't need to create new nuclear waste. So I strongly urge the cleanup. Thank you.

1

PD031

PD031-1**Alternatives**

DOE acknowledges the commentor's opposition to the MOX approach, and support of cleanup at Hanford. DOE believes that Hanford's efforts should remain focused on its current high-priority cleanup mission. The importance of cleanup at Hanford was taken into consideration in identifying preferred sites for surplus plutonium disposition activities. However, no decision has been made, and DOE will continue to consider Hanford for surplus plutonium disposition or other programs that are compatible with the Hanford mission.

The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. To this end, surplus plutonium would be subject to stringent control, and the MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

Hello, my name is Sylvia Bryant. I'm a United States citizen living in Oregon and I believe the MOX approach to handling plutonium is a bad idea. Thank you for giving me this opportunity to express my opinion. Bye-bye.

1

PD052

PD052-1

Alternatives

DOE acknowledges the commentor's opposition to the MOX approach. The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

My name is Nathan Butts from Portland, Oregon and I'm calling to comment on the disposition of plutonium and the alternatives in the Draft EIS and I am opposed to the hybrid alternatives which, which allow the use of plutonium in nuclear plants for use as nuclear fuel. I'm concerned about the environmental effects of the waste generated from this process. I'm concerned about contamination in the making of the fuel, transportation of the fuel, both here and in Russia. There is no guarantees that they're going to handle it properly both during the process and after. With the nuclear waste will be generated and it's not a step towards non-proliferation. The right steps towards non-proliferation is the encapsulation of the plutonium and the best technology for that as is available now, would be the best alternative. At a later date when we have technology for lowering the threat of the use of this fuel as a, as nuclear weapons, then we can use it at that time. We will have it stored and we will have it monitored both here and in Russia, and we can have this as some type of international agreement between the two countries whereas we can't have an international agreement on waste or at least we don't have as firm of one as we should, since we can't even handle our own. That's the end of my comment. If you'd like to give me a call my number is 644-7760, area code 503 and I speak for my household of two. Thank you.

1

PD044

PD044-1**Alternatives**

DOE acknowledges the commentor's opposition to the MOX approach. The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

Potential waste management impacts of the proposed surplus plutonium disposition facilities are analyzed in this SPD EIS for each candidate site. Detailed analysis is provided in Appendix H. As described in Sections 2.18.3 and 4.28.2.8, additional spent fuel and would be produced by using MOX fuel instead of LEU fuel in domestic, commercial reactors. Spent fuel management at the proposed reactor sites is not expected to change dramatically due to the substitution of MOX assemblies for some of the LEU assemblies. Likewise, the additional spent fuel would be a very small fraction of the total that would be managed at the potential geologic repository. After irradiation, the MOX fuel would be removed from the reactor and managed with the rest of the spent fuel from the reactor, eventually being disposed of at a potential geologic repository built in accordance with the NWPA. Transportation impacts of the MOX approach are summarized in Chapter 4 of Volume I and Appendix L. As indicated in Section 2.18, no traffic fatalities from nonradiological accidents or LCFs from radiological exposures or vehicle emissions are expected.



United States
Department
of Energy

Comment Form

3/13/78 (X TO ACCOMPANY ORAL COMMENT given at Portland meeting)
 NAME: (Optional) Andrew D Butz (REPRESENTING SELF ONLY)
 ADDRESS: 2026 N. Emerson St, Portland, OR 97217-3819
 TELEPHONE: (503) 286-9999
 E-MAIL: abutza@pcc.edu
 Re: "surplus" PLUTONIUM DISPOSITION (Alternatives II & 12 are only ones that are acceptable)
 URGENT DEMANDS:

- 1) Public health/safety must be given the top priority in all actions
 - 2) Thus, all considerations must prioritize immobilization & DEACTIVATION
 - 3) GIVEN the level of investment (money, talent) in nuclear proliferation to date, WHY CAN'T all further investment be directed exclusively toward:
 - i) immobilization ?
 - ii) deactivation/neutralization ?
 - iii) demilitarization* ?
- } THESE MUST BE THE ONLY OPTIONS PURSUED

STOP MOX! DON'T SUBSIDIZE THE NUCLEAR (WASTE) PRODUCTION INDUSTRY!

Sincerely,
 Andrew D Butz
 Social Science Faculty, Portland Community College

* I am thoroughly unconvinced that demilitarization of weapons grade plutonium can only be done through MOX fission in commercial reactors
 → STOP THE COLD WAR PARADIGM; UNPLUG THE NUCLEAR PRODUCTION CYCLE!

ORD12-1

Human Health Risk

DOE acknowledges the commentor's concern regarding the priority of public health and safety. The Human Health Risk sections presented in Chapter 4 of Volume I discuss the applicable human health risks associated with all alternatives considered. Decisions on the surplus plutonium disposition program will be influenced by these estimated risks.

ORD12-2

Alternatives

DOE acknowledges the commentor's support of disposition alternatives that consider only immobilization. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again.

DEMAIN INC. INVESTMENT CLUB
 RIAN T. SMITH
 PAGE 1 OF 2

4525 SE 70th
 Portland, OR 97206-4450

August 03, 1998

U.S. Department of Energy (DOE)
 Office of Fissile Materials Disposition
 c/o SPD EIS
 P.O. Box 23786
 Washington, D.C. 20026-3786

To whom it may concern,

I read in The Oregonian that the DOE is asking for public input in regards to the "Surplus Plutonium Disposition Draft Environmental Impact Statement".

In other words, the DOE has too much Plutonium and wants to justify the disposal of it. Well, instead of disposal, why not invest some of the billions of dollars the DOE has to research and develop 'nuclear batteries' for electric cars? Portable computers? Smoke Detectors?

The public already has nuclear pacemakers, so why not expand on that? We used nuclear (Plutonium) batteries to power experiments on the moon. What's stopping the use of such batteries to power portable tape players (walkmans) or other electronic devices?

I would be willing to help fund and be a part of an R+D team if the Department of Energy were to write back and show an interest, however

Page 1 of 2

MD009

MD009-1

Other

DOE acknowledges the commentator's offer of support to fund R&D on alternative uses of surplus plutonium 239. Plutonium batteries, however, are fabricated from plutonium 238. The United States has conducted research and found no current space application for plutonium 239. Because this material, along with Russian plutonium, poses a global proliferation threat, it must be disposed of in a manner that reduces the risk that it can be used by terrorists and rogue nations to build nuclear weapons. The actions proposed in this SPD EIS would implement current U.S. policy on nuclear nonproliferation and disposition of surplus plutonium.

DEMAIN INC. INVESTMENT CLUB
RIAN T. SMITH
PAGE 2 OF 2

Slight, in such an idea as I have stated. Hey, I'm
already versed in Government spending: "Why buy one,
when you can buy two at twice the price."
Thank you for your time.

1

Sincerely,

Rian T. Smith
President/Treasurer
Demail Inc. Investment Club

US DOE needs to hear your voice NOW!

1. Should Clean Up be the sole mission at Hanford? 1
 Yes No
2. Should the United States Government maintain its longstanding policy against the use of weapons Plutonium to fuel civilian nuclear reactors? 2
 Yes No
3. Which alternative would you prefer to see the US Department of Energy pursue:
 Immobilization (encasement of plutonium in glass-like tombs) 3
 Or
 The MOX plan (burning plutonium to fabricate fuel for use in a civilian nuclear reactor)?
4. Should Plutonium, to be used for processing and fabrication of MOX fuel, be imported to the Hanford site along the Columbia River? 4
 Yes No
5. How concerned are you about the transportation of Plutonium through the Northwest?
 Not concerned slightly concerned very concerned completely opposed
 B. How concerned are you about the transport through the Northwest of fuel containing weapons Plutonium?
 Not concerned Slightly concerned Very concerned Completely opposed
6. Should commercial nuclear power plants be allowed to run on MOX fuel containing weapons Plutonium? 5
 Yes No
 B. Should they be subsidized with tax dollars to do so?
 Yes No
7. Should MOX fuel containing weapons Plutonium be used to restart the FFTF reactor at Hanford to produce Tritium for nuclear bombs? 6
 Yes No

Name GREGG DEMARIA
 Address 3011 SE OVIS WAY, PORTLAND 97202
 Phone 503-233-7631

Please return this to:
 Hanford Action
 25-6 NW 23rd Place #406
 Portland, OR 97214
 (503) 235-2531

MD295

MD295-1

DOE Policy

DOE believes that Hanford's efforts should remain focused on its current high-priority cleanup mission. The importance of cleanup at Hanford was taken into consideration in identifying preferred sites for surplus plutonium disposition activities. However, no decision has been made, and DOE will continue to consider Hanford for surplus plutonium disposition or other programs that are compatible with the Hanford mission.

MD295-2

Nonproliferation

U.S. policy dating back to the Ford Administration has prohibited the commercial, chemical reprocessing and separation of plutonium from spent nuclear fuel. The use of U.S. surplus plutonium in existing domestic, commercial reactors does not involve reprocessing (reprocessing is a chemical separation of uranium, transuranic elements [including plutonium], and fission products from spent reactor fuel and the reuse of the plutonium and uranium to produce new fresh fuel). The proposed use of MOX fuel is consistent with the U.S. nonproliferation policy and would ensure that plutonium which was produced for nuclear weapons and subsequently declared excess to national security needs is never again used for nuclear weapons. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program.

MD295-3

Alternatives

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again.

Under the hybrid approach, approximately 33 t (36 tons) of clean plutonium metal and oxides would be used to fabricate MOX fuel, which would be irradiated in domestic, commercial reactors. The remaining 17 t (19 tons) of surplus, low-purity, nonpit plutonium is not suitable for fabrication into MOX fuel because of the complexity, timing, and cost that would be involved in purifying those plutonium materials. Therefore, fabricating all 50 t (55 tons) of surplus plutonium into MOX fuel is not a reasonable alternative and is not analyzed; however, immobilizing all of the surplus plutonium is analyzed. Given the variability in purity of the surplus plutonium to be dispositioned, some of the plutonium currently considered for MOX fuel fabrication may also need to be immobilized. The incremental impacts that would be associated with a small shift in materials throughput are discussed in Section 4.30.

MD295-4

Transportation

The shipment of nuclear material (e.g., depleted uranium) using commercial carriers would be the subject of detailed transportation plans in which routes and specific processing locations would be discussed. These plans are coordinated with State, tribal, and local officials. The shipment of waste would be in accordance with the decisions reached on the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DOE/EIS-0200-F, May 1997) and the *WIPP Disposal Phase Final Supplemental EIS* (DOE/EIS-0026-S-2, September 1997). The transportation of special nuclear materials is the subject of detailed planning with DOE's Transportation Safeguards Division. The dates and times that specific transportation routes would be used for special nuclear materials are classified information; however, the number of shipments that would be required, by location, has been included in this SPD EIS. Additional details are provided in *Fissile Materials Disposition Program SST/SGT Transportation Estimation* (SAND98-8244, June 1998), which is available on the MD Web site at <http://www.doe-md.com>.

MD295-5

MOX Approach

Use of MOX fuel in domestic, commercial reactors is not proposed in order to subsidize the commercial nuclear power industry. Rather, the purpose of this

proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors. The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract. The commercial reactors selected for the MOX approach include only those reactors whose operational life is expected to last beyond the life of the surplus plutonium disposition program.

MD295-6**DOE Policy**

As discussed in Section 1.7.4, Appendix D was deleted because none of the proposals to restart FFTF currently consider the use of surplus plutonium as a fuel source. In December 1998, the Secretary of Energy decided that FFTF would not play a role in producing tritium.

Additional Comments:

THE PRESENTATION AT THE MARKET ON AUG 15TH GIVEN
BY THE DOE STATES OF "DOME-DEAR SYNDROME". IF WE
ARE MOBILIZED IN THE NW TO PETER GOV' GENERALISE HOW
CAN WE USE LESS ORGANIZED AREAS WHO STAND TO BE MISLED
into disastrous policies which is the long term economic
picture being is with a plutonium based energy era?

7

I am interested in helping. I am trained in Aridol /
Sustainable design + have experience in teaching. I am 26
years old
Please call
GREGG DEMARIA 233-7631

MD295

MD295-7

General SPD EIS and NEPA Process

DOE acknowledges the commentor's concern regarding open communication and the opposition to the use of plutonium. DOE agrees that everyone has a stake in how plutonium is dispositioned and therefore provided various means for submitting comments: public hearings, mail, a toll-free telephone and fax line, and the MD Web site. Regardless of how they were submitted, all comments received on the SPD Draft EIS were given equal consideration and responded to. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this.

The remainder of this comment is addressed in response MD295-2.

August 17, 1998

Sims

Thank you for the opportunity to comment upon the SPD Draft EIS, which is probably the most serious management issue that the world is facing today.

This disposition of plutonium warhead pits is a very profound and technical issue, but in common language I call this project the Great American DOE Arms-Pit Problem--because this dilemma stinks. Nobody in the world knows what to do with plutonium. No one knows how to adequately manage this very toxic and dangerous bomb material.

In light of the fact that the decisionmaking concerning this problem is so serious and has such long lived consequences, I must preface my remarks with the opinion that the Department of Energy has not done a very good job at either educating the general public or involving the public at large in this unprecedented monumental project.

I appreciate the fact that we have been granted a special hearing here in Portland...but the fact remains that the choice to hold interactive scoping meetings ONLY near sites that may be affected was totally inadequate. In reality, the sites that may be affected include not only the sites chosen for specific operations, but all sites along proposed transportation routes, all areas surrounding nuclear power plants that have submitted letters of intent to consider the MOX option, and all sites that may be contaminated by accidental spills, leaks and explosions which may be attendant to these operations!

Besides, holding hearings in only 5 locations, mainly where jobs are affected, brings local economic issues into a place of prominence when these decisions should be primarily based upon scientific evaluation and technical issues along with worldwide health and safety, environmental impact, proliferation and power source implications.

The decisions made today have significantly profound and dangerous implications for the future of the world. We must do a better job than those who chose to produce so much plutonium in the first place. We have created a terrible assault upon the

ORD07

ORD07-1

General SPD EIS and NEPA Process

DOE has initiated a number of activities and events to involve and educate the public about these very important issues. Since the inception of the plutonium disposition program, it has conducted public hearings in excess of the minimum required by NEPA regulations at various locations around the country, not just near the potentially affected DOE sites. DOE is also active in various supplementary public education initiatives: it continues to mail information (e.g., fact sheets) to interested members of the public; MD has established a Web site (<http://www.doe-md.com>) to provide current information to the public; and senior staff members make presentations to local and national civic and social organizations on request.

ORD07-2

General SPD EIS and NEPA Process

Although it was not possible to hold public hearings in all locations potentially affected by surplus plutonium disposition actions, DOE provided various other means for the public to express their concerns and provide comments: mail, a toll-free telephone and fax line, and the MD Web site. All comments, regardless of how they were submitted, were given equal consideration and responded to.

ORD07-3

MOX Approach

DOE acknowledges the commentor's support of surplus plutonium disposition alternatives that consider no action (storage) or immobilization. Continued storage of surplus plutonium, as discussed under the No Action Alternative in Section 2.5, would not satisfy the surplus plutonium disposition program goal. The goal is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the

world environment and economy that has no apparent satisfactory solution. For these reasons we must choose with utmost care the direction we take. As we examine the situation there are many compelling reasons to eliminate the MOX option and choose vitrification or ceramic immobilization or perhaps storage as *Dominici has recently put forth*, as the only reasonable alternatives for this immediate point in time, until we develop advanced technologies to improve upon our ability to dispose of plutonium.

* We already know that a portion of surplus plutonium is suitable only for vitrification. In an economic sense, if this vitrification track must be followed, it makes little sense to spend comparable, and probably more, monies on a second track which takes longer to accomplish. MOX involves huge taxpayer subsidies to commercial nuclear power plants in order that they be able to compete with non-nuclear power sources. These plants will need repairs and modifications, they will encounter a higher risk of safe operation problems, and they will produce spent fuels which are more difficult to transport and store safely for the long term. Both wet pool and dry cask designs may have to be revisited to accommodate the hotter spent fuels.

The conclusions in the RAND WASTE HEAT IMPLICATIONS OF ALTERNATIVE METHODS FOR DISPOSING SURPLUS WEAPONS PU (DRU-1651-DOE JUNE 1997 states "the increased heat output (of spent MOX produced by burning surplus weapons Pu in existing LWRs) will significantly increase the amount of space that the spent MOX fuel takes up in a geologic repository and therefore will significantly increase the cost to dispose of this material. This increase in heat output is an inevitable consequence of the increased production of Am 241 which results from the use of MOX produced from WPU. This result holds true whether the MOX is burned in a LWR or a BWR." This issue needs to be adequately addressed in both safety and economic aspects.

* MOX fuel has been made on an industrial scale only from reactor grade plutonium NOT from weapons grade plutonium. With WPU There are unresolved fabrication issues such as gallium removal and the attendant wastes.

Dr. Toevs and Dr. Beard from Los Alamos (LANL document LA-UR-96-4764) indicate that Pu pits do not all have the same concentration of gallium and the sintering process parameter would have to be adjusted as the gallium concentration changed

ORD07

world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

ORD07-4

MOX Approach

DOE acknowledges the commentor's concern about the preferred approach of using both immobilization and MOX fuel fabrication to surplus plutonium disposition. As discussed in response ORD07-3, pursuing the hybrid approach provides the United States important insurance against potential disadvantages of implementing either approach by itself.

Use of MOX fuel in domestic, commercial reactors is not proposed in order to subsidize the commercial nuclear power industry. Rather, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors. The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract.

Section 4.28 was revised to discuss the environmental impacts of operating the reactors that would use MOX fuel. Commercial reactors in the United States are capable of safely using MOX fuel. Modifications would need to be made to the fuel assemblies that would be placed in the reactor vessel to support the use of MOX fuel, but the dimensions of the assemblies would not change. (Operating procedures, fuel management plans, and other activities would also need to be modified.) DOE has used selection criteria in the procurement process which ensure that the reactors chosen would be capable of safely and successfully completing the surplus plutonium

disposition program. In addition, NRC would evaluate license amendment applications and monitor the operation of the domestic, commercial reactors selected to use MOX fuel. After irradiation is complete, the spent fuel would be stored on the site pending eventual disposal pursuant to the NWPA.

MOX fuel would be handled the same as other fuels with regard to pools and dry casks. MOX fuel assemblies would be the same size and shape as the LEU fuel for the specific reactor. The only difference would be the additional decay heat from the higher actinides, especially americium, in the MOX fuel. Dry casks are designed and certified for a maximum heat load, so the additional decay heat would contribute to the total heat load and not require any redesign. The additional heat load may result in less spent fuel stored per cask. A more likely option is that the MOX fuel would be selectively packaged with cooler LEU fuel to obviate any overall heat output restriction. As a result, DOE does not expect any changes in the cask design, and thus no additional cost.

As described in Sections 2.18.3 and 4.28.2.8, additional spent fuel would be produced by using MOX fuel instead of LEU fuel in domestic, commercial reactors. Spent fuel management at the proposed reactor sites is not expected to change dramatically due to the substitution of MOX assemblies for some of the LEU assemblies. Likewise, the additional spent fuel would be a very small fraction of the total that would be managed at the potential geologic repository. Issues related to a potential geologic repository for HLW and spent nuclear fuel are beyond the scope of this SPD EIS, but are being evaluated in the *Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada* (DOE/EIS-0250D, July 1999). Transportation of HLW or spent fuel would be required for either the immobilization or MOX approach to surplus plutonium disposition. Although cost will be a factor in the decisionmaking process, this SPD EIS contains environmental impact data and does not address the costs associated with the various alternatives. A separate report, *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998), which analyzes the site-specific cost estimates for each alternative, was made available around the same time as the SPD Draft EIS. This report and the *Plutonium Disposition Life-Cycle*

Costs and Cost-Related Comment Resolution Document (DOE/MD-0013, November 1999), which covers recent life-cycle cost analyses associated with the preferred alternative, are available on the MD Web site at <http://www.doe-md.com> and in the public reading rooms at the following locations: Hanford, INEEL, Pantex, SRS, and Washington, D.C.

The RAND study cited by the commentor analyzed a NWPA repository design that is very different from the reference repository design being analyzed by DOE. Moreover, the information in the study does not pertain directly to the disposition of surplus plutonium, and thus, was not used in the preparation of this SPD EIS.

Section 4.28 discusses the potential environmental impacts of operating the Catawba, McGuire, and North Anna nuclear stations, the reactors that would use the MOX fuel, should the decision be made to proceed with the hybrid approach. Operation of the proposed surplus plutonium disposition facilities is expected to take approximately the same amount of time for either approach. The difference in timing for the hybrid approach is associated with the amount of time that MOX fuel would be irradiated in domestic, commercial reactors. However, none of the proposed reactors are expected to operate longer under the hybrid approach than they would if they continued to use LEU fuel.

ORD07-5 Plutonium Polishing and Aqueous Processing

It is understood that weapons-grade plutonium has not been used to fabricate MOX fuel. At the time DOE issued the SPD Draft EIS, it believed the gallium content in the plutonium dioxide feed specifications for MOX fuel could be reached using the dry, thermal gallium removal method included in the pit conversion process. However, in response to public interest on this topic and to ensure adequate NEPA review in the event that the gallium specification could not be met with the thermal process, an evaluation of the potential environmental impacts of including a small-scale aqueous process (referred to as plutonium polishing) as part of either the pit conversion or MOX facility was presented in Appendix N of the SPD Draft EIS. On the basis of public comments received on the SPD Draft EIS, and the analysis performed as part of the MOX procurement, DOE has included plutonium polishing as a component of the MOX facility to ensure adequate impurity removal from

which is undesirable in an industrial-scale operation. MOX fuel with excessive gallium presents problems because it chemically attacks zirconium. The current technology for gallium removal is an aqueous process which results in the generation of large quantities of liquid radioactive wastes. A dry process is yet to be developed and would lengthen the MOX program. No problems involving gallium that would affect Pu vitrification have been identified, nor are they anticipated.

There are also unresolved safety issues when using WPU including:

1. *the increase of structural stresses on power plants due to the higher temperatures of WPU MOX fuels*
2. *the stability of operation due to the lessening of delayed neutrons and*
3. *increased risks of the severity of accidents involving plutonium*

**The introduction of these safety problems demand plant modification. The change in delayed neutrons will necessitate the addition of more control rods and the addition of boron to coolant water in order to help restore adequate control. More stresses upon the structural integrity of the plant will appear because of the higher temperatures involved with MOX fuel, and that problem must be seriously addressed as many of our plants are aging and already have steam tube cracking and containment embrittlement problems. The risk of catastrophic accidents should not be increased at any power plants and neither should the consequences of accidents be increased. Therefore it should be absolutely a requirement the NRC must relicense any plant considering MOX and a new criteria should be developed with opportunity for public comment on these vital issues. This of course would have to apply to Russian plants also, since radiation knows no boundary.*

**The U.S. plants which have expressed interest in MOX want compensation far in excess of direct costs. Jack Bailey, vice president of Palo Verde, a leading candidate for MOX use stated in March 1996 "We also stress in our letters to DOE that any initiative should address potential benefits to ratepayers and shareholders...The benefits must be substantial. If not, the entire proposition is a non-starter. What I mean specifically is that any agreement involving Palo Verde would require more than*

ORD07

the plutonium dioxide. Appendix N was deleted from the SPD Final EIS, and the impacts discussed therein were added to the impacts sections presented for the MOX facility in Chapter 4 of Volume I. Section 2.18.3 was also revised to include the impacts associated with plutonium polishing. While this additional step is expected to add to the estimated waste streams, the projected increases would be relatively small.

ORD07-6

NRC Licensing

The commentor expresses concerns that MOX fuel will result in a lower delayed neutron fraction, an increase of structural stresses due to higher MOX fuel temperatures and increased accident risks. These parameters require that the nuclear core designers accommodate these differences using verified and validated codes that incorporate these effects. Such nuclear codes have been used successfully in Europe and will be adopted and utilized by fuel designers in the United States. A reactor operating license amendment will be required for each individual reactor before it can use MOX fuel. The regulatory process will be the same as for other operating license amendment requests. The reactor licensee will initiate the process by submitting an amendment request in accordance with 10 CFR 50.90. Safety and environmental analyses, as required by NRC regulations, are submitted to NRC in support of, and as part of, the amendment request. The communities near the reactors proposed for irradiation of MOX fuel and all other interested parties will likely have the opportunity to submit comments during the NRC reactor license amendment process should the MOX approach be selected.

The licensing of Russian plants that may use MOX fuel is beyond the scope of this EIS. The remainder of this comment is addressed in response ORD07-4.

ORD07-7

MOX Approach

Because cost issues are beyond the scope of this SPD EIS, this comment has been forwarded to the cost analysis team for consideration. The *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998) report and the *Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document*

the incremental costs associated with using MOX fuel instead of uranium. That kind of payment would be insufficient." (Third International Policy Forum: Deploying the Reactor/MOX Option for Plutonium Disposition Within the Current System of U.S. and Canadian Nuclear Reactors--Regulatory, Policy Impediments. Lansdown, VA March 21, 1996)

The MOX option involves huge taxpayer subsidies to plants for modifications, upgrades & repairs & beyond that, payment to keep competitive profits. It is the greatest corporate welfare scam ever perpetrated upon the people in the history of mankind. The only MOX benefit is profits to the nuclear industry at the expense of the environment, materials handlers and the population of the world.

*What are the changes in the Price Anderson Act to address the increased operational and safety risks? The true cost of MOX would be astronomical.

* In the context of human values, choosing the MOX option leads the world in the wrong direction for future energy generation, which should be focused on safer, less polluting sources. The MOX alternative is loaded with the creation of long lived hazardous materials from fuel fabrication to the spent fuel produced. At this time we are not able to cope satisfactorily with the amounts of chemical and radioactive wastes and spent fuel which has

already been generated both in the military production and commercial sectors and it is irresponsible to add to this waste burden.

*Transport and onsite storage of fresh MOX fuel is a proliferation risk because it is very vulnerable to theft. At the present time there are no Russian agreements for IAEA security.

*Fresh MOX fuels also incur higher expenditures because the shipments of these fuels demand military escort wherever they are and may require separate fresh fuel storage facilities since MOX fuel would emit higher gamma and neutron radiation.

*There are more possibilities of proliferation risks with the MOX option because the accounting system for tracking amounts of plutonium along the MOX program leaves room for error. Even if no plutonium were diverted from the program, The Joint US/Russian

7

8

9

10

11

12

ORD07

(DOE/MD-0013, November 1999), which covers recent life-cycle cost analyses associated with the preferred alternative, are available on the MD Web site at <http://www.doe-md.com> and in the public reading rooms at the following locations: Hanford, INEEL, Pantex, SRS, and Washington, D.C.

The remainder of this comment is addressed in response ORD07-4.

ORD07-8

NRC Licensing

To ensure reactor safety, NRC would evaluate license applications and monitor operations of the MOX fuel fabrication facility, as well as the domestic, commercial reactors selected to use MOX fuel. No change to the Price Anderson Amendment Act has been considered and none would be necessary.

ORD07-9

MOX Approach

The purpose of the surplus plutonium disposition program is not to provide future energy generation but to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program.

Potential waste management impacts of MOX fuel fabrication alternatives are summarized in Chapter 4 of Volume I and discussed in detail in Appendix H.

The remainder of this comment is addressed in ORD07-4.

ORD07-10

Nonproliferation

DOE acknowledges the commentor's concerns regarding transportation and MOX fuel storage. In order to address security against terrorist-related

incidents, all intersite shipments of plutonium for the surplus plutonium disposition program would be made using DOE's SST/SGT system. This involves having couriers that are armed Federal officers, an armored tractor to protect the crew from attack, and specially designed escort vehicles containing advanced communications and additional couriers. Further, the three DOE disposition facilities proposed in this SPD EIS are all at locations where plutonium would have the levels of protection and control required by applicable DOE safeguards and security directives. Safeguards and security programs would be integrated programs of physical protection, information security, nuclear material control and accountability, and personnel assurance. Security for the proposed facilities would be commensurate with the usability of the material in a nuclear weapon or improvised nuclear device. Physical barriers; access control systems; detection and alarm systems; procedures, including the two-person rule (which requires at least two people to be present when working with special nuclear materials in the facility); and personnel security measures, including security clearance investigations and access authorization levels, would be used to ensure that special nuclear materials stored and processed inside are adequately protected. Closed-circuit television, intrusion detection, motion detection, and other automated materials monitoring methods would be employed. Furthermore, the physical protection, safeguards, and security for the MOX facility and domestic, commercial reactors would be in compliance with NRC regulations.

The implementation process for international inspection of U.S. and Russian surplus plutonium is not fully defined. That process is part of ongoing sensitive negotiations being conducted to reach a bilateral plutonium disposition agreement between the United States and Russia in accordance with the Joint Statement of Principle, which was signed by Presidents Clinton and Yeltsin in September 1998.

ORD07-11**Transportation**

Transportation of surplus plutonium until it reaches its final disposition form would use DOE's SST/SGT system regardless of the approach taken. This system does not use a military escort, rather the SST/SGT system uses armed Federal officers. The cost of transportation to implement the surplus plutonium disposition program, regardless of the approach, is dependent on the number

of trips and the length of the various transportation segments. Table L-3 shows the number of trips and the distance traveled for each alternative. Some of the hybrid alternatives would require less transportation than some of the immobilization-only alternatives. However, the risks from transportation for all of the alternatives would likely be minor.

The MOX fuel would be managed essentially the same way as fresh LEU fuel. However, there would be tighter security and potentially higher costs. The plutonium would be received at the reactor site shortly before it would be inserted into the reactor. Any actual restrictions or requirements related to the storage of fresh MOX fuel would be imposed by NRC as part of the reactor operating license amendment.

ORD07-12

MOX Approach

If U.S. surplus plutonium is dispositioned as MOX fuel in the United States, it would be done with the stipulation that the material could only be used once and not reprocessed. U.S. policy dating back to the Ford Administration has prohibited the commercial, chemical reprocessing and separation of plutonium from spent nuclear fuel. The use of U.S. surplus plutonium in existing domestic, commercial reactors does not involve reprocessing (reprocessing is a chemical separation of uranium, transuranic elements [including plutonium], and fission products from spent reactor fuel and the reuse of the plutonium and uranium to produce new fresh fuel). There is no intention to change this policy to allow reprocessing at any time in the future.

The remainder of this comment is addressed in response ORD07-10.

Plutonium Disposition Study states "...Russia will ultimately recycle any plutonium left in the [MOX spent] fuel." And, "the U.S. objective of plutonium disposition" appears to be satisfied if MOX spent fuel "is stored for several decades before reprocessing." (Joint US/Russian Plutonium Disposition Study, September 1996, p. ExSum-2.) Therefore, if we choose the MOX option, the United State will be supporting the infrastructure for a plutonium economy in Russia and indeed perhaps promoting eventual reprocessing in the United States. This is a dangerous and intolerable outcome.

12

FOR ALL THE ABOVE REASONS THE DOE SHOULD DISCONTINUE THE MOX APPROACH FOR SURPLUS PLUTONIUM DISPOSITION.

13

*As far as the political maneuvers are concerned (noticing that Russia views Pu as an asset while the general view in the USA ranges from Special Nuclear Material to Economic and Environmental Liability) that just because Russia seems determined to jump over the edge of the cliff it does not mean that we must follow!! Instead we should remember that the United States in reality has the ultimate persuasion because we have more money and will be aiding Russia with its plutonium disposition. Russia has not seriously considered using MOX in LWRs until now.

14

Russian operating VVER-1000 reactors would not be able to consume 50 metric tons of surplus plutonium within the timeline of 20 to 40 years set by the joint panels. In order to have that happen, 3 partially built reactors would have to be finished, or reactors in Ukraine would have to be loaded with MOX or reactors would have to operate beyond their lifetimes which would increase safety risks. The MOX option in Russia is further complicated by the crumbling economy and the temptation of the black market. Instead we should offer subsidies to build pilot vitrification plants.

*The MOX option is completely unacceptable, but the vitrification process is also not without risk. Converting plutonium pits for glassification also involves health and safety risks and the creation of sidestream wastes.

15

ORD07

ORD07-13**MOX Approach**

This comment is addressed in response ORD07-3.

ORD07-14**Nonproliferation**

Close cooperation between the two countries is required to ensure that nuclear arms reductions cannot be easily reversed. Understanding the economic dilemma in Russia, the U.S. Congress has appropriated funding for a series of small-scale tests and demonstrations of plutonium disposition technologies jointly conducted by the United States and Russia. In fiscal year 1999 (starting October 1998), Congress further appropriated funding to assist Russia in design and construction of a plutonium conversion facility and a MOX fuel fabrication facility. This funding would not be expended until the presidents of both countries signed a new agreement. Although the amount appropriated by Congress is not sufficient to fund the entire Russian surplus plutonium disposition program, the United States is working with Russia and other nations to resolve this issue.

ORD07-15**Alternatives**

DOE acknowledges the commentor's concerns regarding health and safety risks associated with proposed surplus plutonium disposition facilities. All facilities for surplus plutonium disposition would be constructed and operated to meet applicable health and safety standards and some facilities may be subject to international inspection. DOE takes into consideration pollution reduction techniques to minimize environmental releases when designing, constructing, and operating its facilities. Analysis in this SPD EIS indicates that impacts to health, safety, and waste management from routine operation of the pit conversion, immobilization, and MOX facilities would likely be minor.

DOE has evaluated alternatives for immobilizing all of the surplus plutonium, however, DOE has identified as its preferred alternative the hybrid approach. As shown in the cost report, *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998), it is expected that the hybrid approach, which includes both immobilization and MOX fuel, would be more expensive than the immobilization-only approach. However, pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential

*If we are concerned for a swift resolution to the proliferation risk posed by plutonium, then vitrification is the better alternative because it can be accomplished in less time than the MOX option, is less expensive and has fewer facilities to manage and safeguard.

Any facilities used should be in strict compliance with the most stringent safety regulations and be under constant inspection. When sidestream wastes are generated it must be guaranteed to be isolated from the environment. Transport of hazardous materials must be kept at a minimum.

The people of Oregon do not want more contamination at Hanford. We have had to implore the DOE for a comprehensive assessment of Hanford waste upon the Columbia River. We have not received enough money for adequate monitoring let alone good containment or aggressive clean up. We will not tolerate MOX operations on any level at Hanford. Too many risks are involved. NOR WILL WE TOLERATE MOX ANYWHERE.

Contrary to the slogan advertisement of Hanford as a site of Environmental Excellence, we have seen as recently as the 5/14/97 explosion in the Plutonium Reclamation Facility that the management is inadequate. Even an ordinary chemical accident happened because of improper monitoring. Compounding the implications of such mismanagement is the fact that the official DOE NEWS release of May 28 stated "The team has verified that no radioactive materials were involved in the accident..." The admission of the presence of plutonium was not admitted until July. This implies that either management did not know what was happening or that issues vital to public safety were deliberately covered up. We will never be assured that the personnel at Hanford, or any workers anywhere for that matter, will be able to satisfactorily manage the MOX program. Hanford is not the site to handle any portion of the MOX program, we have enough problems on our hands

Why are we even considering the MOX option? It is more dangerous, more risky, more expensive, more problematic, involves more transport of fissile materials, opens more opportunities to terrorists and black market dealers and leaves us with spent fuels that are difficult and expensive to store for the long term. RUSSIA HAS STATED THAT THEY WOULD WANT TO REPROCESS, WHICH PROMOTES A PLUTONIUM ECONOMY AND

15

16

17

ORD07

disadvantages of implementing either approach by itself. It also gives the United States more leverage in negotiations with Russia as discussed in response ORD07-3. Operation of the proposed facilities is expected to take approximately the same amount of time for either the immobilization-only approach or the hybrid approach. The difference in timing for the hybrid approach is associated with the amount of time that MOX fuel would be irradiated in domestic, commercial reactors.

While DOE prefers to minimize the transportation of plutonium, it is routinely and safely transported in the United States. As described in Appendix L.3.3, transportation of nuclear materials would be performed in accordance with all applicable DOT and NRC transportation requirements. Interstate highways would be used, and population centers avoided, to the extent possible.

All shipments of surplus plutonium that had not been converted to a proliferation-resistant form would use DOE's SST/SGT system. The transportation of special nuclear materials is the subject of detailed planning with DOE's Transportation Safeguards Division. The dates and times that specific transportation routes would be used for special nuclear materials are classified information; however, the number of shipments that would be required, by location, has been included in this SPD EIS. Additional details are provided in *Fissile Materials Disposition Program SST/SGT Transportation Estimation* (SAND98-8244, June 1998), which is available on the MD Web site at <http://www.doe-md.com>.

ORD07-16

DOE Policy

DOE believes that Hanford's efforts should remain focused on its current high-priority cleanup mission. The importance of cleanup at Hanford was taken into consideration in identifying preferred sites for surplus plutonium disposition activities; however, no decision has been made, and DOE will continue to consider Hanford for surplus plutonium disposition or other programs that are compatible with the Hanford mission.

The News Release of May 28 correctly stated that the explosion did not involve radioactive materials. It reported: "The team has verified that no radioactive materials were involved in the accident that blew the steel lid off

the storage tank, rupturing the overhead fire protection water line.” This was reiterated in the eighth paragraph, which stated: “No evidence of radioactivity release during the accident has been found.” This statement was correct and the Summary Report of the Accident Investigation Board (July 26, 1997) confirmed in the last sentence of the third paragraph that no radioactive materials were involved in the explosion. It states: “Results of extensive sampling, contamination surveys, and stack monitoring data, show that nondetectable airborne radioactivity was released from the facility.” The May 28 News Release did acknowledge the potential presence of plutonium as part of the after-effects of the explosion. It stated in the last paragraph that: “analysis of water collected inside the building showed no chemical contamination. It contained radioactive contamination slightly above-background levels, which is believed to have come from a prior incident resulting from previous operations in the building.” The investigators were sure that this was not directly from the explosion. However, efforts did continue throughout the investigation to determine if the contamination had been carried from some other part of the building by the water that flowed from a cut in a small fire-suppression water line. However, this survey was complicated due to the preexisting spots of contamination in the same areas. This included contamination surveys where water had flowed out building doors. The result of this was a conservative position that the very small amount of contamination found outside, which was barely above-background counts, “was likely” carried out by the water. This was reported in the accident summary report as, “Water from the cut water line flooded the building, and some of it flowed out through various facility exit doors. Extensive surveys conducted inside and outside the building revealed radioactive contamination on the first floor of the facility, and a small area of slightly above-background levels of radioactive contamination outside, that was isolated and immobilized. The contamination found outside was likely the result of water flowing across walls and floors of contaminated areas of the facility, carrying radioactive material outside the building.” Following the May 1997 explosion at Hanford, a review of the emergency management response indicated that multiple programs and systems failed in the hours following the accident. In a letter to Secretarial Offices, Secretary of Energy Federico Peña identified action to be taken at all DOE sites to implement lessons learned as discussed in Section 3.2.4.5 of this SPD EIS. It is DOE’s

INCREASES HANDLING AND PROLIFERATION RISKS. RUSSIA
ALSO WANTS THE WEST TO FINANCE THE OPERATIONS AND
OFFER MONETARY INCENTIVES...MORE REASONS TO NIX MOX.

17

*The state of the world plutonium problem is so severe
that it will be a miracle if we accomplish the
disposition task. IT MAKES MOST SENSE TO CHOSE
STORAGE WHILE DEVELOPING IMMOBILIZATION TECHNIQUES AND
FINANCING ONLY THOSE OPTIONS WHICH DO NOT PROMOTE A
PLUTONIUM ECONOMY.*

18

Respectfully submitted,

Lynn Sims



Don't Waste Oregon Caucus
3959 NE 42
Portland, OR 97213

ORD07

policy to place public safety above other program goals. DOE is committed to public and worker safety during the construction, operation, and deactivation of the proposed surplus plutonium disposition facilities, and would implement appropriate controls and procedures to ensure compliance with all applicable Federal, State, and local laws, rules, regulations, and requirements.

ORD07-17

MOX Approach

This comment is addressed in responses ORD07-3, ORD07-12, and ORD07-14.

ORD07-18

MOX Approach

This comment is addressed in response ORD07-3.

DON'T WASTE OREGON CAUCAS
LYNN SIMS
PAGE 1 OF 2

AUGUST 18, 1998

Sims page 1

**SURPLUS PLUTONIUM DISPOSITION DRAFT ENVIRONMENTAL IMPACT
 STATEMENT PUBLIC COMMENT**

Thank you for holding a hearing regarding Plutonium Disposition in Portland. Even more hearings must be held on this important national and international policy making environmental impact statement. Plutonium policy must be democratized, not just made still in semi-secret, mainly holding hearings only in areas in the vicinities of involving those who are directly impacted by plutonium related jobs programs.

1

I take issue with the basic DOE statement that "this draft SPDEIS identifies reasonable alternatives for plutonium disposition." The dual track strategy is on the wrong track headed over the cliff to catastrophe. The MOX option promotes more handling, more transport, increased risk of accidents, increased risk of health problems, increased expenses, more problematic spent fuel disposal and more security risks than guarded storage or prompt immobilization. The Department's continued emphasis upon MOX fuels, in light of all we know today, as a reasonable disposition option, seems to reflect a lingering institutional insanity.

2

The Nuclear Control Institute argues that "using MOX fuel for commercial nuclear power plants is simply too expensive and too risky. Stimulating commerce in plutonium is a recipe for disaster. Mox takes too long. MOX costs too much. Tens of billions of dollars will probably be needed to underwrite the Russian nuclear power industry so that it can use MOX fuel. MOX is too dangerous. MOX fuel reduces the stability of reactor cores. MOX increases the severity of certain accidents. MOX undercuts non-proliferation and arms control." (Paul Leventhal, The Case Against Using Military Plutonium as Civilian Fuel, March 12, 1998)

This SPDEIS states that "the purpose of and need for the proposed action is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner." MOX is neither environmentally safe nor timely. Moreover, we have just had a terrible confirmation of the saying that "nuclear power, powers nuclear bombs" when India exploded the "peaceful atom". MOX would not curb proliferation. The more plutonium is handled and transported, the more risk there is of inaccurate accountability and diversion. If our purpose is to reduce the availability of plutonium, then promoting a plutonium economy, MOX fuel and Russian reprocessing is obviously THE WRONG TRACK.

3

In early August 1998 even Senator Domenici had called for a new approach to Plutonium Disposal in face of the astronomical expenses. The ENERGY DAILY explained that Senator Domenici learned from the Russian minister of atomic energy that Russia would pursue its MOX program only if the West paid for the construction of a MOX fuel fabrication plant in Russia... And paid additional compensation to encourage Russia to use the MOX in their reactors. This stupendous military-industrial complex corporate welfare would wreck the world budget.

ORD06

ORD06-1**General SPD EIS and NEPA Process**

DOE held a number of regional hearings in places such as Boston, Chicago, Denver, and San Francisco during the preparation of the Storage and Disposition PEIS. To provide for public comment on the SPD Draft EIS, DOE conducted public hearings near the potentially affected DOE sites, and therefore, with the most directly affected population. To encourage participation and comment by all interested citizens not in the vicinity of those public hearing locations, DOE provided a number of means for submitting comments: mail, a toll-free telephone and fax line, and the MD Web site. All comments submitted, orally and in writing, were considered equally in the preparation of this SPD EIS. DOE does not believe any additional hearings are necessary.

ORD06-2**Alternatives**

DOE acknowledges the commentator's opposition to the MOX approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again. By working in parallel with Russia to reduce stockpiles of excess plutonium, the United States can reduce the chance that weapons-usable nuclear material could fall into the hands of terrorists or rogue states.

Operation of the proposed surplus plutonium disposition facilities is expected to take approximately the same amount of time for either approach. The difference in timing for the hybrid approach is associated with the amount of time that MOX fuel would be irradiated in domestic, commercial reactors. However, none of the proposed reactors are expected to operate longer under the hybrid approach than they would if they continued to use LEU fuel.

Although cost will be a factor in the decisionmaking process, this SPD EIS contains environmental impact data and does not address the costs

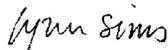
Sims page II

Domenici believes Russian officials would support conversion of plutonium to unclassified shapes and storage under international oversight. This is an idea that makes some kind of common sense for fast track securing of plutonium.

On top of all the economic, health, environmental and proliferation liabilities of the MOX option is the significant fact that no nongovernmental organization, public interest group or environmental organization either here or in Russia wants MOX to happen. In Russia the Center for Nuclear Ecology and Energy Policy of Socio-ecological Union of 200 environmental organizations has a special resolution against MOX fuel. Hundreds of Western groups signed on to a letter calling for an end to all policies and practices that would allow or encourage the use of plutonium as a fuel in nuclear power reactors in March of this year. We the people have the right to determine what future we want regarding the profound subject of plutonium disposition. It is very telling that it is only people who make money from MOX projects support it. This is the kind of damaged reasoning that places greed before responsibility to the people, the environment and future generations.

We don't want MOX operations at Hanford, or Pantex, or INEEL or Savannah River or at any site in Europe or Asia. Nobody in their right mind wants a plutonium economy and we ask you to do the right thing and reconsider going forward with MOX plans and concentrate only upon swift guarded storage and immobilization technologies.

Respectfully submitted,



Lynn Sims
Don't Waste Oregon Caucus
3959 NE 42
Portland, OR 97213

3

ORD06

associated with the various alternatives. A separate report, *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998), which analyzes the site-specific cost estimates for each alternative, was made available around the same time as the SPD Draft EIS. This report and the *Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document* (DOE/MD-0013, November 1999), which covers recent life-cycle cost analyses associated with the preferred alternative, are available on the MD Web site at <http://www.doe-md.com> and in the public reading rooms at the following locations: Hanford, INEEL, Pantex, SRS, and Washington, D.C.

Section 4.28 was revised to provide reactor-specific analyses and discuss the potential environmental impacts of using a partial MOX core. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

ORD06-3

DOE Policy

The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program.

DOE's surplus plutonium disposition program is not a profit-making venture. This SPD EIS does not consider the impacts of any of the alternatives on the Russian plutonium disposition program. However, DOE is working diligently to ensure that Russia continues to pursue plutonium disposition with the same vigor as the United States. The United States does not currently plan to implement a unilateral program; however, it will retain the option to begin certain surplus plutonium disposition activities in order to encourage the Russians and set an international example.

Sara Ennis
4546 NE Abneda
Portland, OR 97213

To the Secretary of Energy, 8/11/98
I am outraged by this environmentally and economically unjustifiable pursuit of nuclear energy as proposed by the plan to burn MOX fuel at Hanford or Savannah River, SC.

With the toxic facts in front of you, such as how long MOX requires to cool, problems of storage and transport, hazards of production how can you knowingly put a nuclear threat of such magnitude into anyone's back yard?

FD204

FD204-1

MOX Approach

DOE acknowledges the commentator's opposition to the MOX approach. Neither Hanford nor SRS has been proposed for irradiation of MOX fuel. Both sites, however, have been evaluated as candidate sites for the fabrication of MOX fuel. As indicated in the revised Section 1.6, SRS is preferred for the MOX facility because this activity complements existing missions and takes advantage of existing infrastructure and staff expertise.

DOE conducted a procurement process to acquire MOX fuel fabrication and irradiation services. The selected team, DCS, would design, request a license, construct, operate, and deactivate the MOX facility as well as irradiate the MOX fuel in domestic, commercial reactors. However, these activities are subject to the completion of the NEPA process. Section 4.28 was revised to discuss the potential environmental impacts of operating Catawba, McGuire, and North Anna, the reactors that would use the MOX fuel.

Use of MOX fuel in domestic, commercial reactors is not proposed in order to subsidize the commercial nuclear power industry. Rather, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors. The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract.

It would seem that the only economic reason for pursuing the incineration of MOX fuel, would be to boost the nuclear industry. Clearly the foreseeable costs are enormous and the unforeseeable costs, I suspect are beyond speculation.

The project in and of itself is blatantly stupid, but in consideration of the missed opportunity to develop clean, renewable sources of energy, I find the proposal absurd.

I sincerely hope that in the near future you take on a global perspective of health + safety in energy production.
Sincerely, Sara Ennis

FD204

Hello, my name is Joyce Fallingstead and I'm a concerned citizen from Portland, Oregon. I'm calling to say that I would like the MOX fuel, the mixed oxide fuel, to not be used in commercial nuclear reactors. I believe it is dangerous to distribute plutonium to reactors around the country both in regard to the handling involved, as well as the decentralization, as well as the transportation. I believe the immobilization of surplus plutonium through vitrification would be a much safer way of working with our surplus plutonium. I would like very much for the plutonium to not be used as a mixed oxide fuel, and, thank you for taking my comment. Bye-bye.

1

PD065

PD065-1**Alternatives**

DOE acknowledges the commentor's opposition to the MOX approach. The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again.

Transportation would be required for both the immobilization and MOX approaches to surplus plutonium disposition. Transportation of special nuclear materials, including fresh MOX fuel, would use DOE's SST/SGT system. Since the establishment of the DOE Transportation Safeguards Division in 1975, the SST/SGT system has transported DOE-owned cargo over more than 151 million km (94 million mi) with no accidents causing a fatality or release of radioactive material. The transportation requirements for the surplus plutonium disposition program are also evaluated in this SPD EIS.

Yeah, I would like a copy of the Surplus Plutonium Disposition Draft Environmental Impact Study. My name is Loren Fennell and my PO Box is 4111 Portland, Oregon 97208. Yeah, I would also like to make a comment on this, this disposition that, number 1) I know for a fact that there is, like, thousands of gallons of high and material of highly radioactive waste leaking in, into the watershed of the Columbia River and/or at least heading that way.

1

How many years do we have to wait, you know, before that's cleaned up and any more MOX fuel factories that will make and utilize other waste. I mean it's just, it's kind of crazy. It's not a very safe concept and I don't approve of it and I would just you know, hope that you know, we wake up to the alternatives to energy like wind, solar and bio-mass conversion of our garbage waste for example. So please take this into consideration and I would like a copy as soon as possible. And I thank you very much. Bye.

2

PD040

PD040-1

Water Resources

DOE acknowledges the commentor's concern regarding the quality of the Columbia River. Section 3.2.7 provides a description of water resources at Hanford, including their present condition. Section 4.26.1.2 summarizes the potential impacts on surface and groundwater that would result from the proposed surplus plutonium disposition facilities at Hanford. Surface water would not be used in construction or operation nor would there be direct discharges of wastewater from the facilities. Likewise, there would be no direct discharge of wastewater into the groundwater aquifer. All wastewater would be treated prior to discharge in facilities designed to meet NPDES permit limitations. Therefore, no impact on surface or groundwater quality or availability would be expected from the proposed facilities.

PD040-2

Other

DOE acknowledges the commentor's concern with the safety of the MOX approach, and support of alternative energy sources. Use of MOX fuel in domestic, commercial reactors is not proposed in order to subsidize the commercial nuclear power industry. Rather, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors. The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract. The commercial reactors selected for the MOX approach include only those reactors whose operational life is expected to last beyond the life of the surplus plutonium disposition program.

The MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to

the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

My name is Bruce Frazier. My address: 2012 South East Hemlock Ave, Portland, Oregon 97214. My telephone number: area code 503 238-8665. I'm calling to request a summary of the environmental impact statement on the draft Surplus Plutonium Disposition Environmental Impact Statement. I know a hearing was had here in Portland recently. I did not able to attend, but I want to get a copy of that and prepare written comments. So if you could send that off. Also, I do want to make the comment that I believe that the only safe disposition of excess and surplus plutonium and waste containing high percentages of plutonium is through vitrification and permanent storage. I do not favor any disposition of excess or surplus plutonium or associated nuclear materials through the use of MOX- mixed oxide fuel- or for burning in any kind of reactor or test facility. That's my immediate comment. But please send me the indicated materials. Thank you very much. Good bye.

1

PD034

PD034-1

Alternatives

DOE acknowledges the commentator's opposition to the MOX approach to surplus plutonium disposition. The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. To this end, surplus plutonium would be subject to stringent control, and the MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

This is my comment: I am against the MOX and would like the money used towards Hanford cleanup. Thank you.

1

PD039

PD039-1

Alternatives

DOE acknowledges the commentor's opposition to the MOX approach and support of cleanup at Hanford. DOE believes that Hanford's efforts should remain focused on its current high-priority cleanup mission. The importance of cleanup at Hanford was taken into consideration in identifying preferred sites for surplus plutonium disposition activities. However, no decision has been made, and DOE will continue to consider Hanford for surplus plutonium disposition or other programs that are compatible with the Hanford mission. Furthermore, funds for the surplus plutonium disposition program and environmental cleanup program come from different appropriation accounts allocated by the U.S. Congress that cannot be used interchangeably.

Hi there. This is Jessica Hamilton. I am a resident of Portland. My address is 831 Southwest Vista Avenue, Apartment 302, Portland, Oregon 97205 and I'm calling because I want to make sure that Hanford gets cleaned up and that you do not implement MOX. And I do not want to see you guys burn the weapon's plutonium and use it for commercial nuclear reactors. Thank you very much for the opportunity to comment.

1

PD030

PD030-1

Alternatives

DOE acknowledges the commentor's opposition to the MOX approach, and support of cleanup at Hanford. DOE believes that Hanford's efforts should remain focused on its current high-priority cleanup mission. The importance of cleanup at Hanford was taken into consideration in identifying preferred sites for surplus plutonium disposition activities. However, no decision has been made, and DOE will continue to consider Hanford for surplus plutonium disposition or other programs that are compatible with the Hanford mission.

The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. To this end, surplus plutonium would be subject to stringent control, and the MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

HANFORD WATCH
PAIGE KNIGHT
PAGE 1 OF 4

TESTIMONY ON THE SURPLUS PLUTONIUM DRAFT EIS
BY PAIGE KNIGHT, PRESIDENT OF HANFORD WATCH
August 18, 1998

Physicians for Social Responsibility had the courage and foresight years ago to designate radiation pollution as a "national public health and safety emergency" - a kind of creeping Chernobyl, spreading insidiously through our land, our food, our water.

Nuclear waste is continuing to accumulate with nowhere to go. Yucca Mountain, the supposed nuclear waste geological repository, in Native Shoshone land in Nevada, is costing millions upon millions of dollars and is proving to be scientifically unsound; it is not the safe dry place hoped for by politicians and the Nuclear Power Industry.

The Waste Isolation Pilot Project in New Mexico has been delayed once again because it does not yet measure up to the environmental standards deemed protective of public health and safety. Illegal dumping and release of wastes continue world wide into our oceans and into the land and into the sources of our groundwater.

Industry and politicians seek solutions that keep the waste problem --out of sight, out of mind-- in hopes of gaining more short-sighted profit and selfish economic advantage over the masses.

They wave, once again, their biblical prophecies and try to lull us into buying their sacrilegious interpretations of "turning swords into plowshares" only to hide from themselves and us that they will be plowing our fields with more toxic radioactive wastes with half-lives longer than the life of the human race thus far. They may bring about the demise not only of humankind but of planet earth because it is a "good business deal".

What has the nuclear endeavor brought us? Even now, with over eight nations calling for nuclear weapons to be declared illegal, the power struggle wages on with India, Pakistan, Israel, and Iran recently declaring themselves, through the testing of nuclear devices, to be nuclear capable and players at the "big table". The preferred option in this Draft EIS refuses to consider the global picture. The "Peaceful Atom" program has brought us to a point in history where the most deadly substance known to humankind (and created by us as well) is considered more powerful than peace, and more valuable than our gold money standard. This bodes ill for future generations.

Here are some of our "dividends" from the "Peaceful Atom":

- We have over 170 tons of commercial nuclear reactor waste world-wide;
- We have approximately 55,000 tons of "excess" military plutonium in the U.S.
- The U.S. taxpayer has paid between \$5.5 and \$6 trillion for nuclear weapons since 1940.
- Nuclear waste is being considered as an international asset rather than the most deadly waste known to humankind, and proliferation of plutonium and uranium abounds.

Dr. James C. Warf, who worked on the first atomic weapons and was the inventor of the PUREX technology, in recent years has stated that "I have come to learn that there are often large proliferation and other environmental impacts from such endeavors a reprocessing, despite the initial paper proposals that promise smooth operations.." We fear more of the same with the stakes becoming even higher in this age of terrorism and lack of moral integrity by the powerful brokers of the nuclear and weapons industry.

The 1988 shutdown of U.S. plutonium production reactors occurred because of several factors:

ORD01

ORD01-1

Repositories

DOE acknowledges the commentor's concerns regarding waste management. Radioactive waste cleanup is a DOE priority, and activities conducted under the surplus plutonium disposition program would be coordinated with other ongoing DOE programs including those associated with waste management, as discussed in Section 1.8.2.

ORD01-2

DOE Policy

DOE acknowledges the commentor's views on the surplus plutonium disposition program. The purpose of this proposed action is to safely and securely disposition the surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors.

ORD01-3

DOE Policy

In September 1993, President Clinton issued the Nonproliferation and Export Control Policy in response to the growing threat of nuclear proliferation. In late July 1998, Vice President Gore and Russian Prime Minister Sergei Kiriyenko signed a 5-year agreement to provide the scientific and technical basis for decisions concerning how surplus plutonium will be managed. This agreement enables the two countries to explore mutually acceptable strategies for safeguarding and dispositioning surplus plutonium. During the first week of September 1998, Presidents Clinton and Yeltsin held a Moscow summit and signed a statement of principles with the intention of removing approximately 50 t (55 tons) of plutonium from each country's stockpile.

The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Toward that end, this SPD EIS analyzes a nominal 50 t (55 tons) of surplus weapons-usable plutonium. In addition to 38.2 t (42 tons) of weapons-grade plutonium already declared by the President as excess to national security needs, the material analyzed includes weapons-grade

the devastating Chernobyl accident of 1986 which led to the discovery of the DOE's reactors inadequate containment buildings and other essential safety features; citizen's growing knowledge of the serious state of negligence in the nuclear weapons complex; and the reality of the enormous surplus of military plutonium.

3

The government has yet to deal with the environmental legacy left by a half of century of weapons production; cleanup is not being adequately dealt with leaving future generations contaminated water resources growing health and safety threats; the wastes that do exist have no safe storage place nor safe containment at this point in time and yet the proposed MOX alternative would add about three million gallons of highly radioactive liquid waste to storage tanks that are already fraught with safety problems. We have not found the will or way to stop the spread of nuclear arms and yet the terrorist acts in our own country and around the world continue to multiply. The plutonium in spent fuel is least likely to be stolen or diverted for violent purposes precisely because it has *not* been extracted through reprocessing.

4

The USDOE is contending that the options are equal in cost; this soft fact does not mesh with the National Academy of Sciences review of the options a few years ago. Their report concluded that the "MOX" option was by far the most expensive option. There has never been a nuclear reactor to my knowledge that has not run far over cost and presented unacceptable safety problems; one of the major safety problems identified by researchers is a greater risk of loss of control during reactor operation. As I have stated before, major concerns of public health and safety and proliferation of nuclear materials have not been adequately addressed. We join with the Hanford community is calling for a new draft EIS, but because all options and all impacts are not fully addressed. We also agree that politics has influenced the options presented to us in the EIS, rather than sound science that should far outweigh even the economics of these proposals. If these decisions are based solely on politics and economics the DOE is once again showing the public that we are expendable—health of the race and the planet means nothing to them.

5

6

I conclude with the following recommendations:

- Place all weapons-usable material that are extracted from leftover materials under international monitoring and safeguards.
- Fully fund improvements of underwater storage of corroding spent fuel, then to interim dry storage.
- Stop all actions and policies that encourage and subsidize the American Nuclear Industry and Russian plans to build a plutonium economy.
- Avoid a plutonium fuel cycle and economy for electrical generation anywhere in the world.
- Base decisions on a rational approach of analyzing truly long-term consequences nationally and globally.
- Limit all current reprocessing that is taking place at Savannah River Site to the legacies of our production years.
- Limit the transport of nuclear materials from one place or country to another.

7

Let me close with some pertinent quotes from Senator Mark Hatfield who has long seen through the nuclear myths perpetrated on the public by the spin masters of the Nuclear Industry:

8

ORD01

plutonium that may be declared surplus in the future, as well as weapons-usable, reactor-grade plutonium that is surplus to the programmatic and national defense needs of DOE.

Although the Chernobyl accident of 1986 led to further reviews of DOE's production reactors, it did not lead to the discovery of the inadequacy of containment structures nor the decision to shut down these reactors in 1988.

ORD01-4

DOE Policy

DOE acknowledges the commentor's concerns regarding wastes associated with the MOX approach. Analyses presented in Appendix H indicate that no HLW would be generated by the MOX facility and that all other waste types would be treated, stored, and disposed of in accordance with current site practices and procedures, WM PEIS RODs, WIPP ROD, and applicable agreements. Analyses presented in Section 4.28 indicate that the use of MOX fuel in domestic, commercial reactors would not appreciably change the characteristics or quantities of waste generated at the proposed reactor sites. The resulting spent nuclear fuel from these commercial reactors would continue to be managed in accordance with current practice and in a manner required by applicable regulations.

Further, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

ORD01-5

Cost

DOE acknowledges the commentor's concern regarding the cost of the MOX approach. Although cost will be a factor in the decisionmaking process, this SPD EIS contains environmental impact data and does not address the costs associated with the various alternatives. A separate report, *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition*

MARK O. HATFIELD

January 14, 1998

Ms. Paige Knight
 Hanford Watch
 2285 SE Cypress
 Portland, OR 97214

Dear Ms. Knight:

Thank you for your invitation to participate in today's Department of Energy hearing on altering the 1989 Hanford Tri-Party Agreement and restarting the Fast Flux Test Facility (FFTF) for the purpose of producing tritium for nuclear weapons. I regret that previous commitments prevent me from attending this critical event.

The persistence by some to exhume nuclear weapons production activities at Hanford never ceases to amaze me. It is shameful enough that the region has not taken steps to close its only operating commercial nuclear reactor, the WNP-2 plant at Hanford, even though an excellent case can be made against it now on purely economic grounds. This abdication of responsibility pales in comparison, however, to the insidious proposal to restart the aging FFTF research reactor for the purpose of producing tritium, a radioactive substance that enhances the destructive capability of nuclear weapons.

It is disappointing that this issue is even being seriously discussed here, a region of the country that has learned the hard way that the price of nuclear technology is much higher than the experts and proponents of nuclear power are ever honest enough to acknowledge. For example, the WPPSS nuclear debacle was one of the greatest economic disasters of the century, and continues to cost the region's electricity customers over \$500 million a year. The Department of Energy was forced to stop lying to the public and close the N Reactor at Hanford in 1988 when it was revealed that hundreds of millions of taxpayer dollars were being wasted producing a product (plutonium) for which there was no critical need. The clean up of the Hanford Reservation will cost hundreds of billions of dollars, take decades to accomplish, and continue to threaten human health and safety. The Trojan nuclear power plant in Oregon was closed because it was uneconomic, and still awaits decommissioning.

Considering all this, how could any rational person or bureaucracy consider adding to the nuclear misery already visited upon the Pacific Northwest? How many lessons do we have to learn before we turn away from the broken promises of nuclear myths? Hanford already is the

ORD01

(DOE/MD-0009, July 1998), which analyzes the cost and schedule estimates for each alternative, was made available around the same time as the SPD Draft EIS. This report and the *Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document* (DOE/MD-0013, November 1999), which covers recent life-cycle cost analyses associated with the preferred alternative, are available on the MD Web site at <http://www.doe-md.com> and in the public reading rooms at the following locations: Hanford, INEEL, Pantex, SRS, and Washington, D.C.

Section 4.28 was revised to discuss the potential environmental impacts of operating Catawba, McGuire, and North Anna, the reactors that would use the MOX fuel.

ORD01-6

General SPD EIS and NEPA Process

This SPD EIS presents the potential impacts on public health and safety of each of the alternatives considered in the document. The text reflects DOE's efforts to carefully collect comparable data on all of the alternatives, analyze those data in a consistent manner using well-recognized and accepted procedures, and present the results in a full and open manner. The range of reasonable alternatives was established using the screening criteria listed in Section 2.3.1 and public input. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

ORD01-7

DOE Policy

International inspections would take place throughout the surplus plutonium disposition process, starting at the end stages of the pit disassembly and conversion process. Section 2.4 discusses the sensitive negotiations taking place between the United States and Russia to implement international inspections. Spent fuel storage would take place at the commercial reactors that use the MOX fuel. Spent fuel onsite at the reactors has been and continues to be safely stored. These reactors are regulated by NRC.

Use of MOX fuel in commercial reactors is not proposed in order to subsidize the commercial nuclear power industry or produce electricity. As discussed in response ORD01-2, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard.

Ms. Paige Knight
January 14, 1998
Page 2

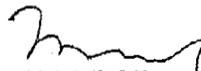
greatest environmental threat to the people of the Pacific Northwest. Restarting any nuclear reactor for weapons production purposes is misguided at best, and transparently evil, at worst. It also is a clear violation of the spirit and intent of the Tri-Party Agreement and a complete reversal of our focused mission over the last 20 years to clean up the largest environmental disaster area in the Nation.

Long ago the Northwest made decisions that turned us away from nuclear production of weapons material and electricity. It is time again to reject the sermons of the nuclear proselytizers and say no to those who preach death, destruction and ruin to our world and the region.

I commend you for your continued commitment to protecting the people and the environment of the Pacific Northwest. Do not hesitate to let me know if I can be of further service to your endeavors.

With kind regards.

Sincerely,



Mark O. Hatfield

ORD01

The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract.

U.S. policy dating back to the Ford Administration has prohibited the commercial, chemical reprocessing and separation of plutonium from spent nuclear fuel. The use of U.S. surplus plutonium in existing commercial reactors does not involve reprocessing (reprocessing is a chemical separation of uranium, transuranic elements [including plutonium], and fission products from spent reactor fuel and the reuse of the plutonium and uranium to produce new fresh fuel). The proposed use of MOX fuel is consistent with the U.S. nonproliferation policy and would ensure that plutonium which was produced for nuclear weapons and subsequently declared excess to national security needs is never again used for nuclear weapons. Furthermore, the MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program.

Transportation of special nuclear materials would use DOE's SST/SGT system. Since the establishment of the DOE Transportation Safeguards Division in 1975, the SST/SGT system has transported DOE-owned cargo over more than 151 million km (94 million mi) with no accidents causing a fatality or release of radioactive material. As discussed in Section 2.3.1, minimizing transportation was a consideration in developing the alternatives.

The proposed action does consider national and global long-term consequences of removing 50 t (55 tons) of plutonium considered surplus from both U.S. and Russian stockpiles. Decisions on the U.S. surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

ORD01-8

DOE Policy

DOE acknowledges the commentor's quotes from Senator Mark Hatfield.

The U.S. Department of Energy needs to hear your voice NOW!
What do you think about a new era of nuclear proliferation?

Hanford Action of Oregon will forward this questionnaire to USDOE. Please circle your responses.

1. Should clean-up be the sole mission at Hanford? 1
 Yes No
2. Should the United States government maintain its longstanding policy opposing the use of weapons plutonium to fuel civilian nuclear reactors? 2
 Yes No
3. Should commercial nuclear reactors be allowed to run on MOX fuel containing weapons-grade plutonium? 3
 Yes No
- 3a. Should they be subsidized with tax dollars to do so? 3
 Yes No
4. Which alternative would you prefer to see the U.S. Department of Energy pursue: 4
Immobilization (encasement of plutonium in glass logs or in canisters for entombment) *although I don't have confidence in the entombing material*
OR
The MOX plan (processing plutonium into fuel for use in civilian nuclear reactors).
5. How concerned are you about the transportation of plutonium through the Northwest to Hanford? 5
Not concerned Slightly Concerned Very Concerned Completely opposed
6. How concerned are you about transporting plutonium MOX fuel through the Northwest to Hanford? 5
Not concerned Slightly Concerned Very Concerned Completely opposed
7. Should MOX fuel be used to restart the Fast Flux Test Facility (FFTF), a risky liquid-metal reactor at Hanford, to produce tritium for nuclear bombs? 6
 Yes No

Name Gretchen Janzon
Address 2323 NE 57th Ave PDX OR 97213
Phone _____ e-mail _____

Please return to Hanford Action of Oregon by September 10, 1998.

Hanford Action of Oregon
25-6 NW 23rd Pl. #406 tel: (503) 235-2924 fax: (503) 736-0097 e-mail: hannie@aol.com

MD227

MD227-1

DOE Policy

DOE believes that Hanford's efforts should remain focused on its current high-priority cleanup mission. The importance of cleanup at Hanford was taken into consideration in identifying preferred sites for surplus plutonium disposition activities. However, no decision has been made, and DOE will continue to consider Hanford for surplus plutonium disposition or other programs that are compatible with the Hanford mission.

MD227-2

Nonproliferation

U.S. policy dating back to the Ford Administration has prohibited the commercial, chemical reprocessing and separation of plutonium from spent nuclear fuel. The use of U.S. surplus plutonium in existing domestic, commercial reactors does not involve reprocessing (reprocessing is a chemical separation of uranium, transuranic elements [including plutonium], and fission products from spent reactor fuel and the reuse of the plutonium and uranium to produce new fresh fuel). The proposed use of MOX fuel is consistent with the U.S. nonproliferation policy and would ensure that plutonium which was produced for nuclear weapons and subsequently declared excess to national security needs is never again used for nuclear weapons. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program.

MD227-3

MOX Approach

Use of MOX fuel in domestic, commercial reactors is not proposed in order to subsidize the commercial nuclear power industry. Rather, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors. The MOX facility would produce nuclear fuel that would

displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract. The commercial reactors selected for the MOX approach include only those reactors whose operational life is expected to last beyond the life of the surplus plutonium disposition program.

MD227-4

Alternatives

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again.

Under the hybrid approach, approximately 33 t (36 tons) of clean plutonium metal and oxides would be used to fabricate MOX fuel, which would be irradiated in domestic, commercial reactors. DOE has determined that 17 t (19 tons) of surplus, low-purity, nonpit plutonium is not suitable for fabrication into MOX fuel because of the complexity, timing, and cost that would be involved in purifying those plutonium materials. Therefore, fabricating all 50 t (55 tons) of surplus plutonium into MOX fuel is not a reasonable alternative and is not analyzed; however, immobilizing all of the surplus plutonium is analyzed. Given the variability in purity of the surplus plutonium to be dispositioned, some of the plutonium currently considered for MOX fuel fabrication may also need to be immobilized. The incremental impacts that would be associated with a small shift in materials throughput are discussed in Section 4.30.

Testing is underway to confirm that the immobilized plutonium would meet the performance criteria for disposal in a potential geologic repository pursuant to the NPWA.

MD227-5**Transportation**

The shipment of nuclear material (e.g., depleted uranium) using commercial carriers would be the subject of detailed transportation plans in which routes and specific processing locations would be discussed. These plans are coordinated with State, tribal, and local officials. The shipment of waste would be in accordance with the decisions reached on the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DOE/EIS-0200-F, May 1997) and the *WIPP Disposal Phase Final Supplemental EIS* (DOE/EIS-0026-S-2, September 1997). The transportation of special nuclear materials is the subject of detailed planning with DOE's Transportation Safeguards Division. The dates and times that specific transportation routes would be used for special nuclear materials are classified information; however, the number of shipments that would be required, by location, has been included in this SPD EIS. Additional details are provided in *Fissile Materials Disposition Program SST/SGT Transportation Estimation* (SAND98-8244, June 1998), which is available on the MD Web site at <http://www.doe-md.com>.

MD227-6**DOE Policy**

As discussed in Section 1.7.4, Appendix D was deleted because none of the proposals to restart FFTF currently consider the use of surplus plutonium as a fuel source. In December 1998, the Secretary of Energy decided that FFTF would not play a role in producing tritium.

The U.S. Department of Energy needs to hear you voice NOW!
What do you think about a new era of nuclear proliferation?

Hanford Action of Oregon will forward this questionnaire to USDOE. Please circle your responses.

1. Should clean-up be the sole mission at Hanford? *do you mean burying this?*
Yes No 1
2. Should the United States government maintain its longstanding policy opposing the use of weapons plutonium to fuel civilian nuclear reactors? *if this has already been so-*
Yes No 2
3. Should commercial nuclear reactors be allowed to run on MOX fuel containing weapons-grade plutonium? *why do we have so much to dispose of?*
Yes No 3
- 3a. Should they be subsidized with tax dollars to do so? *why are we producing this material.*
Yes No 3
4. Which alternative would you prefer to see the U.S. Department of Energy pursue: *no wonder that Iran does not want to cooperate!*
Immobilization (encasement of plutonium in glass logs or in caskets for entombment) OR 4
The MOX plan (processing plutonium into fuel for use in civilian nuclear reactors).
But this is ultimately very dangerous.
5. How concerned are you about the transportation of plutonium through the Northwest to Hanford? *where was it manufactured?*
Not concerned Slightly Concerned Very Concerned Completely opposed 5
6. How concerned are you about transporting plutonium MOX fuel through the Northwest to Hanford? *if it was not too risky to develop - then keep it there.*
Not concerned Slightly Concerned Very Concerned Completely opposed 5
7. Should MOX fuel be used to restart the Fast Flux Test Facility (FFTF), a risky liquid-metal reactor at Hanford, to produce tritium for nuclear bombs?
Yes No 6

Name Rose Mary Joslin
Address 3134 NE 62nd
Phone 503-282-8999 e-mail _____

Please return to Hanford Action of Oregon by September 10, 1998.

Hanford Action of Oregon

25-6 NW 23rd Pl. #406 tel: (503) 235-2924 fax: (503) 736-0097 e-mail: hannie@aol.com

MD299

MD299-1

DOE Policy

DOE believes that Hanford's efforts should remain focused on its current high-priority cleanup mission. The importance of cleanup at Hanford was taken into consideration in identifying preferred sites for surplus plutonium disposition activities. However, no decision has been made, and DOE will continue to consider Hanford for surplus plutonium disposition or other programs that are compatible with the Hanford mission.

MD299-2

Nonproliferation

U.S. policy dating back to the Ford Administration has prohibited the commercial, chemical reprocessing and separation of plutonium from spent nuclear fuel. The use of U.S. surplus plutonium in existing domestic, commercial reactors does not involve reprocessing (reprocessing is a chemical separation of uranium, transuranic elements [including plutonium], and fission products from spent reactor fuel and the reuse of the plutonium and uranium to produce new fresh fuel). The proposed use of MOX fuel is consistent with the U.S. nonproliferation policy and would ensure that plutonium which was produced for nuclear weapons and subsequently declared excess to national security needs is never again used for nuclear weapons. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program.

In late July 1998, Vice President Gore and Russian Prime Minister Sergei Kiriyenko signed a 5-year agreement to provide the scientific and technical basis for decisions concerning how surplus plutonium will be managed. This agreement enables the two countries to explore mutually acceptable strategies for safeguarding and dispositioning surplus plutonium. During the first week of September 1998, Presidents Clinton and Yeltsin held a Moscow summit and signed a statement of principles with the intention of removing approximately 50 t (55 tons) of plutonium from each country's stockpile.

MD299-3**MOX Approach**

Use of MOX fuel in domestic, commercial reactors is not proposed in order to subsidize the commercial nuclear power industry. Rather, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors. The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract. The commercial reactors selected for the MOX approach include only those reactors whose operational life is expected to last beyond the life of the surplus plutonium disposition program.

MD299-4**Alternatives**

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again.

Under the hybrid approach, approximately 33 t (36 tons) of clean plutonium metal and oxides would be used to fabricate MOX fuel, which would be irradiated in domestic, commercial reactors. The remaining 17 t (19 tons) of surplus, low-purity, nonpit plutonium is not suitable for fabrication into MOX fuel because of the complexity, timing, and cost that would be involved in purifying those plutonium materials. Therefore, fabricating all 50 t (55 tons) of surplus plutonium into MOX fuel is not a reasonable alternative and is not

analyzed; however, immobilizing all of the surplus plutonium is analyzed. Given the variability in purity of the surplus plutonium to be dispositioned, some of the plutonium currently considered for MOX fuel fabrication may also need to be immobilized. The incremental impacts that would be associated with a small shift in materials throughput are discussed in Section 4.30.

MD299-5

Transportation

The shipment of nuclear material (e.g., depleted uranium) using commercial carriers would be the subject of detailed transportation plans in which routes and specific processing locations would be discussed. These plans are coordinated with State, tribal, and local officials. The shipment of waste would be in accordance with the decisions reached on the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DOE/EIS-0200-F, May 1997) and the *WIPP Disposal Phase Final Supplemental EIS* (DOE/EIS-0026-S-2, September 1997). The transportation of special nuclear materials is the subject of detailed planning with DOE's Transportation Safeguards Division. The dates and times that specific transportation routes would be used for special nuclear materials are classified information; however, the number of shipments that would be required, by location, has been included in this SPD EIS. Additional details are provided in *Fissile Materials Disposition Program SST/SGT Transportation Estimation* (SAND98-8244, June 1998), which is available on the MD Web site at <http://www.doe-md.com>.

MD299-6

DOE Policy

As discussed in Section 1.7.4, Appendix D was deleted because none of the proposals to restart FFTF currently consider the use of surplus plutonium as a fuel source. In December 1998, the Secretary of Energy decided that FFTF would not play a role in producing tritium.

Kathleen Juergens
 3229 NE 7th Ave.
 Portland, OR 97212

TESTIMONY GIVEN AT USDOE PUBLIC HEARING
 August 18, 1998
 Portland, Oregon

My name is Kathleen Juergens, and I'm a working person who lives in Northeast Portland. I'm here on behalf of myself, and I'm also here in solidarity with all the other people of our region of Cascadia, and all my sisters and brothers throughout the rest of the country.

I am not here to debate the DOE's plan to convert surplus plutonium into so-called "MOX fuel" and burn it in commercial reactors. We all know this is a bad idea. We all know there is not one shred of evidence that the MOX fuel plan will provide us with safe and useable energy, or a sustainable source of jobs, or even with a method of disposing of plutonium! We all know that the MOX plan will leave us with far more hazardous radioactive waste in our communities than we had before. We all know that the MOX plan will cost far more than vitrification, and will pump many more billions of our hard-earned tax money into the nuclear welfare state. We all know that NOBODY stands to benefit from this insane plan except a handful of rich nuclear industrialists. We know all these things, and DOE knows them too.

I am not here to beg and plead and ask nicely: Please stop poisoning the air and the water. Please stop giving us cancer. Please stop creating more lethal radioactive waste. Please stop threatening us with nuclear annihilation. Here in the Northwest, we are way past "please." We have asked nicely, and DOE has not listened.

No, I am here to express my OUTRAGE at the fact that I have to be here at all. At the fact that, after hearing loud and clear, over and over again, from almost everybody in the Northwest, that this nuclear nightmare in our backyard has got to end, the DOE comes back to us yet again, with yet another plan that insults our intelligence and assaults our spirits. I am outraged that anybody ever even THOUGHT about abandoning the cleanup mission at Hanford. If anybody at DOE had ever listened to the people of the Northwest--or cared at all for our health, our livelihoods, our survival--this MOX plan would never have been proposed in the first place. This whole hearing is an outrage.

I am here to DEMAND that the MOX plan be withdrawn. We do not want MOX here at Hanford. We do not want MOX at Savannah River, South Carolina. We do not want MOX anywhere. Vitrification is not a wonderful alternative, but it's the best thing we've come up with so far for temporarily dealing with--not solving--the problem of plutonium disposal. The MOX plan is nothing but an outrage. Withdraw it, and withdraw it NOW!

ORD05-1

Alternatives

DOE acknowledges the commentator's opposition to the MOX approach to surplus plutonium disposition. DOE believes that Hanford's efforts should remain focused on its current high-priority cleanup mission. The importance of cleanup at Hanford was taken into consideration in identifying preferred sites for surplus plutonium disposition activities. However, no decision has been made, and DOE will continue to consider Hanford for surplus plutonium disposition or other programs that are compatible with the Hanford mission.

The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. To this end, surplus plutonium would be subject to stringent control, and the MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing.

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

 **Question/ Information Request Card**

Name: MAURA McLOUGHLIN
Address: PO. Box 22946
PORTLAND OR 97269
Phone: 251-4928 Fax: _____
E-mail: _____
Question/ Request: Re: Surplus Plutonium Report
I would like it edited way down.
I found it extremely repetitive.
Also, it found the tables general toward

For further information contact:
U.S. Department of Energy, Office of Fissile Materials Disposition, MD-4
Forrestal Building, 1000 Independence Ave., SW, Washington, D.C. 20585
1-800-820-5159

Professional rather than the public →

1

ORD15

ORD15-1

General SPD EIS and NEPA Process

DOE has and will continue to work toward the goal of presenting technical information, in writing or verbally, in readily understandable language and avoid the use of jargon (technical slang). Specifically, our aim is to provide information at a high school comprehension level. Because the disposition of surplus plutonium is a technically complex program, we must use some scientific and technical terms in order to accurately describe how DOE proposes to dispose of surplus plutonium, and the environmental effects of taking those actions. For further clarification of the issues addressed in this SPD EIS, duplication of information is eliminated where possible, and various reader aids (e.g., a glossary, a list of acronyms, a metric conversion chart) are incorporated.

Thank you for sending me
the report, I hope in future
for a report geared toward
the public.

Thank you again,

Maura McLoughlin

ORD15



United States
Department
of Energy

Comment Form

NAME: (Optional) Nancy Metrick
ADDRESS: 2031 NW Johnson #3 Portland, OR 97209
TELEPHONE: (503) 226-9480
E-MAIL:

I DO NOT WANT MOX /
PERIOD /

[Signature]

1

ORD13

ORD13-1

MOX Approach

DOE acknowledges the commentor's opposition to the MOX approach. The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. To this end, surplus plutonium would be subject to stringent control, and the MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

Yes, my name is Dr. Martin Donahoe. I'm a physician on faculty at Oregon Health Sciences University, interested in environmental issues and I teach these issues to both our medical students and our internal medicine residents and I wanted to weigh in with my opinion against the MOX, mixed oxide, fuel approach to using plutonium and uranium in reactors. I certainly would favor the other option being immobilization which would be less expensive, safer for the environment and also send a message to Russia and the rest of the world that we think of plutonium more as a, a dangerous waste product that it is rather than a source of energy. My number is (503) 494-6495. Thank you.

1

PD063

PD063-1**Alternatives**

DOE acknowledges the commentator's opposition to the MOX approach to surplus plutonium disposition. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in nuclear weapons again.

This SPD EIS identifies and analyzes potential environmental and human health impacts that might result from the construction and normal operation of proposed surplus plutonium disposition facilities. As described in Chapter 4 of Volume I and summarized in Section 2.18, potential impacts of any of the proposed activities would likely be minor. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.