Is aqueous processing a contingency in the SPD EIS? The Weapons Monitor has criticized DOE for not considering aqueous processing. | 1

The metals-only option was not evaluated. It was described by Los Alamos National Laboratory (LANL) as the most effective. | 2

A significant number of pits are contaminated with tritium. Tritium-contaminated pits were not tested at Lawrence Livermore National Laboratory because of the tritium concern. Tritium issues were not addressed in the SPD EIS. | 3

The SPD EIS does not cover a lot of the issues associated with pit disassembly and conversion. | 4

PANTEX–1 **Plutonium Polishing and Aqueous Processing**

There are two basic technologies available for the conversion of pit plutonium into plutonium dioxide: wet (aqueous) and dry processing. DOE determined that aqueous processing, a proven technology, is not a reasonable alternative for pit conversion because current aqueous processes using existing facilities would produce significant amounts of waste, and aqueous processing would complicate international safeguard regimes. Therefore, the remaining technology, dry processing, was analyzed in the *Storage and Disposition PEIS* and this SPD EIS. DOE is currently demonstrating the dry plutonium conversion process as an integrated system at LANL. This activity is described in the *Pit Disassembly and Conversion Demonstration EA* (DOE/EA-1207, August 1998), which is available on the MD Web site at http://www.doe-md.com.

PANTEX–2 **Alternatives**

The metals-only option would convert the plutonium from pits into metal for long-term storage. This option was not evaluated in this SPD EIS because it does not render the plutonium proliferation-resistant. Immobilizing the plutonium or converting it to MOX fuel and then irradiating the fuel would meet 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.

PANTEX–3 **Alternatives**

Section 2.4.1.2 was revised to include a discussion of tritium-contaminated pits.

PANTEX–4 **Pit Disassembly and Conversion**

DOE acknowledges the commentor's concern that not all issues associated with the pit disassembly and conversion process are addressed in this SPD EIS. This EIS reflects a thorough analysis of impacts, including air quality, human health risk, waste management, and socioeconomics, that would be associated with the siting of a pit conversion facility at either Hanford, INEEL, Pantex, or SRS. Also evaluated were impacts on other resources (i.e., geology and

I want a more in-depth discussion of risks associated with the plutonium and tritium mission. | 5

soils, water resources, ecological resources, cultural and paleontological resources, land use and visual resources, and infrastructure), but only in terms of the alternative that would have the greatest impact on the resource. The alternative analyzed was generally that which would involve locating the largest number of facilities at a given site. Impact analyses are summarized in Chapter 4 of Volume I. More detailed information on the pit disassembly and conversion process is included in the data reports for each candidate site referenced in this EIS. These references can be obtained from local DOE reading rooms.

DOE's *Pit Disassembly and Conversion Demonstration EA* (DOE/EA-1207, August 1998) analyzes the environmental impacts of a demonstration to test an integrated pit disassembly and conversion process on a relatively small sample of plutonium pits and metals at LANL. The information gathered in that demonstration will be used to supplement information developed to support the construction of a full-scale pit conversion facility, if DOE decides to build such a facility. The demonstration focuses on equipment design and process development. Since it could continue for up to 4 years, information transfer conducive to fine-tuning the operational parameters of a pit conversion facility could be provided continually throughout the facility design phase. The EA is available on the MD Web site at http://www.doe-md.com.

PANTEX–5 **Human Health Risk**

This SPD EIS identifies and analyzes potential human health impacts that might result from construction and normal operation of the proposed surplus plutonium disposition facilities. The Human Health Risk and Facility Accidents sections in Chapter 4 of Volume I discuss the effects on the public of potential radiological releases. DOE policy places public safety above other program goals, and requirements have been established to protect the safety and health of the public. DOE considers the protection of the public against accidents in the design, location, construction, and operation of its facilities.

The tritium mission is beyond the scope of this EIS. The *Final Programmatic Environmental Impact Statement for Tritium Supply and Recycling* (DOE/EIS-0161, October 1995) evaluates alternatives for new tritium production and for the recycling of tritium recovered from weapons retired from service.

The No Action Alternative is not a viable alternative because the half-life of plutonium is 20,000 years. The No Action Alternative leaves the material in a form that invites terrorism and environmental problems; we should not leave these issues for future generations. 6

Pit disassembly and conversion should be kept separate from MOX and immobilization to be able to have accountability for Russian plutonium disposal. 7

DOE should dismantle weapons materials as soon as possible by moving forward with the pit disassembly and conversion mission. 8

PANTEX–6 **Alternatives**

DOE acknowledges the commentor's opposition to implementing the No Action Alternative. Analysis of the No Action Alternative is required under NEPA. Section 2.5 indicates that the No Action Alternative would not satisfy the purpose and need for the proposed action because DOE's disposition decisions in the *Storage and Disposition PEIS* ROD would not be implemented. As indicated in Section 1.6, DOE has identified as its preferred alternative the hybrid approach (i.e. immobilization and MOX) to disposition surplus plutonium.

PANTEX–7 **Nonproliferation**

The United States and Russia recently made progress in the management and disposition of plutonium. 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. Because each country is responsible for separately disposing of its own stockpiles of surplus plutonium, this agreement contains provisions for developing verification methods and technology. These include appropriate international verification measures and stringent standards of physical protection, control, and accounting for the management of plutonium. IAEA is charged with verifying compliance with international nonproliferation policies. As discussed in Section 2.4, there are provisions for international inspections of each of the proposed surplus plutonium disposition facilities.

PANTEX–8 **Pit Disassembly and Conversion**

DOE acknowledges the commentor's support for pit disassembly and conversion. DOE plans to move ahead with the surplus plutonium disposition program as expeditiously as possible. However, the proposed surplus plutonium disposition facilities would not be constructed until significant progress was made by the Russian government on its plutonium disposition program. Schedules for construction and operation of the proposed facilities are provided in Appendix E.

There is political controversy surrounding the MOX option. I believe the MOX option will fade as more is analyzed and understood about the materials. | 9

The pit disassembly and conversion mission should go to an established site. | 10

Technology for converting pits into an oxide form has not been demonstrated; DOE is getting ahead of itself. | 11

The nuclear community indicated at a meeting in Atlanta, Georgia, that it does not trust the ARIES process for oxide. DOE, however, amended the RFP to allow the ARIES process. | 12

PANTEX–9 **MOX Approach**

DOE acknowledges the commentor's opinion regarding the MOX approach.

PANTEX–10 **Alternatives**

DOE acknowledges the commentor's opinion that the pit conversion facility should be located at an established site. As indicated in the revised Section 1.6, SRS is preferred for the pit conversion facility because the site has extensive experience with plutonium processing, and the pit conversion facility complements existing missions and takes advantage of existing infrastructure. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–11 **Pit Disassembly and Conversion**

The process that will be used to convert the plutonium in pits to an oxide is not new; each step has been successfully demonstrated. For the proposed action, however, those steps would be linked for the first time as a full-scale, integrated process. DOE's *Pit Disassembly and Conversion Demonstration EA* (DOE/EA-1207, August 1998) analyzes the environmental impacts of a demonstration to test an integrated pit disassembly and conversion process on a relatively small sample of plutonium pits and metals at LANL. The information gathered in that demonstration will be used to supplement information developed to support the construction of a full-scale pit conversion facility, if DOE decides to build such a facility. The demonstration focuses on equipment design and process development. Since it could continue for up to 4 years, information transfer conducive to fine-tuning the operational parameters of a pit conversion facility could be provided continually throughout the facility design phase. The EA is available on the MD Web site at http://www.doe-md.com.

PANTEX–12 **Alternatives**

The ARIES process is one of the pit conversion process steps, in which the pits are disassembled and the plutonium is separated from other pit components and converted into plutonium dioxide. The scope of work reflected in the *RFP for MOX Fuel Fabrication and Reactor Irradiation*

Both the ARIES and MOX processes were evaluated in the Independent Risk Study. Based on my background, the data presented is current, relevant, and accurate. 13

Can DOE say with certainty that it is cheaper to build and operate facilities at SRS than at Pantex? 14

The American Federation of Labor-Congress of Industrial Organizations (AFL-CIO) has a strong working relationship with DOE and has met with past Secretaries to develop programs to reduce costs that resulted in a savings of $50 million for taxpayers. The AFL-CIO is actively working to seek out ways for improving cost efficiency in workforce practices. 15

Services (May 1998) would begin after the production of plutonium dioxide. Because there was some discussion that the resulting plutonium might contain too much gallium to meet the MOX fuel specifications, the RFP was amended to allow the offerors to propose an additional polishing step for gallium removal.

PANTEX–13 **Alternatives**

DOE acknowledges the commentor's conclusion that the data in the Independent Risk Study is current, relevant, and accurate.

PANTEX–14 **Cost**

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* (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.

PANTEX–15 **Cost**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at Pantex. 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

Clarification of the cost report is needed. Some of the pit disassembly and conversion facility needs for SRS are being rolled into the design changes for the APSF and are not being reflected in the cost estimates. The need for a source calibration facility is also not covered. The indirect cost factors are not covered. 16

I am pleased that Laura Holgate is stepping in to head up the plutonium disposition mission, which is an international issue as well as a national concern. As the National Academy of Sciences stated, surplus plutonium represents a clear and present danger. The United States needs to demonstrate leadership and technology for Russia. 17

Engaging Russia has the added benefit of reaching and leading a broader international audience in dispositioning surplus weapons materials. A bilateral agreement is being negotiated with Russia for inspecting nonclassified material. Involving the international community opens up opportunities for transparency. 18

Washington, D.C. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–16 **Cost Report**

Because this comment relates directly to the cost analysis report, it has been forwarded to the cost analysis team for consideration. 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, is 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.

PANTEX–17 **DOE Policy**

DOE acknowledges the commentor's support for the leadership 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. 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.

PANTEX–18 **DOE Policy**

DOE agrees that close cooperation between the United States and Russia is essential to achieve the objectives of nonproliferation and arms reduction, and to ensure secure management of nuclear weapons materials. To that end, 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 pit disassembly and conversion mission is a huge decision for the nation. Components of the mission must be handled with care. DOE needs to move forward in demilitarizing the pits and moving the material into safe and secure storage ultimately under the purview of International Atomic Energy Agency inspection and control. DOE needs to demonstrate a leadership roleCthis opens up a lot of opportunity for transparency and knowing what is going on in both Russia and the United States. 19

I don't believe we need to tear down so many weapons. I believe we need to keep our big stick; I hope we never have to use it. Slow down the dismantlement of weapons, and use caution in tearing down military resources that may be needed in the future. 20

We urge you not to let political urgency influence the decision made to house and dilute these plutonium pits. We urge you to select Pantex. 21

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. One of the seven principles that were agreed upon relates to acceptable methods and technology for transparency measures, including appropriate international verification measures and stringent standards of physical protection, control, and accounting for management of the plutonium.

PANTEX–19 **DOE Policy**

DOE agrees that bilateral monitoring with Russia of the classified plutonium material and international inspection of the unclassified material would give assurances to the world of U.S. leadership in plutonium disposition. Once the United States and Russia completed an agreement providing the basis for exchanging classified nuclear information, the procedures to be used for inspection of pits in storage could be adapted to contribute to the bilateral monitoring of pit conversion facilities. As shown in Figure 2–7, accommodation for international inspection of the unclassified material has been incorporated into the design of the pit conversion facility. International monitoring and inspection of the unclassified plutonium would also allow the United States and Russia to demonstrate to each other and to the world that disposition is being carried out under stringent nonproliferation controls, and that the excess plutonium is not being diverted for reuse in weapons.

PANTEX–20 **DOE Policy**

DOE acknowledges the commentor's view regarding national defense. Declaration of surplus weapons is made by the President in response to recommendations from the Nuclear Weapons Council, which consists of representatives from DOE, DoD, and the Joint Chiefs of Staff.

PANTEX–21 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

Let Pantex's excellent track record speak for itself; we are the obvious choice. | 22

The disposition of pits can be done in the most timely fashion at Pantex. Pantex's current capabilities will allow the United States to achieve some high-level goals, accelerate timeliness, and offers opportunity for inspection and collaboration with Russia. | 23

Amarillo supports Pantex for the new pit disassembly and conversion mission. Keep the work at Pantex. Pantex has a highly trained workforce capable of meeting the pit disassembly and conversion mission. Pantex has one of the best safety records in the DOE complex and rarely has off-normal or unusual occurrences. There is a strong health program at Pantex. DOE orders are followed strictly, and Pantex's workforce is healthier and safer than Savannah River's workforce. | 24

Pantex is a secure location. Pits are already located at Pantex, which is a strong argument for siting the pit disassembly and conversion facility at Pantex. Performing the pit disassembly and conversion mission at Pantex lessens the risk of nuclear proliferation. | 25

Pantex plays an important role in the local community; the community is allowed to participate in environmental safety and health oversight. There is a strong spirit of community cooperation and support for the Pantex site, including the Amarillo business community. | 26

PANTEX–22 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–23 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–24 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–25 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–26 **Other**

DOE acknowledges the strong community support for Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on public input, environmental analyses, technical and cost reports, and national policy and nonproliferation considerations.

Texas has a long and healthy relationship in working with DOE and the Federal Government to meet defense needs. The State of Texas support along with the support of the AFL-CIO is a powerful ally for the Department. It makes no sense to do the work any place else. | 27

The support for Pantex is localized; the rural community is historically less supportive of Pantex. | 28

The Stockpile Stewardship and Management PEIS states that plutonium won't be introduced into sites that don't have the infrastructure. Pantex does not have the capability to handle TRU (transuranic) waste and tritium. Why is it being considered? | 29

PANTEX–27 **Other**

DOE acknowledges the support of the State of Texas and the AFL-CIO. Decisions on the surplus plutonium disposition program at Pantex will be based on public input, environmental analyses, technical and cost reports, and national policy and nonproliferation considerations.

PANTEX–28 **Other**

DOE acknowledges the commentor's observation that Pantex support is localized and that the rural community has historically been less supportive.

PANTEX–29 **Alternatives**

The *Final Programmatic Environmental Impact Statement for Stockpile Stewardship and Management* (SSM PEIS) (DOE/EIS-0236, September 1996) states that the pit fabrication mission would not be introduced into a site that does not have an existing plutonium infrastructure because of the high cost of new plutonium facilities and the complexity of introducing plutonium operations into sites without current plutonium capabilities. The SSM PEIS states further that an important element of the site selection strategy is to maximize the use of existing infrastructure and facilities as the nuclear weapons complex becomes smaller and more efficient in the 21st century; thus, no new facilities were to be built to accommodate stockpile management missions. Accordingly, DOE considered as reasonable only those sites with existing infrastructure capable of supporting a pit fabrication mission. Although Pantex has the infrastructure to carry out its current weapons assembly and disassembly mission and nonintrusive pit reuse program, it was not considered a viable alternative for the pit fabrication mission because it did not possess sufficient capability and infrastructure to meet the SSM PEIS siting assumption stated above. Among the operations that were considered in developing siting alternatives for pit fabrication in the SSM PEIS were plutonium foundry and mechanical processes, including casting, shaping, machining, and bonding; a plutonium-processing capability for extracting and purifying plutonium to a reusable form either from pits or residues; and assembly operations involving seal welding and postassembly processing.

When comparing the site selection strategy for pit disassembly and conversion with that used for the pit fabrication mission, the siting criteria in the SSM PEIS

Tritium in the pits made them too dangerous to handle and test at Los Alamos; why is it any safer to perform pit conversion at Pantex? | 30

Siting the pit disassembly and conversion mission at Pantex will be creating a new plutonium-contaminated site. | 31

have little or no bearing on siting criteria used in this SPD EIS. Pit disassembly and conversion do not require foundry and mechanical processes discussed in the SSM PEIS and can be accomplished in a stand-alone facility. Also, the SSM PEIS siting assumptions include a requirement to use existing facilities, whereas the pit conversion facility would be a new structure no matter where it is located.

Pantex is a candidate site because it meets the three screening criteria: worker and public exposure to radiation, proliferation concerns due to transportation of materials, and infrastructure cost. In addition, Pantex is a candidate site for the pit conversion facility because most of the pits are stored there. Although TRU waste is not routinely generated and stored at Pantex, dedicated storage space would be provided with the proposed surplus plutonium disposition facilities.

PANTEX–30 Pit Disassembly and Conversion

Pits containing tritium are routinely processed in the Special Recovery Line at LANL. Removal of the tritium is a rather straightforward process and can be performed safely. Pits with tritium contamination are bisected to separate the plutonium from the classified metal shapes, and then processed in a vacuum furnace to drive off the tritium, as described in Section 2.4.1. This same process would be applied in the pit conversion facility.

PANTEX–31 Alternatives

DOE acknowledges the commentor's opposition to siting the pit conversion facility at Pantex. This SPD EIS identifies and analyzes potential environmental and human health impacts that might result from the construction and normal operation of the 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 actions during routine operations at any of the candidate sites would likely be minor. To avoid contamination that has occurred in the past at some DOE sites, DOE would design, build, and operate the proposed surplus plutonium disposition facilities in compliance with today's environmental, safety, and health requirements. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

Promised site safety upgrades [*at Pantex*] have not happened; the effects are being realized in Zone 4 where pits had to be moved. Last month the pits were moved because of the heat. We shouldn't be playing musical bunkers. We would take a dim view of Russia if they started moving their pits around. 32

Pantex is not a clean site; it has its problems. More study is needed before introducing plutonium processing into the Amarillo area. Amarillo will become no different than any other DOE site if plutonium processing comes to the area. 33

The GAO is investigating pit storage at Pantex. There is no plan for long-term storage at Pantex; we're still waiting on the plan. 34

PANTEX–32 **Storage and Disposition PEIS and ROD**

The ROD for the *Storage and Disposition PEIS* presents the long-term storage plan for plutonium pits at Pantex. DOE is committed to the safe, secure storage of pits and is evaluating options for upgrades to Pantex Zone 4 facilities to address plutonium storage requirements. Further, DOE has prepared an environmental review concerning the repackaging of Pantex pits into a more robust container. This evaluation is documented in the *Supplement Analysis for: Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components—AL–R8 Sealed Insert Container* (August 1998). This document is on the MD Web site at http://www.doe-md.com.

PANTEX–33 **Alternatives**

DOE acknowledges the commentor's concerns about siting any proposed surplus plutonium disposition facility at Pantex. This SPD EIS identifies and analyzes potential environmental and human health impacts that might result from the construction and normal operation of the proposed facilities. As described in Chapter 4 of Volume I and summarized in Section 2.18, potential impacts of any of the proposed actions during routine operations at any of the candidate sites would likely be minor. To avoid contamination that has occurred in the past at some DOE sites, DOE would design, build, and operate the proposed surplus plutonium disposition facilities in compliance with today's environmental, safety, and health requirements. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–34 **DOE Policy**

The ROD for the *Storage and Disposition PEIS* presents the long-term storage plan for plutonium pits at Pantex. DOE is committed to the safe, secure storage of pits and is evaluating options for upgrades to Pantex Zone 4 facilities to address plutonium storage requirements. DOE has addressed some of the commentor's concerns in an environmental review

Pit disassembly and conversion is a disguised method of bringing Rocky Flats to the Texas Panhandle. Why can Texas do the plutonium conversion mission but not Rocky Flats? | 35

South Carolina is less concerned about embracing a technology that would confine plutonium in a closed process than it is about bringing work to their state. Pit disassembly and conversion uses the inefficient technologies of the 1950s and 1960s; this would be an unacceptable replacement for what is proposed in the SPD EIS. | 36

concerning the repackaging of Pantex pits into a more robust container. This evaluation is documented in the *Supplement Analysis for: Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components—AL–R8 Sealed Insert Container* (August 1998). This document is on the MD Web site at http://www.doe-md.com. Based on this supplement analysis, the decision was made to repackage pits at Pantex into the AL–R8 sealed insert container and to discontinue plans to repackage pits into the AT–400A container. If the decision is made to remain in Zone 4, an additional NEPA analysis will be performed related to the *Storage and Disposition PEIS*.

PANTEX–35 **Alternatives**

DOE acknowledges the commentor's opposition to siting the pit conversion facility at Pantex. This SPD EIS identifies and analyzes potential environmental and human health impacts that might result from the construction and normal operation of the 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 actions during routine operations at any of the candidate sites would likely be minor. To avoid contamination that has occurred in the past at some DOE sites, DOE would design, build, and operate the proposed surplus plutonium disposition facilities in compliance with today's environmental, safety, and health requirements.

DOE has made a commitment to close RFETS. Therefore, the site is not being considered for any new missions. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–36 **Alternatives**

This SPD EIS analyzes a dry, thermal process for converting the plutonium in pits to an oxide. This is a new process that has been under development by DOE for the past several years; it is not the wet chemistry technology of the 1950s and 1960s. Section 2.4.1.2 discusses the pit disassembly and

I want to ask about the differences in occurrence reporting between Pantex and SRS. Pantex has fewer employees than SRS. How many more employees does SRS have? What processing does SRS do? | 37

SRS does not have the type of enhanced safety programs in place that Pantex has. | 38

SRS has limited experience in handling pits. | 39

conversion process that has been proposed for all candidate sites. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–37 **Socioeconomics**

At the time the SPD Draft EIS was prepared in 1997, SRS employed 15,032 persons and Pantex, 2,944.

Currently, SRS processes nuclear materials into forms suitable for continued safe storage, use, or transportation to other DOE sites. Tritium is recycled at SRS in support of stockpile requirements using retired weapons as the tritium supply source. In the past, DOE produced nuclear materials and tritium at SRS.

PANTEX–38 **Alternatives**

All of the candidate sites considered for the surplus plutonium disposition program have safety programs in place that would meet the needs of the proposed activities; site capabilities in this area were not a discriminator in the process of selecting the preferred alternative. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–39 **Alternatives**

As indicated in the revised Section 1.6, SRS is preferred for the pit conversion facility because the site has extensive experience with plutonium processing, and the pit conversion facility complements existing missions and takes advantage of existing infrastructure. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

The decision for MOX at SRS should be reassessed. | 40

Negative impacts (economic) can wipe out any gains in nonrelated areas. If Pantex fails to grow, it will be like taking two steps backward. | 41

I am encouraged that there are no discriminating impacts between the sites. | 42

The Independent Risk Assessment Study's preliminary findings show that risks from the new mission are comparable to existing missions at Pantex. The Independent Risk Assessment Study stated that risks can be mediated by the type of facility built. A person would receive a higher dose taking an airplane ride than from the 1,100 curies of tritium that would be released each year from the new pit disassembly and conversion mission at Pantex. | 43

PANTEX–40 **Alternatives**

As indicated in 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. The preferred alternative was chosen based on the best information and analyses available to allow for a fair comparison among the candidate sites for the proposed surplus plutonium disposition facilities. This is DOE's preference; it is not a decision. Decisions on the surplus plutonium disposition program at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–41 **Socioeconomics**

DOE acknowledges the commentor's support for growth at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–42 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's observation that there is no fundamental distinction between the candidate sites in terms of environmental impacts of the surplus plutonium disposition program.

PANTEX–43 **Human Health Risk**

DOE acknowledges the commentor's statement of fact. In particular, the dose of 0.062 mrem/yr to the maximally exposed member of the public from the release of 1,100 Ci of tritium from a new pit conversion facility at Pantex (see Table 4–66) would be 40 times smaller than the dose of 2.5 mrem received by a person during a 5-hr airplane ride across the United States (*Ionizing Radiation Exposure of the Population of the United States* [NCRP Report No. 93, September 1987]).

I am a Risk Study participant. The numbers are stacking up against the SPD EIS. I do not believe that the facilities required for the pit disassembly and conversion mission would impact the site; impacts will occur from added waste streams. 44

I am not hearing anything in the meeting about health, and impacts to the environment are being dismissed. Plutonium disposition is a long-term decision. DOE needs to consider the long-term health effects for the children and the children's children. I am concerned about the plutonium disposition mission's effect on water and land; we need only look to Oak Ridge to see the long-term effects. 45

PANTEX–44 **Waste Management**

DOE acknowledges the commentor's concerns regarding the impacts of waste that would be generated by a pit conversion facility at Pantex. As described in Section 4.6.2.2, the impacts of operation of the pit conversion facility on the waste management infrastructure at Pantex would likely be minor. Even the 180 m^3 (235 yd^3) of TRU waste, a new waste type for Pantex, could be stored within the new pit conversion facility, and therefore would likely have minor impacts on the waste management infrastructure.

PANTEX–45 **Human Health Risk**

Analyses in Chapter 4 of Volume I indicate that impacts of operating the proposed surplus plutonium disposition facilities on human health and the environment at Pantex would likely be minor. Section 4.26.3.2 analyzes impacts to the environment due to construction and normal operation of a pit conversion 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 bodies or from any potential wastewater releases. Therefore, it is estimated that no measurable component of the public dose would be attributable to liquid pathways.

As described in Appendix J.3.1.3, ingestion doses at Pantex were assessed for eight different food categories: leafy vegetables, root vegetables, fruits, grains, milk, meat, poultry, and eggs. Public doses incurred from the uptake of these foodstuffs were determined to be well below Federal, State, and local regulatory limits; therefore, potential radiological impacts to local prime farmlands would be essentially nonexistent.

Appendix J.3.2.3.2 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. If the proposed facilities were located at Pantex, a very small incremental annual dose to the surrounding public from normal operations would result via radiological emission deposition on agricultural products (i.e., food ingestion pathway). This dose (about 0.56 person-rem/yr) would be 0.0006 percent of the dose that would be incurred annually from natural background radiation.

The SPD EIS does not address all environmental impacts. The SPD EIS fails to adequately address air emissions (beryllium, americium, tritium, etc.). | 46

The risk estimators used to convert doses to fatal cancers (see Appendixes F.10.2 and K.1.4.3) project LCF risks over the full lifetime of people exposed to radiation. These risk estimators factor in the presence of children in the general population. Results of the assessments indicate no LCFs among the public and about two among the workforce.

Risk estimators have also been developed to predict severe hereditary effects (e.g., mental retardation) (*1990 Recommendations of the International Commission on Radiological Protection,* [ICRP Publication 60, November 1991]). As these risk estimators are much smaller than those for fatal cancers (i.e., only about 20 to 26 percent of the values), severe hereditary effects would not be expected among the progeny of members of the public or workers exposed to radiation.

Long-term effects on the health of people living in the vicinity of ORR are addressed in Section 3.6.9 of the *Storage and Disposition PEIS.* The health effects studies discussed in that Section yielded no statistically significant evidence of excess cancer risk.

PANTEX–46 **Human Health Risk**

Chapter 4 of Volume I addresses the potential environmental impacts of implementation of the surplus plutonium disposition alternatives. Included are detailed assessments of air quality and noise, waste management, socioeconomics, human health, facility accidents, transportation, and environmental justice.

The radiological and chemical releases associated with each alternative, and the resulting environmental impacts, have been subjected to detailed assessment. Appendixes J.1.1.4, J.2.1.4, J.3.1.4, and J.4.1.4 present the annual rates of radiological releases to the environment for Hanford, INEEL, Pantex, and SRS, respectively. The releases include isotopes of uranium, americium, and plutonium, and for the pit conversion facility, these three plus tritium. There would be no releases of beryllium. Numerous tables in Appendix G present the amounts of chemicals that would be released annually to the air environment.

All four sites could stand a better crop and livestock analysis. Pantex is the only site without a river. Contamination pathways were not evaluated enough except for direct ingestion.	47
I am concerned about aquifer and environmental contamination, and the impacts to rural families and the environment from Pantex operations.	48

Impacts of air emissions are also presented in Chapter 4 of Volume I. For radiological releases, the doses and resulting health effects (i.e., LCFs) are given. For chemical releases, increases in air concentrations are listed for criteria air pollutants, other regulated pollutants, and hazardous and other toxic compounds, and these concentrations are compared with the applicable standards or guidelines.

PANTEX–47 **Human Health Risk**

As described in the Agricultural Data sections of Appendix J, agricultural Census food production data established via DOC were used in the radiological dose assessments for this SPD EIS. Ingestion doses were assessed for eight different food categories for Hanford, INEEL, and Pantex: leafy vegetables, root vegetables, fruits, grains, meat (livestock), poultry, milk, and eggs; for SRS, three additional consumable categories were assessed: fish, shellfish, and drinking water. Analysis of per-county production provided for a high degree of accuracy in the assessment of dose via the ingestion pathway.

The analyses in Appendix J consider the potential contamination of agricultural products and livestock, and consumption of these products by persons living within an 80-km (50-mi) radius of the candidate sites. The analyses of doses consider bioaccumulation of radioactivity in grain crops, forage, and animals (and the resultant effects on ingestion doses to humans), and all potential dose pathways including direct ingestion, inhalation, external ground exposure, and plume immersion. These analyses indicate that the potential impacts of operation of the pit conversion, immobilization, and MOX facilities on agricultural products, livestock, and human health at any of the sites would likely be minor.

Releases of radioactivity from the proposed facilities at each candidate site to the food production chain are discussed in Appendixes J and K. Section 4.26 and Appendix K were revised to discuss potential impacts of radioactive emissions on agriculture and water resources.

PANTEX–48 **Human Health Risk**

Analyses in Chapter 4 of Volume I indicate that impacts of operating the proposed surplus plutonium disposition facilities on human health and the environment at Pantex would likely be minor. Section 4.26.3.2 analyzes impacts

DOE needs to consider the risks to agriculture. Radioactive materials have no place in an agricultural community. Risk and public perception of tainted agricultural products must be considered. | 49

to the environment due to construction and normal operation of a pit conversion 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 bodies or from any potential wastewater releases. Therefore, it is estimated that no measurable component of the public dose would be attributable to liquid pathways.

As described in Appendix J.3.1.3, ingestion doses at Pantex were assessed for eight different food categories: leafy vegetables, root vegetables, fruits, grains, milk, meat, poultry, and eggs. Public doses incurred from the uptake of these foodstuffs were determined to be well below Federal, State, and local regulatory limits; therefore, potential radiological impacts to local prime farmlands would be essentially nonexistent.

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. If the proposed facilities were located at Pantex, a very small incremental annual dose to the surrounding public from normal operations would result via radiological emission deposition on agricultural products (i.e., food ingestion pathway). This dose (about 0.56 person-rem/yr) would be 0.0006 percent of the dose that would be incurred annually from natural background radiation.

PANTEX–49 **Human Health Risk**

As described in Appendix J.3.1.3, agricultural Census food production data established via DOC were used in the radiological dose assessments for this SPD EIS. These data were separated into eight individual categories: leafy vegetables, root vegetables, fruits, grains, beef (livestock), poultry, milk, and eggs. Analysis of per-county production provided for a high degree of accuracy in the assessment of dose via the ingestion pathway. According to the Chapter 4 (Volume I) data on radiological dosage, which includes a component from contaminated food, the highest potential dose to the public residing within 80 km (50 mi) of Pantex is 0.59 person-rem/yr. This is 170,000 times lower than the annual population dose from natural background radiation.

I own about 1,000 acres adjacent and west of Pantex. I farm about 2,500 acres south of Pantex. We have proof that the water wells on the farm are contaminated with tritium. 50

The National Farm Bureau and the Grange oppose reprocessing MOX fuel in agricultural areas where it can pollute the air, water, or land. 51

Although public perceptions with regard to human health risk are not discussed directly in this EIS, comparisons with reference standards help put the potential radiological impacts into perspective. For example, comparisons with natural background radiation doses and normal cancer incidence (i.e., 0.2 percent) in the general population are presented in Chapter 3 of Volume I.

PANTEX–50 **Water Resources**

DOE acknowledges the commentor's concerns regarding groundwater contamination at Pantex. The impact of existing contamination at Pantex is beyond the scope of this SPD EIS. This comment was referred to the appropriate site personnel. As discussed in Section 4.26.3.2.2, there would be no discernible impacts on surface water or groundwater quality from operation of the proposed surplus plutonium disposition facilities. Other sections show, moreover, that the operation of these facilities would likely have only minor impacts on human health, agriculture, and livestock: Section 4.17.2.4 addresses the potential radiological and hazardous chemical effects of the maximum-impact alternative on the public and workers at Pantex; Appendix J.3.1.3, the potential contamination of agricultural products and livestock, and consumption of these products by persons living within an 80-km (50-mi) radius of Pantex.

PANTEX–51 **Alternatives**

DOE acknowledges the commentor's opposition to siting the MOX facility at Pantex. Section 4.17 describes the potential effects of the proposed surplus plutonium disposition facilities on air quality at Pantex. Sections 4.26.3.1 and 4.26.3.2 analyze the potential impact on soil and water due to construction and normal operation of the proposed facilities at Pantex. There would be no discernible contamination of aquatic biota (fish) or drinking water, either from the deposition of minute quantities of airborne contaminants into small water bodies or from potential wastewater releases. Therefore, it is estimated that no measurable component of the public dose would be attributable to liquid pathways.

As described in Appendix J.3.1.3, ingestion doses at Pantex were assessed for eight different food categories: leafy vegetables, root vegetables, fruits, grains, milk, meat, poultry, and eggs. Public doses incurred from the uptake

Data in the Pantex Site-Wide EIS is faulty and flawed. The former Site-Wide EIS overestimates the probability of an air crash. Air crashes raise the risks at Pantex. Crash data should be reassessed and reanalyzed for more realistic crash data. Do not use crash data as an excuse not to site the pit disassembly and conversion mission at Pantex. 52

All but Pantex have elevated risks from transportation crash scenarios. What data was used to calculate the transportation data? 53

of these foodstuffs were determined to be well below Federal, State, and local regulatory limits; therefore, potential radiological impacts to local prime farmlands would be essentially nonexistent.

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. If the proposed facilities were located at Pantex, a very small incremental annual dose to the surrounding public from normal operations would result via radiological emission deposition on agricultural products (i.e., food ingestion pathway). This dose (about 0.56 person-rem/yr) would be 0.0006 percent of the dose that would be incurred annually from natural background radiation.

PANTEX–52 **Facility Accidents**

This aircraft crash evaluation involved the use of the operations data from the *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components* (DOE/EIS-0225, November 1996) because they are the best available data at this time. The data were used in accordance with *Accident Analysis for Aircraft Crash Into Hazardous Facilities* (DOE-STD-3014-96, October 1996). Estimated frequencies, consequences, and risks related to aircraft crashes depend on a number of factors, such as building size and shape; building robustness; and the quantity, material form, and containment characteristics of the hazardous material. As a result, the overall aircraft crash frequencies reported in this SPD EIS are lower than those reported in the Pantex EIS. The decision as to where to site the pit conversion facility will not be based on exclusively on aircraft crash frequency. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–53 **Transportation**

Accident data from *Longitudinal Review of State-Level Accident Statistics for Carriers of Intrastate Freight* (ANL/ESD/TM-68, March 1994), was used to estimate accident frequencies. This document is based on DOT accident data. Several DOE sources, shown in the Appendix L reference list, were

There are less risks associated in transporting pits than in transporting the entire weapon. | 54

Transportation of the pits is not trivial and will slow down the demilitarization process of the pits. | 55

I only see money and politics in the room. Many of the people at the meeting are paid to attend–DOE should listen to those not being paid. | 56

I know that plutonium disposition decisions will be political, and I believe that these decisions have already been made. | 57

used to estimate SST/SGT accident frequencies. As indicated in Section 2.18, no traffic fatalities from nonradiological accidents or LCFs from radiological exposures or vehicle emissions are expected.

PANTEX–54 **Transportation**

DOE acknowledges the commentor's concerns about transportation risks. However, the transportation of nuclear weapons is beyond the scope of this SPD EIS.

PANTEX–55 **Transportation**

DOE has a very safe record in transporting plutonium pits, and has transported pits around the DOE complex throughout the Cold War. As indicated in Section 2.18, no traffic fatalities from nonradiological accidents or LCFs from radiological exposure or vehicle emissions are expected. DOE's experience and current planning analyses indicate that the transportation of pits can be carried out for each of the alternatives in this SPD EIS in the time required.

PANTEX–56 **General SPD EIS and NEPA Process**

The comment period for the SPD Draft EIS extended from July 17 through September 16, 1998. During that time, DOE convened five public hearings to obtain oral and written comments from the public. These hearings were open to all individuals and organizations, and their format was intended to encourage public discussion and interaction, regardless of the motivation for attending the hearing.

PANTEX–57 **General SPD EIS and NEPA Process**

DOE has not made any decision on the siting of the proposed surplus plutonium disposition facilities. DOE has 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 the proposed facilities. In accordance with CEQ implementing regulations (40 CFR 1502.14(e)), DOE identified its preferred alternative in the SPD Draft EIS. 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.

I see DOE's logic in the SPD Draft EIS Summary, and I appreciate the extent of work put into the SPD EIS. | 58

The Pantex Citizens Advisory Board is a consensus board; no consensus has been reached on plutonium. | 59

The MOX option decision is being commercially driven, and the affected communities are not being heard. DOE is not following NEPA process in selecting reactors. It is allowing vendors to submit bids without holding hearings at reactor sites. | 60

PANTEX–58 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's views on the preparation and logic of this SPD EIS.

PANTEX–59 **Other**

DOE acknowledges the commentor's observation that the Pantex Citizens Advisory Board has not reached a consensus on plutonium.

PANTEX–60 **MOX RFP**

The SPD Final EIS was not issued until specific reactors had been identified and the public had an opportunity to comment on the reactor-specific information. As part of the procurement process, bidders were asked to provide environmental information to support their proposals. This information was analyzed in an Environmental Critique prepared for the DOE source selection board prior to award of the MOX fuel fabrication and irradiation services contract. DOE then prepared an Environmental Synopsis on the basis of the Environmental Critique, which was released to the public as Appendix P of the *Supplement to the SPD Draft EIS* in April 1999.

A hearing was held in Washington, D.C. on specific reactor information. After careful consideration of its public involvement opportunities, including information availability and mechanisms to submit comments, DOE decided not to hold additional hearings on the *Supplement.* DOE provided 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. Also, at the invitation of a South Carolina State Senator, DOE attended and participated in a public meeting held on June 24, 1999, in Columbia, South Carolina.

The *Supplement* was mailed to those stakeholders who requested it as well as to those specified in the DOE *Communications Plan* (i.e., Congressional representiatives, State and local officials and agencies, and public interest groups around the United States) and the utilities' contact lists. The utilities, Duke Power Company and Virginia Power Company, would operate the proposed reactors (located in North Carolina, South Carolina, and Virginia) should the MOX approach be pursued per the SPD EIS ROD. Further, interested parties would likely have the opportunity to submit additional comments during the NRC reactor license amendment process.

The SPD EIS falls short, and should be reevaluated. The SPD EIS is not a legally valid document and is a total corruption of the spirit and legal letter of the law. It needs to be legally defensible. | 61

Land was taken from the family for the Pantex Plant. It is disheartening to see that only 80 percent of Amarillo supports Pantex. Everyone should support weapons dismantlement. | 62

A meeting on the SPD EIS is not a pep rally for Pantex and against SRS; the meeting is about the document. | 63

Some comments here today are embarrassing. Much of the research is based on hysteria. I support the risks characterized in the document. My goal is to have more people better informed. | 64

The Union cannot continue going to the Hill with DOE to request funding when DOE isn't making smart decisions. Labor backs friends and could hurt enemies. Right now DOE is a friend, don't become an enemy. | 65

The Pantex Site-Wide EIS was completed before the DOE Standard [*aircraft crash analysis*]. This leaves little opportunity for input to the standard. | 66

I see a certain synergism between different levels of the plutonium disposition mission. To what extent has the synergism of the mission been considered related to repackaging the pits? | 67

PANTEX–61 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's views on the legality of this SPD EIS. DOE has prepared the EIS in accordance with the provisions of NEPA (42 U.S.C. 4321 et seq.) and the related CEQ and DOE implementing regulations (40 CFR 1500 through 1508 and 10 CFR 1021, respectively).

PANTEX–62 **Alternatives**

DOE acknowledges the commentor's support for Pantex and the weapons dismantlement missions. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–63 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's views.

PANTEX–64 **Other**

DOE acknowledges the commentor's goal to have more people better informed.

PANTEX–65 **DOE Policy**

Separate cost and schedule analyses have been performed and documented, and testing to demonstrate technical feasibility of the various alternatives is under way. 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.

PANTEX–66 **DOE Policy**

DOE acknowledges the commentor's concern regarding public input on DOE's standard involving aircraft crash analyses. Since this issue is beyond the scope of this SPD EIS, the comment has been referred to the DOE Amarillo Area Office.

PANTEX–67 **DOE Policy**

Repackaging the pits would allow for safe long-term storage, handling, and shipment of the pits for disposition. Therefore, repackaging would facilitate

Pit location should not be factored into the final disposition decision. Pit assembly skills are not the same as those required for pit disassembly and conversion. The distinction is being blurred.	68
Has there been a decision on form or output of pit conversion? What is the product from pit disassembly and conversion?	69
I worked at Los Alamos in the MOX fuel and ARIES programs. Both the ARIES and MOX processes were evaluated in the Independent Risk Study. Based on my background, the data is current, relevant, and accurate.	70
How long does it take to turn a single pit into MOX fuel? How long will it take to have the facility up and running?	71

safe transport of the pits to the pit conversion facility, and would reduce the risk of unnecessary exposure to workers associated with facility operation.

PANTEX–68 **Alternatives**

DOE acknowledges the commentor's concern regarding the distinction between skills required for pit assembly and those required for pit disassembly and conversion. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–69 **Pit Disassembly and Conversion**

Plutonium metal extracted from disassembled pits would be converted to an oxide powder. The powder from various pits would be blended to ensure the final powder is unclassified and homogeneous. This process would produce plutonium dioxide that is suitable for immobilization or fabrication into MOX fuel. This blended powder would be seal-welded into stainless steel cans. A description of the pit conversion process is given in Section 2.4.1.2.

PANTEX–70 **Alternatives**

DOE acknowledges the commentor's claim that the ARIES and MOX processes were evaluated in the Independent Risk Study.

PANTEX–71 **MOX Approach**

Given processing directly from start to finish, a pit could be converted into MOX fuel in 1 day. However, the process occurs in steps; a single pit would not likely go through the system directly from start to finish. Several runs of plutonium dioxide product from the pit conversion facility would likely be mixed to ensure consistency of feed to the MOX facility. Moreover, time would be required for international inspection, and for transfer to the MOX facility. Production schedules would also dictate the length of time that either a given pit, its plutonium, or the oxide could remain at the pit conversion facility between process steps.

Section 2.4.1.2 describes the pit disassembly and conversion process, and Section 2.4.3.2, the MOX fuel fabrication process. Appendix E provides schedules for construction and operation of the surplus plutonium disposition facilities. According to estimates, approximately 6 years would be required,

MOX and ARIES processes are not magic; they can be easily understood.	72
Were the canyon facilities at SRS considered to conduct the polishing process if needed?	73
If the plutonium disposition decision were based solely on cost, then the decision would be full immobilization. It would save on conversion, MOX fuel burn, and final storage factors.	74

start to finish, for activation of a MOX facility. Specific activities during that period would include selection of the MOX team, contract negotiations, facility design, licensing, construction, and startup.

PANTEX–72 **Alternatives**

DOE acknowledges the commentor's claim that the ARIES and MOX processes can be easily understood.

PANTEX–73 **Alternatives**

Use of the canyons for plutonium dioxide polishing to remove gallium was not considered for the following reasons: DOE has committed to closing the canyons prior to the completion of the surplus plutonium disposition program; the canyons are currently planned for other missions (e.g., processing of RFETS plutonium residues and scrub alloy) and could not be readily retrofitted for the plutonium polishing process until after that mission was complete; the cost of maintaining the canyons would increase due to the new mission and necessary safety upgrades; and use of the canyons would increase worker exposures.

PANTEX–74 **Cost**

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 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.

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

The 1997 S&D PEIS selected Pantex for long-term storage; this was also mentioned in the Pantex Site-Wide EIS. Seventy million dollars were added to the budget for repackaging. The government is double billing $70 million for repackaging to move pits off the site. Can you explain this? | 75

Collateral effects–would additional needs be addressed? Will additional costs be considered for moving pits offsite? Was ALARA (as low as is reasonably achievable) factored into the cost estimate? | 76

associated with the various alternatives. The cost 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.

PANTEX–75 **DOE Policy**

The ROD for the *Storage and Disposition PEIS* identified Pantex as the storage site for plutonium pits pending disposition. Pits are currently stored in containers that are not suitable for long-term storage or transportation. Therefore, repackaging is necessary to ensure safe storage for up to 50 years. Should the decision be made to transport the pits offsite, the pits would have to be repackaged in a suitable shipping container. DOE has addressed some of the commentor's concerns in an environmental review concerning the repackaging of Pantex pits into a more robust container. This evaluation is documented in the *Supplement Analysis for: Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components—AL–R8 Sealed Insert Container* (August 1998). This document is on the MD Web site at http://www.doe-md.com. Based on this supplement analysis, the decision was made to repackage pits at Pantex into the AL–R8 sealed insert container and to discontinue plans to repackage pits into the AT–400A container.

PANTEX–76 **Cost**

Because cost issues are beyond the scope of this 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* (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.

I would like to understand the cost of containers and transportation. | 77

Explain how the value of residual/ongoing cleanup at SRS is factored into costs. Overhead rates are dependent on overall activity at sites, not just on one project. | 78

Explain how SRS is more cost effective than Pantex if the cost estimate is statistically identical. | 79

PANTEX–77 **Cost**

Because cost issues are beyond the scope of this SPD EIS, this comment has been forwarded to the cost analysis team for consideration. For a better understanding of cost and transportation issues, consult the following reports: *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD–0009, July 1998), *Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document* (DOE/MD-0013, November 1999), and *Fissile Materials Disposition Program SST/SGT Transportation Estimation* (SAND98–8244, June 1998). These documents 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.

PANTEX–78 **Cost**

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* (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.

PANTEX–79 **Cost**

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* (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.

Sites are not identical. One site appears to have the advantage. Look at existing facilities at the sites and what is available. There are labor uncertainties in the cost. The difference in cost at SRS is not a significant discriminator. 80

I am concerned about the moving design of APSF and the moving design of the pit disassembly and conversion facility at SRS. I am concerned that design change costs are not being rolled into the overall costs and how these costs are considered in the cost report. 81

Five years ago, questions were raised to DOE regarding pit storage. The storage decision would presuppose decision on final disposition. DOE needs to honor its 5-year commitment made through the S&D PEIS process. Pit location should not be factored into the final decision process. 82

PANTEX–80 **Cost**

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. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–81 **Cost Report**

Because this comment relates directly to the cost analysis report, it has been forwarded to the cost analysis team for consideration. 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, is 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.

PANTEX–82 **DOE Policy**

The ROD for the *Storage and Disposition PEIS* presents the long-term storage plan for plutonium pits at Pantex. DOE is committed to the safe, secure storage of pits and is evaluating options for upgrades to Pantex Zone 4 facilities to address plutonium storage requirements. DOE has prepared an environmental review concerning the repackaging of Pantex pits into a more robust container. This evaluation is documented in the *Supplement Analysis for: Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components—*

The timetable for MOX production could be delayed for years over political controversy regarding our national policy toward nuclear energy. | 83

AL–R8 Sealed Insert Container (August 1998). This document is on the MD Web site at http://www.doe-md.com. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–83 **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. Toward that end, DOE conducted a procurement process in accordance with DOE NEPA regulations 10 CFR 1021.216. 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.

A limited number of MOX fuel assemblies would be irradiated and tested in accordance with NRC requirements to verify acceptability prior to fabricating the fuel on a larger scale for insertion into the reactors. The recently enacted legislation, National Defense Authorization Act for Fiscal year 1999, provided NRC the authority to license the MOX facility. Therefore, NRC will also license the MOX facility under 10 CFR 70, and be responsible for issuing operating license amendments under 10 CFR 50 for the domestic, commercial reactors that have been selected to irradiate the MOX fuel. There are always uncertainties involved with construction projects and startup of new facilities and processes. DOE understands that DCS would have to apply for a reactor operating license amendment for each individual reactor before it can use MOX fuel and what that process entails, including the public involvement opportunities provided by NRC per 10 CFR 50.91. DOE is conducting regular meetings with NRC on the MOX approach, including fuel design and qualification. Although no substantive design work or construction can be started on the MOX facility until a decision is made in the SPD EIS ROD, DCS would work closely with NRC to ensure that the license amendment process can be accomplished in a timely manner. If the decision is to proceed with MOX fuel fabrication, construction of the MOX facility would begin in 2002.

Concerning the timeliness of this with the Russians, what is the overlay of this with other DOE missions? | 84

An accident at the British Nuclear Fuels MOX demonstration plant required 73 people to be evacuated. It's only a 5-year-old facility. The accident demonstrates that other countries are having problems with MOX, and DOE is not listening to them. The decisions made here are international in scope, and we are asking for the people to hear from people in Europe and Russia. | 85

If there is an accident, will DOE compensate those landowners with property contaminated by the accident? Fernald, Hanford, and Rocky Flats landowners have never been compensated. Where should landowners go if their land is contaminated by DOE? | 86

PANTEX–84 **DOE Policy**

The United States will continue to work with Russia along agreed paths and schedules for plutonium disposition, and DOE's surplus plutonium disposition program will proceed accordingly. The proposed plutonium disposition actions will be coordinated with other ongoing DOE programs. Section 1.8 discusses the relationship of this program with other proposed or ongoing actions and programs.

PANTEX–85 **Facility Accidents**

The MOX facility would be designed in accordance with all applicable requirements and standards to ensure the health and safety of workers and the public and protection of the environment. The design team would review and consider, as appropriate, information that may be available about similar facilities to ensure that the MOX facility met applicable requirements and that the design incorporated the newest technologies and benefits from previous experience. 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.

PANTEX–86 **DOE Policy**

Should there be an accident involving nuclear materials, compensation would be determined according to the provisions of the Price-Anderson Act. The purpose of this act is to indemnify contractors responsible for managing and conducting nuclear activities within the DOE complex. An extension, the Price-Anderson Amendments Act of 1988, requires mandatory coverage of all contractors, subcontractors, and suppliers conducting nuclear activities for DOE, and, in compliance with a congressional mandate, enforcement action by DOE against indemnified contractors for violations of nuclear safety requirements.

Sixty-five percent of the scientists and engineers in Amarillo work at Pantex; the community relies on Pantex to provide a science and engineering base for education. When looking at the importance of science and engineering, especially when compared to other sites, it is important to Pantex to keep a science and engineering base in Amarillo.	87
Pit disassembly and conversion should be performed at Pantex. No significant additional training is needed for the committed and skilled workforce at Pantex. Pantex has the best training program to bring its workforce up to speed to meet the new mission. The site operates in full compliance with DOE orders. There is 100 percent literacy among the Pantex workforce.	88
State and local organizations support siting a new plutonium disposition mission at Pantex.	89
Industries contribute to the quality of life in the Panhandle. I see environmental concerns that citizens voluntarily respond to. It is not in the best interest of the United States to ship the pit disassembly and conversion mission offsite.	90

PANTEX–87 **Socioeconomics**

DOE acknowledges the community support of Pantex and the importance of science and engineering education. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–88 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–89 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–90 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

Work would be done safely and professionally, and the environment would be protected if the pit disassembly and conversion mission is sited at Pantex. | 91

I have worked at Pantex for 7 years. If the site wasn't safe, I wouldn't work there. I feel safer at Pantex than on the street and I believe DOE's culture is changing. | 92

I am not concerned about or believe that information is being withheld from workers. Added knowledge leads to improvements. All questions ever asked at Pantex have been answered. I trust Pantex management to be open and honest with the workforce. | 93

I am proud of the work performed at Pantex. A quality assurance process is in place to make sure Pantex meets quality standards. As a union steward, it's my job to ensure continuing job performance and excellence. | 94

Pantex employs 2,500 Hispanic and other minority employees. | 95

With all the research facilities located at Pantex, it should be the site chosen for MOX fuel fabrication. | 96

PANTEX–91 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–92 **Other**

DOE acknowledges the commentor's support of Pantex and of the change in DOE culture to put safety first. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–93 **Other**

DOE acknowledges the commentor's support of Pantex and the open lines of communication. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–94 **Other**

DOE acknowledges the commentor's support of Pantex and its quality assurance achievements. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–95 **Other**

DOE acknowledges the commentor's support of diversity in the workplace.

PANTEX–96 **Alternatives**

DOE acknowledges the commentor's support for siting the MOX facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

The International Guards Union supports bringing the pit disassembly and conversion mission to Pantex. A new mission is needed to keep a qualified workforce in the area. The site has a highly trained and skilled security force and an excellent safety record.	97
Storage infrastructure is already in place at Pantex.	98
I understand a great deal about land stewardship. I was formerly a farmer, and am now a hazmat (hazardous materials) worker at Pantex. I believe that general industry is much worse than anything I've seen at Pantex. Agriculture has messed up more as a land steward than DOE.	99
It's of paramount importance to dismantle weapons. The first stage of weapons production (assembly) was performed at Pantex. The second stage of weapons production (disassembly and conversion) should also be performed at Pantex.	100
Pantex has worn out its welcome. Job security is nice, but the plant is coming to the end of its usefulness. Pantex should accept the unacceptable.	101

PANTEX–97 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–98 **Alternatives**

Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–99 **Alternatives**

DOE acknowledges the commentor's support of Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–100 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–101 **Alternatives**

DOE acknowledges the commentor's opposition to new missions at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

I lived in Hereford, Texas, when Texas was considered for the repository project. I believe that DOE sees people as expendable and was more concerned about where to locate the repository than it was about the impacts on people. This community should not trade safety for jobs. 102

The argument being presented is that since the materials are at Pantex, the pit disassembly and conversion mission should reside there as well. The truth is that 12 metric tons of plutonium residing at Rocky Flats will be shipped with this mission. Weren't concerns raised about plutonium from Rocky Flats being shipped before the decision was issued? Plutonium processing is what messed up Rocky Flats. 103

Pantex's ongoing mission will last anywhere from 10 to 12 years. Pantex does its job admirable, but it should never process plutonium. 104

I am a former Washington resident. My husband died because of living near and working at Hanford. I hope that Pantex does not become like Hanford. Pantex is safe, and I hope that it stays that way. 105

PANTEX–102 **Alternatives**

DOE acknowledges the commentor's opposition to siting the proposed surplus plutonium disposition facilities at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–103 **Transportation**

DOE acknowledges the commentor's concerns about the shipment of surplus plutonium from RFETS to Pantex and the processing of that material at Pantex. The decision to ship surplus pits from RFETS to Pantex is stipulated in the ROD for the *Storage and Disposition PEIS*. The shipment of pits from RFETS to Pantex supports the DOE commitment to close RFETS. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–104 **Alternatives**

DOE acknowledges the commentor's opposition to siting the proposed surplus plutonium disposition facilities at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–105 **Human Health Risk**

DOE acknowledges the commentor's concern for the safety of workers and persons living near Pantex. This SPD EIS identifies and analyzes potential environmental and human health impacts that might result from the construction and normal operation of the proposed surplus plutonium

SRS workers are experts at processing plutonium; Pantex workers are experts in pit disassembly and conversion.	106
SRS experience in processing plutonium is long past.	107
If the plutonium mission is so dangerous, why does SRS want it so bad? SRS is no smarter or dumber than Pantex.	108

disposition facilities at the candidate sites. As described in Chapter 4 of Volume I and summarized in Section 2.18, these potential impacts would likely be minor. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–106 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–107 **Alternatives**

DOE acknowledges the commentor's opposition to siting the proposed surplus plutonium disposition facilities at SRS. 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. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–108 **Human Health Risk**

As described in Chapter 4 of Volume I, potential impacts of alternatives for surplus plutonium disposition would likely be minor. In addition, analyses of design-basis accidents showed that no LCFs to the population would be expected from operation of the proposed surplus plutonium disposition facilities at any of the candidate sites. 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 public has an inalienable right to know impacts and hazards of site operations. Workers know hazards, the community should also know hazards. | 109

If contamination poses a health risk, how much damage to health occurs due to stress from job loss? | 110

It seems that every facility processing plutonium has either been contaminated or had an accident. Has there ever been an instance while processing plutonium where a facility hasn't been contaminated? | 111

PANTEX–109 **General SPD EIS and NEPA Process**

DOE acknowledges the need of the public to be informed about the potential impacts and hazards of the ongoing and prospective work at DOE sites. The SPD Draft EIS was merely one step in the public information process. It included information on potential accidents, types and levels of waste to be generated, and a number of other environmental impacts. After its publication, the public was accorded the opportunity to comment on any aspect of DOE's proposed action to disposition up to 50 t (55 tons) of surplus plutonium.

In compliance with existing laws and regulations, DOE provides information on site-specific hazards of ongoing operations other than the surplus plutonium disposition program in various documents, including site-specific NEPA documents, annual site-specific environmental reports, reports of chemical discharges, and reports of chemical use and storage.

PANTEX–110 **Socioeconomics**

DOE acknowledges the commentor's concern about job loss. The socioeconomics analyses do not specifically evaluate the health effects resulting from the stress of losing a job. As part of its Strategic Alignment Initiative and restructuring of the nuclear weapons complex, however, DOE has put in place several programs to assist its employees in finding new jobs. Decisions on the surplus plutonium disposition program will be based on environmental analyses (including analyses of socioeconomics), technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–111 **DOE Policy**

It is true that plutonium-processing facilities could experience contamination. The proposed surplus plutonium disposition facilities would be designed, constructed, operated, and deactivated in accordance with applicable Federal, State, and local environmental, safety, and health requirements. Within these limits, DOE believes that contamination levels should be kept as low as is reasonably achievable, taking into account social, technical, economic, practical, and public policy considerations. Worker safety is also a major consideration in construction and operation of the proposed facilities, and safety assessment (including accident analysis) is an integral part of the design process.

Plutonium processing may result in higher radiation releases than the area is accustomed to. Tritium releases are 10,000 times higher in processing than in pit assembly. | 112

Exposure rates are much higher in other countries than the United States. We need to put doses into perspective. | 113

PANTEX–112 **Human Health Risk**

The bounding alternative for Pantex would be siting the pit conversion and MOX facilities at Pantex. About 0.000104 Ci/yr of plutonium and americium and 1,100 Ci/yr of tritium, total, would be released to the atmosphere from these facilities. In 1996, the airborne releases from Pantex operations were 1.6×10^{-17} Ci of thorium 232, 0.000146 Ci of uranium 238, and 0.103 Ci of tritium (*1996 Environmental Report for Pantex Plant*, [DOE/AL/65030-9704, May 1997]). While the commentor is correct in stating that plutonium processing would result in radiation releases greater than those from current operations, including a tritium release 10,000 times greater, the doses and resulting adverse health effects associated with the increased releases would be very small. The dose to the MEI from these facilities would be increased by 0.068 mrem/yr, and the dose to the population living within 80 km (50 mi) of Pantex in the year 2010 would be increased by 0.59 person-rem/yr. For 10 years of operation, the increased risk of an LCF to the MEI would be 3.4×10^{-7}, and the increased number of LCFs to the 80-km (50-mi) population would be 0.003.

PANTEX–113 **Human Health Risk**

The various U.S. agencies (DOE, EPA, and NRC) involved in promulgating dose limits have established strict limits for workers and the public (see Appendix F.10.2). In addition, operators of nuclear facilities must demonstrate that all operations are conducted in a manner that further reduces doses to ALARA levels. The combination of strict enforcement of dose limits and adherence to the ALARA operational philosophy ensures that exposure rates from nuclear operations in the United States are generally maintained below those in other countries with nuclear programs.

Specific comparisons with exposures in other countries are not given in this SPD EIS. These comparisons would be difficult to make, given the large number of countries involved; they are not really necessary, anyway, because demonstrating compliance with U.S. requirements ensures small risks of adverse health effects. Doses associated with facilities assessed in this EIS are put into perspective through comparison with U.S. requirements and natural background radiation levels.

What are the current emissions in curies of tritium from Pantex? | 114

DOE needs to resolve uncertainties before decisions are made. Internal radiation effects from plutonium inhalation are severe. More data is needed on exposure risks. Does the plutonium dose estimate include internal? Studies of health effects are never revealed. | 115

PANTEX–114 **Human Health Risk**

Emissions of tritium to the environment from Pantex operations are included in the annual environmental reports. The latest report available is for operations in 1996 (*Environmental Report for Pantex Plant,* [DOE/AL/65030-9704, May 1997]). It is reported in Table 6.1 of that document that 0.103 Ci of tritium was released to the air environment.

PANTEX–115 **Human Health Risk**

The Human Health Risk sections in Chapter 4 of Volume I present the results of detailed assessments of health impacts on the public and onsite workers. Doses to the public from both normal operations and postulated accidents were calculated using models accepted within the scientific community. While uncertainties are typical of such assessments, the use of the GENII computer code for the evaluation of normal operations (see Appendix F) and the MACCS2 code for accidents (see Appendix K), along with best estimates of input parameters (e.g., radiation source terms, meteorological conditions, population distributions, agricultural production), yielded results that are expected to be as accurate as possible. If anything, they would be on the conservative side; that is, the doses would be overestimated. These doses were converted into LCFs using the risk estimators derived from data prepared by the National Research Council's Committee on the Biological Effects of Ionizing Radiation and by the International Commission on Radiological Protection, as discussed in Appendixes F.10.2 and K.1.4.3.

For workers, the doses from normal operations were taken from data reports prepared for each facility assessed in this SPD EIS. The reports for Hanford, INEEL, Pantex, and SRS are identified in Appendixes J.1.1.4, J.2.1.4, J.3.1.4, and J.4.1.4, respectively. The worker doses from accidents were calculated by the GENII computer code using the source terms from the same data reports. Those doses were converted into LCFs using somewhat lower risk estimators than those for the public to reflect the absence of children in the workforce (see Appendixes F.10.2 and K.1.4.3).

Also calculated were the plutonium and americium doses delivered via all potential dose pathways. For the public, the dominant pathways would be inhalation and ingestion, which result in internal doses only. Worker doses

I have severe doubts about DOE's commitment to 100 percent noncontamination. DOE has a poor track record in protecting the environment. Every DOE site except Pantex has been contaminated by DOE operations. 116

I understand Pantex's need for new missions, but I'm unconvinced that DOE has changed. I have heard stories from retired workers and of workers being exposed without fully knowing the associated risks. I see money with the new mission, but no assurance for safety. I am frightened by the implication of a plutonium processing mission. I don't see any definitive answers in the SPD EIS; what should have been researched and analyzed wasn't. 117

DOE should make use of LANL resources. As a former LANL worker, I was never concerned for personal safety because of the plutonium processing mission. If I thought plutonium processing could hurt Pantex, I would actively oppose the mission, but that's not the case. 118

from normal operations would be mainly from external exposure to gamma rays emitted from the plutonium and americium radionuclides; accidental doses would be attributable mainly to inhalation.

Health effects studies conducted in and around Hanford, INEEL, Pantex, and SRS are discussed in Sections 3.2.4.3, 3.3.4.3, 3.4.4.3, and 3.5.4.3, respectively.

PANTEX–116 **DOE Policy**

DOE acknowledges the commentor's concern regarding contamination of the environment. The proposed surplus plutonium disposition facilities would be designed, constructed, operated, and deactivated in accordance with applicable Federal, State, and local environmental, safety, and health requirements. Within these limits, DOE believes that the level of contamination should be kept as low as is reasonably achievable, so that the benefit of reducing the already low level of contamination would warrant the additional cost of that reduction. Chapter 5 summarizes the applicable environmental statutes, regulations, and permits that cover emissions, waste, and ALARA standards.

PANTEX–117 **DOE Policy**

DOE acknowledges the commentor's concern regarding worker safety during surplus plutonium disposition activities at Pantex. The analyses conducted for this SPD EIS indicate potential environmental and human health impacts would likely be minor at Pantex. Results of the analyses are presented by alternative in Chapter 4 of Volume I. Detailed information on the potential impacts on human health at Pantex is presented in Appendix J.3. As shown in these sections, operation of the proposed facilities at Pantex would be well within the limits prescribed by Federal, State, and local laws and regulations.

PANTEX–118 **Human Health Risk**

DOE acknowledges the commentor's support of LANL and Pantex. Both LANL and Pantex staff have assisted in the development of information and analyses to support the surplus plutonium disposition program. Appendix J.3 describes the results of the human health risk analyses for Pantex. Potential impacts of construction and operation at Pantex would likely be minor and within the limits prescribed all applicable Federal, State, and local laws and regulations.

We have plutonium in the country, in Texas, and at Pantex. We have it and need to do something with it. DOE needs to establish priorities, design a process that allows no releases, engineer controls to ensure the process, and enhance personal protective equipment. 119

The accelerator mission to produce tritium at SRS would cause SRS to exceed water limits. Has the Department considered the cumulative impacts of this mission along with the accelerated tritium mission at SRS? 120

Beryllium is an extremely hazardous substance to some people and can cause berylliosis. DOE has known about this problem for 30 years. STAND submitted 21 pages of questions asking for definitions and doses. What is the range of doses to personnel? It's 60 percent higher in LANL documents for personnel doses in plutonium processing facilities than estimated for the proposed facilities. 121

PANTEX–119 **Human Health Risk**

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. DOE has identified as its preferred alternative the hybrid approach (immobilization and MOX fuel fabrication) to disposition surplus plutonium. Selection of that alternative would provide for processing that could be conducted in such a manner as to minimize impacts on the environment. Although a goal of no releases of radioactivity to the environment would be unattainable, the proposed surplus plutonium disposition facilities would be designed and operated as appropriate to maintain ALARA releases. Engineered controls, the use of remote equipment and other effective design features, and strict adherence to operational procedures would ensure that operations are conducted safely, and efficiently, and thus would likely have minor impacts on workers and the public.

PANTEX–120 **Water Resources**

In a ROD published in the Federal Register on May 18, 1999 (64 FR 26369), DOE decided not to construct an accelerator at SRS. Therefore, Section 4.32.4.1 of this SPD EIS was revised to remove the large amount of water that would be used by an accelerator. Accordingly, as indicated in Table 4–248, cumulative water usage falls well within the capacity of the SRS potable water system.

PANTEX–121 **Human Health Risk**

The 1994 analysis performed by LANL referred to the possibility of airborne releases of beryllium, a hazardous air pollutant, from pit disassembly and conversion. Subsequent analysis from LANL indicates that there would not be any airborne releases of beryllium *(Pit Disassembly and Conversion Facility, Environmental Impact Statement Data Report—Pantex Plant* [LA-UR-97-2909, June 1998]). Because the beryllium is expected to remain in metal form at all times, the health hazards are minimized. The beryllium would be present in large pieces and cuttings created when the pit was bisected. These cuttings would be too large to become airborne. There would be no grinding; thus, there would not be any pieces of beryllium small enough to become airborne. Section 2.4.1 was revised to include a discussion of beryllium as a potential impurity, as well as the reasons why beryllium processing would not be an issue at the pit conversion facility.

Modern day standards are a result of years of caution in handling nuclear materials. Industrial, commercial safety devices and standards are a result of DOE operations. Public benefits are not always linked to DOE. A better understanding of health effects was learned through DOE. The berylliosis information came from commercial industries (aerospace, etc.). | 122

No one has any answers about what is going on in the environment or with health issues. | 123

Nuclear power plants are primarily located in the east, so it's cheaper to transport from SRS. | 124

More transportation increases risks and the possibility of proliferation. | 125

PANTEX–122 **Other**

DOE acknowledges the commentor's observation that DOE and commercial industries have contributed to the development of health and safety standards, procedures, and devices.

PANTEX–123 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's environmental and health-related concerns. This SPD EIS was prepared to provide a comprehensive description of proposed actions and their potential environmental impacts of the surplus plutonium disposition program. DOE believes that all activities that are part of the proposed action and alternatives are analyzed adequately in this SPD EIS. As described in Chapter 4 of Volume I and summarized in Section 2.18, potential impacts of construction and operation of the proposed surplus plutonium disposition facilities would likely be minor.

PANTEX–124 **Cost**

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* (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.

PANTEX–125 **Transportation**

DOE acknowledges the commentor's concern that more transportation increases the risks of proliferation. 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 DOE disposition facilities proposed in this SPD EIS are all at locations where

Converted material will have to be transported to commercial sites. Pantex is more centrally located. Decisions are based on life-cycle; location makes sense over life-cycle. 126

I have been able to get more information through the FOIA [*refers to the Freedom of Information Act*] process than from the SPD EIS. The SPD EIS excludes required information and falls short of what is required by NEPA. 127

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 Pantex facilities would be implemented 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.

PANTEX–126 **Transportation**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at Pantex because of its central location. Table L–6 presents the total risks for all SPD EIS alternatives. The values stipulated in the SPD Draft EIS were based on the assumption that the MOX facility is 4,000 km (2,500 mi) from the reactor. The SPD Final EIS was revised to discuss the potential environmental impacts of operating Catawba, McGuire, and North Anna, the reactors that would use the MOX fuel and includes transportation to those sites. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–127 **General SPD EIS and NEPA Process**

DOE has prepared this SPD EIS in accordance with the provisions of NEPA (42 U.S.C. 4321 et seq.) and the related CEQ and DOE implementation regulations (40 CFR 1500 through 1508 and 10 CFR 1021, respectively). It is intended as a source of environmental information for the DOE decisionmakers and the public. The primary objective of the EIS is a comprehensive

This type of meeting would have never have happened 20 years ago. DOE is behaving as it should. A true synthesis only happens with dialogue. The EIS is part of this synthesis process. The SPD EIS is not final and will be changed to reflect public comments before going final. 128

I am not impressed with DOE's "town meeting." I am not impressed by past interactions that DOE listens to citizens. 129

I would like to know why readers are forced to use a separate document in order to get the emissions data cited in the SPD EIS. The data table consumes about one-half page; why couldn't it be included in the SPD EIS? 130

Statements such as "the Texas delegation would be displeased if the pit disassembly and conversion mission is not sited at Pantex" is an inappropriate, threatening statement. 131

description of proposed surplus plutonium disposition actions and alternatives and their potential environmental impacts. As with any EIS, technical information is included to the extent that it is required to understand those actions and impacts. Other data were added in the course of the EIS development—for example, expected radiological release quantities in Appendix J. Additional technical information concerning the proposed facilities is given in various data reports reflected in the list of references for Chapter 2 of Volume I. These referenced materials are available in public reading rooms at the following locations: Hanford, INEEL, Pantex, SRS, and Washington, D.C.

PANTEX–128 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's support of the public outreach efforts in connection with the surplus plutonium disposition program. In compliance with NEPA, DOE provided appropriate opportunities and means for public commentary on the program, and gave equal consideration to all comments, regardless of how they were submitted.

PANTEX–129 **General SPD EIS and NEPA Process**

The hearing DOE convened in Amarillo, Texas, on August 11, 1998, was not intended as a "town meeting," but simply as a forum for providing information and collecting public comments on the SPD Draft EIS. Over 400 Amarillo area citizens attended the hearing, and a significant number of them provided comments to DOE. Each comment received was reviewed carefully, given equal consideration, and responded to with regard to the preparation of this SPD Final EIS.

PANTEX–130 **Human Health Risk**

The emissions data associated with each of the proposed surplus plutonium disposition facilities were included in this SPD EIS. The data for Hanford, INEEL, Pantex, and SRS may be found in Appendixes J.1.1.4, J.2.1.4, J.3.1.4, and J.4.1.4, respectively.

PANTEX–131 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's objection to the statement in question.

I hope politicians keep the plutonium mission at Pantex. | 132

I urge people to take advantage of the information available through the Information Center at Pantex to read documents. People should base decisions on facts and not emotion. | 133

I see similarities between this meeting and those conducted in Hereford, Texas, regarding contamination, releases, compensation, etc. DOE could not see the argument in Hereford. It still applies; farmers are wed to the land and can't just pack up and leave if it is compromised. Negative comments are directed toward DOE's (SPD EIS) track record, not toward the Pantex site capability. | 134

PANTEX–132 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PANTEX–133 **Other**

DOE acknowledges the commentor's support for informed decisionmaking. Information on the surplus plutonium disposition program is available from many sources, including DOE reading rooms, the MD Web site at http://www.doe-md.com, and public hearings. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PANTEX–134 **Human Health Risk**

DOE is well aware of the tremendous agricultural resources near Pantex and the concerns expressed by farmers. As discussed in Section 4.26.3.2.2, there would be no discernible impacts on surface water or groundwater quality from operation of the proposed surplus plutonium disposition facilities. Other sections show, moreover, that the operation of these facilities would likely have only minor impacts on human health, agriculture, and livestock: Section 4.17.2.4 addresses the potential radiological and hazardous chemical effects of the maximum-impact alternative on the public and workers at Pantex; Appendix J.3.1.3, the potential contamination of agricultural products and livestock, and consumption of these products by persons living within an 80-km (50-mi) radius of Pantex. An accident analysis is included in Section 4.17.2.5. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses (including the probability and consequences of potential accidents), technical and cost reports, national policy and nonproliferation considerations, and public input.

The NRC, GAO, and the *Nuclear Weapons Monitor* all criticized DOE's plutonium program.	135
DOE needs to factor risk perception and science education into the decision. Risk is relative (compare local crime to nuclear plant safety). People are afraid of the nuclear industry and radiation because of a lack of education.	136
DOE is not listening to people around the nuclear sites. DOE is hearing nothing from communities around nuclear facilities because they will not listen.	137
How is DOE listening to communities around nuclear reactors selected to burn MOX fuel?	138

PANTEX–135 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's observation that NRC, GAO, and the Nuclear Weapons Monitor criticized the surplus plutonium disposition program.

PANTEX–136 **General SPD EIS and NEPA Process**

This SPD EIS presents risk information in ways that are useful to the public and the decisionmaker. Radiation exposures from natural and other background sources are presented in Chapter 3 of Volume I; comparisons of the radiation exposures attributable to implementation of the proposed actions with those from natural background radiation, in the Human Health Risks sections of Chapter 4 of Volume I. Since the creation of the surplus fissile materials disposition program, DOE has worked to ensure that the public is provided useful information on its proposed actions, including their rationale, the decisionmaking process, and the technologies involved. In addition to such information, DOE has provided numerous opportunities, formal and informal, for the public to comment on and thus influence the decisionmaking process.

PANTEX–137 **General SPD EIS and NEPA Process**

The comment period for the SPD Draft EIS extended from July 17 through September 16, 1998. During that time, DOE convened five public hearings to obtain oral and written comments from the public. These hearings were open to all individuals and organizations, and their format was intended to encourage public discussion and interaction. DOE also accepted comments submitted by various other means: mail, a toll-free telephone and fax line, and the MD Web site. All comments were given equal consideration and responded to. DOE makes every effort to respond to public comments on its actions in a fair and appropriate manner.

PANTEX–138 **MOX RFP**

The SPD Final EIS was not issued until specific reactors had been identified and the public had an opportunity to comment on the reactor-specific information. As part of the procurement process, bidders were asked to provide environmental information to support their proposals. This

I am proud that diverse ideologies can come together in turning swords to plowshares. The plutonium disposition mission is critical to the nation wherever it is performed. | 139

Pantex workers have reported that there are 10 weapons pits missing. I would like the issue looked into and security tightened at the site. | 140

DOE stated that packaging would be redone by 2000. Twenty pits were to be repackaged suitable for shipping last year. Is other shipping being evaluated? | 141

Was a NEPA action performed for onsite storage? When will the supplemental analysis be released for public review? | 142

Will there be long-term storage in Zone 4? | 143

information was analyzed in an Environmental Critique prepared for the DOE source selection board prior to award of the MOX fuel fabrication and irradiation services contract. DOE then prepared an Environmental Synopsis on the basis of the Environmental Critique, which was released to the public as Appendix P of the *Supplement to the SPD Draft EIS* in April 1999.

PANTEX–139 **Alternatives**

DOE acknowledges the commentor's support for the surplus plutonium disposition program. 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.

PANTEX–140 **DOE Policy**

DOE acknowledges the commentor's concern regarding management of pits at Pantex. Since this issue is beyond the scope of this SPD EIS, the comment has been referred to the DOE Amarillo Area Office.

PANTEX–141 **DOE Policy**

DOE acknowledges the commentor's question regarding management of pits at Pantex. Since this issue is beyond the scope of this SPD EIS, the comment has been referred to the DOE Amarillo Area Office.

PANTEX–142 **DOE Policy**

Onsite storage of plutonium pits at Pantex is analyzed in the *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components* (DOE/EIS-0225, November 1996), and in the *Supplement Analysis for: Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components—AL–R8 Sealed Insert Container* (August 1998). The latter document is available on the MD Web site at http://www.doe-md.com.

PANTEX–143 **DOE Policy**

The ROD for the *Storage and Disposition PEIS* presents the long-term storage plan for plutonium pits at Pantex. Storage facilities in Zone 12 South will be upgraded by 2004 to store, pending disposition, the surplus pits currently stored at Pantex, and surplus pits from RFETS. Storage facilities in Zone 4 will continue to be used for these pits prior to completion of the upgrade.

DOE should release court records on the man who died of leukemia in 1982. | 144

I have worked in the oil and gas industry for 18 years. Competition is good for business. Nuclear competition is healthy for oil and gas. | 145

PANTEX–144 **DOE Policy**

This issue is unrelated to the surplus plutonium disposition program and is beyond the scope of this SPD EIS.

PANTEX–145 **Other**

DOE acknowledges the commentor's support of competition.

What is the definition of a preferred alternative? Has there ever been an instance of a preferred alternative changing? | 1

Full immobilization is the best option for DOE. There is no need for a pure level of plutonium. Immobilization requires fewer facilities, plutonium travels less, there is less of a security risk, and there are fewer high-level-waste impacts. DOE will not have to deal with licensing resistance from communities. | 2

AIKEN–1 **General SPD EIS and NEPA Process**

A preferred alternative is the alternative that an agency believes best accomplishes the proposed action, giving consideration to environmental, technical, economic, and other information available at the time. In accordance with CEQ implementing regulations (40 CFR 1502.14(e)), the agency shall identify its preferred alternative or alternatives, if one or more exists, in the draft EIS and must identify one in the final EIS. While DOE has identified its preferences in this SPD EIS, it is open to any new information that may become available and will use this information in making a decision, which will be published in a ROD. There have been instances in which a preferred alternative was changed in the period between the draft to final versions of an EIS, and others in which a preferred alternative was not chosen in the ROD. For example, the preferred alternative in the *Shutdown of the River Water System at the Savannah River Site* was to shut down the system; however, the No Action Alternative was chosen in the ROD.

AIKEN–2 **Alternatives**

DOE acknowledges the commentor's support for the immobilization-only approach. 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

I am concerned about the last six alternatives for immobilizing plutonium. Plutonium is a national resource and treasure. Fifty metric tons of weapons-grade plutonium is the equivalent of 200 million metric tons of coal at $150 per metric ton. Fifty metric tons of plutonium is worth about $29.5 billion. Fifty metric tons of plutonium can provide enough electricity to power three counties for 50 years. Do not immobilize plutonium that could be used for nuclear power. 3

transportation requirements for the surplus plutonium disposition program are also evaluated in this SPD EIS.

DOE has a classified design basis threat document for guidance in the design, construction, and evaluation of all security systems associated with the proposed surplus plutonium disposition facilities. That document was prepared in coordination with the law enforcement agencies (Federal, State, and local) and the intelligence community, and is reviewed periodically to ensure currency with emerging threats. Current DOE safeguards and security orders would also be used in the design, construction, and evaluation of the security systems.

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. 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.

AIKEN-3 **Alternatives**

DOE acknowledges the commentor's concern regarding the market value of surplus plutonium. The purpose of the MOX approach is not to generate electricity, but 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.

DOE reviewed the chemical and isotopic composition of the surplus plutonium and determined in the *Storage and Disposition PEIS* ROD that about 8 t (9 tons) of surplus plutonium were not suitable for use in making MOX fuel. Furthermore, DOE has identified an additional 9 t (10 tons) for a total of 17 t (19 tons) that have such a variety of chemical and isotopic compositions that it is more reasonable to immobilize these materials and avert the processing complexity that would be added if these materials were made into MOX fuel. The criteria used in this identification included the level of impurities, processing requirements, and the ability to meet the MOX fuel specifications.

MOX experience is untried; weapons-grade plutonium has never been used in commercial reactors. Weapons materials increase the wear and tear on commercial reactors and needs to be addressed. 4

I am concerned about the reprocessing of MOX fuel. DOE should fully expand nonreactor options to dispose of plutonium. Communities will cry nix MOX and will not support MOX. 5

AIKEN–4 **MOX Approach**

Although no domestic, commercial reactors are licensed to use plutonium-based fuel, several are designed to use MOX fuel, and others can easily and safely accommodate a partial MOX core. The fabrication of MOX fuel and its use in commercial reactors have been accomplished in Western Europe. This experience would be used for disposition of the U.S. surplus plutonium. While plutonium from warheads may never have been used in MOX fuel, its behavior in fuel is essentially the same as that of non-weapons-origin plutonium, and so does not present a situation different from MOX fuel experience to date. Plutonium from the different origins is chemically indistinguishable. The difference is isotopic: there is less plutonium 239 in non-weapons-origin plutonium than was produced for use in weapons. MOX fuel, regardless of the origin of the plutonium, has a higher flux than LEU fuel, therefore, it can cause more wear on the reactor than LEU fuel. However, this flux differential would be taken into account during the development of fuel management strategy for the reactor core. Section 4.28 was revised to present the reactor-specific analyses, including accident analyses, for the reactors proposed to use MOX fuel.

AIKEN–5 **Alternatives**

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.

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

Pit disassembly and conversion increases the inventory of sites for cleanup. | 6

The SPD EIS process is cooked. The United States should not make MOX fuel if it's not going to use it. | 7

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.

AIKEN-6 Pit Disassembly and Conversion

The pit disassembly and conversion process declassifies plutonium from pits and clean metal and converts the plutonium to an oxide. This is a necessary first step for surplus plutonium disposition. This SPD EIS identifies and analyzes potential environmental impacts that might result from the construction and operation of the pit conversion facility at the candidate sites. As described in Chapter 4 of Volume I, these potential impacts would likely be minor. D&D is discussed in Section 4.31. DOE will evaluate options for D&D or reuse of the proposed facilities at the end of the surplus plutonium disposition program. At that time, DOE will perform engineering evaluations, environmental studies, and further NEPA review to assess the consequences of different courses of action.

AIKEN-7 Alternatives

DOE has prepared this SPD EIS in accordance with the provisions of NEPA (42 U.S.C. 4321 et seq.) and the related CEQ and DOE implementation regulations (40 CFR 1500 through 1508 and 10 CFR 1021, respectively). The primary objective of the EIS is a comprehensive description of proposed surplus plutonium disposition actions and alternatives and their potential environmental impacts. DOE has 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.

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.

MOX costs more. DOE should cancel the MOX option and use the savings from the canceled option for more productive purposes. | 8

Will the utilities wind up paying more to use MOX fuel? | 9

Who pays to provide free plutonium to utilities? Utilities could be paid twice, once by ratepayers, and once by the government. DOE needs to address in what way subsidies provide unfair advantage to some utilities over others. Is DOE willing to buy out commercial utilities to keep MOX going? Who will buy utilities from MOX reactors? Consumers want alternative choices for energy. | 10

AIKEN–8 **Cost**

DOE acknowledges the commentor's opposition to the MOX approach based on cost. Because cost issues are beyond the scope of this SPD EIS, this comment has been forwarded to the cost analysis team for response. For a better understanding of the cost and schedule estimates for each alternative, consult *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998) and *Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document* (DOE/MD-0013, November 1999). These documents 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.

AIKEN–9 **MOX RFP**

DOE's intention is for the use of MOX fuel to be revenue neutral for utilities. 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.

AIKEN–10 **DOE Policy**

DOE conducted a procurement process to acquire MOX fuel fabrication and irradiation services. The surplus plutonium would be free to the selected team, DCS, in which the utilities are a partner. DCS would have access to the U.S. Government–owned MOX facility to fabricate fuel for use in the reactor of its choice, in exchange for irradiation of the MOX fuel that would convert the plutonium to meet 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 contract between DOE and DCS does not provide for subsidies to utilities. The supply of electricity by MOX fuel irradiated in the reactor would be determined by the demand for electricity in the reactor's service area.

SRS costs $60 million less than the Pantex option. DOE's own experts estimate savings to exceed $1.5 billion based on eliminating duplicative costs. | 11

I have reviewed DOE's cost estimates for accuracy, and I do not believe that DOE's numbers are reflective of actual savings. | 12

I recommend that the United States pursue with Russia a course that will yield the best use of available funds. | 13

The United States to date has not established plutonium as a commodity. MOX will set this precedent and will remove a credible basis for the nation to oppose international proliferation from military to commercial practices. MOX increases the risk of proliferation. No plutonium should be turned into MOX fuel. | 14

AIKEN–11 **Cost Report**

Because this comment relates directly to the cost analysis report, it has been forwarded to the cost analysis team for consideration. 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, is 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.

AIKEN–12 **Cost Report**

Because this comment relates directly to the cost analysis report, it has been forwarded to the cost analysis team for consideration. 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, is 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.

AIKEN–13 **DOE Policy**

DOE agrees that close cooperation between the United States and Russia is essential to achieve the objectives of nonproliferation and arms reduction, and to ensure secure management of nuclear weapons materials. To that end, the United States and Russia recently made progress in the management and disposition of plutonium. 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.

AIKEN–14 **Nonproliferation**

DOE acknowledges the commentor's opposition to the MOX approach. Consistent with the U.S. policy of discouraging the civilian use of plutonium,

DOE needs to establish a zero release policy. There is no acceptable amount of release, and DOE should have 100 percent containment. | 15

DOE needs to include redundancy in controlling contamination. It needs to adopt an "as low as achievable standard" for workers rather than an "as low as reasonably achievable" standard. | 16

Regarding Texas' support for the pit disassembly and conversion mission: the Texas State Republican Platform opposed hazardous waste as an energy source in an agricultural area or above a water source. | 17

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.

AIKEN–15 **DOE Policy**

DOE acknowledges the commentor's support of a zero release policy. Operation of the proposed surplus plutonium disposition facilities would comply with applicable Federal, State, and local laws and regulations governing radiological and hazardous chemical releases. DOE would also establish an effective ALARA program to ensure that doses are reduced to levels that are as low as is reasonably achievable.

AIKEN–16 **DOE Policy**

DOE acknowledges the commentor's support of redundancy in controlling contamination. The proposed surplus plutonium disposition facilities would be designed, constructed, operated, and deactivated in accordance with applicable Federal, State, and local environmental, safety, and health requirements. Within these limits, DOE believes that the level of contamination should be kept as low as is reasonably achievable, so that the benefit of reducing the already low level of contamination would warrant the additional cost of that reduction. Worker safety is also a major consideration in construction and operation of the proposed facilities, and safety assessment is an integral part of the design process.

AIKEN–17 **Other**

The surplus plutonium is not hazardous waste, but separated weapons-usable plutonium that the United States is now trying to put into a proliferation-resistant form. 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

It's in the best interest of the nation to consolidate the plutonium disposition mission at SRS. SRS welcomes two components of the plutonium disposition mission and would like the third component as well. It makes sense to locate the mission at a site where the expertise resides. SRS employs 14,000 workers, and another 10,000 workers have retired from the site. SRS has first-hand knowledge in handling plutonium. 18

There are concerns about Pantex being chosen for pit disassembly and conversion. Pantex has no workforce experience in handling unclad plutonium and no experience with plutonium release. The Pantex workforce is not familiar with the finer aspects of plutonium (i.e., safeguarding in various forms). Processing plutonium requires special skills and extensive experience. Pantex is not designed for the type of work required to process plutonium. 19

SRS has been a good neighbor. DOE provided grants to United Way to offset impacts of downsizing. DOE made it possible for communities to respond to displaced workers. 20

MOX increases the amount of waste. 21

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.

AIKEN–18 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at SRS. As indicated in the revised Section 1.6, SRS is preferred for the proposed facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure. Decisions on the surplus plutonium disposition program at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

AIKEN–19 **Alternatives**

DOE acknowledges the commentor's concerns regarding siting the pit conversion facility at Pantex. The candidate sites for the proposed surplus plutonium disposition facilities would have levels of protection and control compliant with applicable DOE environmental, safety, and health requirements. Training would be provided to all workers involved in the surplus plutonium disposition program. 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. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

AIKEN–20 **Socioeconomics**

DOE acknowledges the commentor's appreciation of SRS and of efforts by DOE to minimize the impacts of downsizing.

AIKEN–21 **Waste Management**

As discussed in Appendix H and Chapter 4 of Volume I, some additional waste would be generated if DOE decided to convert 33 t (36 tons) of the

What is the rationale for commercializing the MOX fuel fabrication process? Commercial reactors are not designed to accommodate MOX fuel. DOE needs to consider the impacts of MOX on individual commercial reactors. Until this is done, the SPD EIS is not complete. 22

The MOX option increases the risk of accidents in commercial reactors. Aging reactors are being closed by communities. MOX licensing opens the door for prolonging the life of some of these reactors. Chernobyl was bad, and an accident with MOX will be worse. 23

surplus plutonium to MOX fuel rather than to immobilize all of the plutonium. This can be seen by comparing Alternative 2 at Hanford, which would involve immobilizing 17 t (19 tons) and fabricating 33 t (36 tons) into MOX fuel, with Alternative 11A, under which all 50 t (55 tons) would be immobilized.

AIKEN–22 **MOX RFP**

DOE's proposed action for surplus plutonium disposition is not a privatization effort, although the acquisition of MOX fuel fabrication and irradiation services has some similarities to DOE's privatization initiative. DOE conducted a procurement process to acquire these 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.

Although no domestic, commercial reactors are licensed to use plutonium-based fuel, several are designed to use MOX fuel, and others can easily and safely accommodate a partial MOX core. An amendment to a reactor's NRC operating license would be required before MOX fuel could be used. In addition, core load and safety analyses would be performed and an NRC license amendment approved before MOX fuel was introduced into any reactor. Section 4.28 was revised to discuss the procurement process as well as the potential environmental impacts of the reactors that would use the MOX fuel.

AIKEN–23 **Facility Accidents**

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. As discussed in Section 4.28.2.5, studies by NAS have led it to the following conclusion: "no important overall adverse impact of MOX use on the accident probabilities of the LWRs involved will occur; if there are adequate reactivity and thermal margins in the fuel, as licensing review should ensure, the main remaining determinants of accident probabilities will involve factors not related to fuel composition and hence unaffected by the use of MOX rather than LEU fuel." The analysis reflected in Section 4.28 indicates that the change in consequences to the population within 80 km (50 m) of the reactors for the beyond-design-basis

There are more thermal impacts from MOX that haven't been evaluated in the SPD EIS. | 24

I am concerned about transporting materials from Rocky Flats and Richland and the added volume it will bring to the region. | 25

I am aware of DOE 6450-01-P, Citations for Concerns regarding shipment security. The rise in national and international terrorism mandates that shipments be kept secret. Citizens do not know about foreign fuel shipments unless they go through channels. Citizens do not get the word from DOE. I found out about a DOE shipment through the Internet. I camped out and saw a video shot from a helicopter of a television news team. The shipment was spotted with a $150 telescope. The point is that shipments are vulnerable to terrorists if those terrorists want to get to them. | 26

accidents involving MOX fuel would range from minus 4 to plus 14 percent. For the design basis accidents, the incremental change in consequences from MOX fuel would range from minus 6 to plus 3 percent.

AIKEN–24 **MOX Approach**

Following irradiation, the MOX fuel would be removed from the reactor and managed at the reactor site as spent fuel in accordance with the site's normal spent-fuel-handling procedures. In all likelihood, the MOX spent fuel would be stored in a water pool until it could be sent to a potential geologic repository for ultimate disposition pursuant to the NWPA, as amended. Reactors would require NRC operating license amendments and, as part of that process, safety and operational arrangements (e.g., spent fuel management plans) and specific safety and operational issues (e.g., any thermal differences between MOX and LEU fuels) would be evaluated. In any event, it would be the licensee's responsibility to ensure that spent fuels, MOX or LEU, were safely managed. Analyses performed thus far show that MOX fuel would be treated the same as commercial spent fuel, and that no new waste package design would be needed. Should the potential geologic repository not qualify to receive spent fuel, then DOE would make recommendations to the U.S. Congress on how to proceed.

AIKEN–25 **Transportation**

DOE acknowledges the commentor's concern about the transportation of materials in the SRS region. This SPD EIS describes the impacts of the increase in traffic in Section 4.32.4.5. Note that the increase as a result of the surplus plutonium disposition program is about 1 percent. Table L–6 summarizes the potential transportation impacts associated with all SPD EIS alternatives. As indicated in Section 2.18, no traffic fatalities from nonradiological accidents or LCFs from radiological exposures or vehicle emissions are expected.

AIKEN–26 **Transportation**

DOE acknowledges the commentor's concern about shipment vulnerability, and recognizes the possibility of terrorist-related incidents during the disposition of surplus plutonium. Appendix L.6.5 describes the potential

Communities are actively opposed to nuclear materials and waste shipments. DOE's plan to ship powder or oxide form across six states is ridiculous. The potential impacts from an accident are enormous. It's harder to contain the material, and the impact to the public is unacceptable. | 27

NRC regulations no longer require double wall containers. DOE should voluntarily use double wall containers for shipping. | 28

impacts of a terrorist attack during transportation of the nuclear materials involved in implementing the proposed action. Appendix L.3.2 contains information on the security provided by the Transportation Safeguards System. Appendix L.6.5 was revised to provide more information on safeguards and security for plutonium.

AIKEN–27 **Transportation**

DOE acknowledges the commentor's concern about the shipment of nuclear material and waste. Table L–6 summarizes the potential transportation impacts associated with all surplus plutonium disposition alternatives. As indicated in Section 2.18, no traffic fatalities from nonradiological accidents or LCFs from radiological exposures or vehicle emissions are expected. Transportation risk is just one of many issues that DOE will consider before selecting an alternative. Alternatives 1, 2, 3, 6A, 6B, 7, 8, 9, 10, 11A, and 12A do not require shipping oxide that was converted from the pits and metal.

AIKEN–28 **Transportation**

The Type B packages that would be used to transport plutonium pits, metal, and oxide are designed to withstand test conditions described in Appendix L.3.1.6 which represent extremely severe accidents (estimated to be more severe than over 99 percent of all accidents that could occur) and still contain the packaged radioactive contents. Type B packages have been used for years to ship radioactive materials in the United States and around the world. To date, no Type B package has ever been punctured or released any of its contents, even in actual highway accidents. As described in Appendix L.3.1.5, the Type B package is extremely robust and provides a high degree of confidence that even in extremely severe accidents the integrity of the package would be maintained with essentially no loss of the radioactive contents or serious impairment of the shielding capability. 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.

DOE should note that citizens' organizations in Russia also oppose MOX. | 29

As a minister, I am tempted to go to a higher authority than elected officials to encourage our DOE officials to make the correct decision for our entire nation. | 30

DOE should conduct meetings in Barnwell and Allendale counties as well as in Augusta. | 31

The opposing comments offered at this meeting are not being made by locals and do not represent the South Carolina community. DOE has heard from a diversity of community members, and all support the plutonium disposition mission. The SRS Retiree Association Board of Directors support a consolidated mission at SRS. SRS is strongly supported by local citizens. | 32

AIKEN–29 **Alternatives**

DOE acknowledges the commentor's observation that citizens' organizations in Russia also oppose the MOX approach.

AIKEN–30 **Other**

DOE acknowledges the commentor's position. 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.

AIKEN–31 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's request for additional hearings in Barnwell and Allendale Counties. During the comment period, July 17 through September 16, 1998, DOE hosted five public hearings that provided opportunities for oral and written comment on the SPD Draft EIS. Afternoon and evening workshops were held at the five hearings. The hearing in North Augusta, South Carolina, was held at the North Augusta Community Center, a location near Barnwell and Allendale Counties, on August 13. For persons unable to attend these hearings, DOE provided opportunities for submitting comments by various means: mail, a toll-free telephone and fax line, and the MD Web site. All comments were given equal consideration, regardless of how they were submitted.

AIKEN–32 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at SRS. As indicated in the revised Section 1.6, SRS is preferred for the proposed facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure. Decisions on the surplus plutonium disposition program at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

Commercial reactor communities are not as supportive of the MOX option as DOE Complex communities. | 33

DOE is not considering communities where commercial reactors are located. DOE needs to hold meetings in the vicinity of commercial reactors being considered to burn MOX fuel to allow communities the chance to influence the MOX decision. | 34

AIKEN–33 **MOX Approach**

DOE acknowledges the commentor's observation that reactor communities may not be as supportive of the MOX approach as DOE complex communities. Commercial reactors in the United States are capable of safely using MOX fuel. The fabrication of MOX fuel and its use in commercial reactors have been accomplished in Western Europe. This experience would be used for disposition of the U.S. surplus plutonium. The environmental, safety, and health consequences of the MOX approach, as well as the production and disposal of any waste, are addressed by DOE in this SPD EIS. The MOX facility would be licensed by NRC under 10 CFR 70, and NRC would continue to be responsible for licensing the reactors that use MOX fuel, and as such would have to approve the use of MOX fuel through the license amendment process.

DOE used several means to solicit comments on the surplus plutonium disposition program from the public; State, local and tribal officials; special interest groups; and other interested parties. These include mail, a toll-free telephone and fax line, and the MD Web site. In addition, DOE has conducted public hearings in excess of the minimum required by the NEPA regulations on the weapons-usable fissile materials disposition program and discussed materials disposition in many other public forums.

AIKEN–34 **General SPD EIS and NEPA Process**

The SPD Final EIS was not issued until specific reactors had been identified and the public had an opportunity to comment on the reactor-specific information. As part of the procurement process, bidders were asked to provide environmental information to support their proposals. This information was analyzed in an Environmental Critique prepared for the DOE source selection board prior to award of the MOX fuel fabrication and irradiation services contract. DOE then prepared an Environmental Synopsis on the basis of the Environmental Critique, which was released to the public as Appendix P of the *Supplement to the SPD Draft EIS* in April 1999. A hearing was held in Washington, D.C. on specific reactor information. After careful consideration of its public involvement opportunities, including information availability and mechanisms to submit comments, DOE decided not to hold additional hearings on the *Supplement.* DOE provided other

What is DOE planning to do about the spent fuel from MOX? | 35

I support nuclear energy. | 36

The technology proposed at Pantex would require "high-fire" oxide, which is usable for MOX without extensive pretreatment. If aqueous processing is required to meet the MOX standard, how will DOE do it? Will DOE use a polishing process? | 37

means for the public to express their concerns and provide comments: mail, a toll-free telephone and fax line, and the MD Web site. The *Supplement* was mailed to those stakeholders who requested it as well as those specified in the DOE *Communications Plan* (i.e., Congressional representatives, State and local officials and agencies, and public interest groups around the United States) and the utilities' contact lists. The utilities, Duke Power Company and Virginia Power Company, would operate the proposed reactors (located in North Carolina, Sourth Carolina, and Virginia) should the MOX approach be pursued per the SPD EIS ROD. Further interested parties would likely have the opportunity to submit additional comments during the NRC reactor license amendment process.

AIKEN–35 **MOX Approach**

Following irradiation, the MOX fuel would be removed from the reactor and managed at the reactor site as spent fuel in accordance with the site's normal spent-fuel-handling procedures. In all likelihood, the MOX spent fuel would be stored in a water pool until it could be sent to a potential geologic repository for ultimate disposition pursuant to the NWPA, as amended. Reactors would require NRC operating license amendments and, as part of that process, safety and operational arrangements (e.g., spent fuel management plans) and specific safety and operational issues (e.g., any thermal differences between MOX and LEU fuels) would be evaluated. In any event, it would be the licensee's responsibility to ensure that spent fuels, MOX or LEU, were safely managed. Analyses performed thus far show that MOX fuel would be treated the same as commercial spent fuel, and that no new waste package design would be needed. Should the potential geologic repository not qualify to receive spent fuel, then DOE would make recommendations to the U.S. Congress on how to proceed.

AIKEN–36 **Other**

DOE acknowledges the commentor's support for nuclear energy.

AIKEN–37 **Plutonium Polishing and Aqueous Processing**

Appendix N of the SPD Draft EIS discusses the environmental impacts of adding a small plutonium-polishing process into either the pit conversion or MOX facility as a contingency. On the basis of public comments on the SPD Draft EIS, and the analysis performed as part of the MOX procurement,

Why is the pit disassembly and conversion facility so much cheaper to build than the other facilities?	38
Is the variance projected in the Cost Report due to uncertainties (equipment needs, etc.)?	39
The cost numbers seem low and should be double checked to ensure consistency. The $2,400 per square foot seems low.	40

DOE has included plutonium polishing as a component of the MOX facility to ensure adequate impurity removal from 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.

AIKEN–38 **Cost**

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* (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.

AIKEN–39 **Cost Report**

Because this comment relates directly to the cost analysis report, it has been forwarded to the cost analysis team for consideration. 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, is 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.

AIKEN–40 **Cost Report**

Because this comment relates directly to the cost analysis report, it has been forwarded to the cost analysis team for consideration. 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, is 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.

There are hidden costs in startup. SRS has extensive expertise with a long history of operation and startups. Discipline is required for startups, and it benefits from extensive experience. | 41

SRS is the best site for a consolidated mission. It's the right thing to do, just do it. | 42

SRS has the best qualified workforce and site for plutonium processing. Other sites have adopted a lot of SRS' training practices. | 43

AIKEN–41 **Cost**

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* (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 at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

AIKEN–42 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at SRS. As indicated in the revised Section 1.6, SRS is preferred for the proposed facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure. Decisions on the surplus plutonium disposition program at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

AIKEN–43 **Alternatives**

DOE acknowledges the commentor's support for the SRS workforce and for siting the proposed surplus plutonium disposition facilities at SRS. As indicated in the revised Section 1.6, SRS is preferred for the proposed facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure. Decisions on the surplus plutonium disposition program at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

Westinghouse is an added reason and benefit for bringing a consolidated mission to SRS. Safety is the company's top priority. The company looks at the big picture and has the supporting management and infrastructure in place to be competitive. | 44

If the plutonium needs to be purified, SRS offers the flexibility to go to aqueous processing by using the canyon facilities. | 45

All waste management activities and processes are in place at SRS to support a plutonium disposition mission. SRS would not require a new waste management infrastructure. | 46

In the Stockpile Stewardship and Management PEIS, the decision was made that Pantex would not be contaminated with plutonium. A 1996 decision document disqualified Pantex for processing (including dry processing). | 47

AIKEN–44 **Alternatives**

DOE acknowledges the commentor's observations about Westinghouse and safety.

AIKEN–45 **Plutonium Polishing and Aqueous Processing**

An aqueous process for conversion of plutonium would have to be placed in a new facility. Existing canyon facilities at SRS are not configured for a surplus plutonium disposition mission and are either shut down or planned for shutdown and D&D. For example, use of F-Canyon at SRS would result in a requirement to reconfigure facilities and to keep the canyon operating for at least another 10 years. DOE has already made a commitment to the public, the U.S. Congress, and DNFSB to shut the canyon down.

AIKEN–46 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at SRS. As indicated in the revised Section 1.6, SRS is preferred for the proposed facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure. Decisions on the surplus plutonium disposition program at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

AIKEN–47 **Alternatives**

The *Final Programmatic Environmental Impact Statement for Stockpile Stewardship and Management* (SSM PEIS) (DOE/EIS-0236, September 1996) states that the pit fabrication mission would not be introduced into a site that does not have an existing plutonium infrastructure because of the high cost of new plutonium facilities and the complexity of introducing plutonium operations into sites without current plutonium capabilities. The SSM PEIS states further that an important element of the site selection strategy is to maximize the use of existing infrastructure and facilities as the nuclear weapons complex becomes smaller and more efficient in the 21st century; thus, no new facilities were to be built to accommodate stockpile management missions.

Does DOE plan not to comply with NRC Regulation 0800 [*refers to aircraft crash scenarios*]? | 48

Accordingly, DOE considered as reasonable only those sites with existing infrastructure capable of supporting a pit fabrication mission. Although Pantex has the infrastructure to carry out its current weapons assembly and disassembly mission and nonintrusive pit reuse program, it was not considered a viable alternative for the pit fabrication mission because it did not possess sufficient capability and infrastructure to meet the SSM PEIS siting assumption stated above. Among the operations that were considered in developing siting alternatives for pit fabrication in the SSM PEIS were plutonium foundry and mechanical processes, including casting, shaping, machining, and bonding; a plutonium-processing capability for extracting and purifying plutonium to a reusable form either from pits or residues; and assembly operations involving seal welding and postassembly processing.

When comparing the site selection strategy for pit disassembly and conversion with that used for the pit fabrication mission, the siting criteria in the SSM PEIS have little or no bearing on siting criteria used in this SPD EIS. Pit disassembly and conversion do not require the foundry and mechanical processes discussed in the SSM PEIS and can be accomplished in a stand-alone facility. Also, the SSM PEIS siting assumptions include a requirement to use existing facilities, whereas, the pit conversion facility would be a new structure no matter where it is located.

AIKEN–48 **Facility Accidents**

The aircraft crash analysis for this SPD EIS was performed in accordance with *Accident Analysis for Aircraft Crash Into Hazardous Facilities* (DOE-STD-3014-96, October 1996). DOE was cognizant of NRC NUREG-0800 in its development of DOE-STD-3014.

How many years will it take to complete the disposition process? | 1

When will the decision [*by DOE*] be made? | 2

I support the hybrid approach for plutonium disposition. I support 33 metric tons going to MOX fuel. For immobilization of the 17 metric tons, I suggest that 7 metric tons be immobilized, and the decision on the rest (10 metric tons) be delayed until the two processes are demonstrated. | 3

PORTLD–1 **Alternatives**

Appendix E includes schedules for the proposed surplus plutonium disposition facilities. Under the hybrid approach, the proposed facilities would cease operation by 2019. Section 4.30.2 includes a discussion and analysis of a slightly extended period of operation to account for potential delays due to issues such as negotiations with other countries and facility startup experiences. By 2016, the immobilization effort would be complete, and the HLW canisters containing the immobilized plutonium would be in storage awaiting disposition at the potential geologic repository. However, some of the MOX fuel assemblies might still be in reactors or awaiting insertion; DOE's *RFP for MOX Fuel Fabrication and Reactor Irradiation Services* (May 1998) specified a timetable that included a date for last insertion of MOX fuel into a reactor of no later than 2019. If the last insertion occurs in 2019, these assemblies could be undergoing irradiation until 2022. If all the surplus plutonium were dispositioned through immobilization, that effort would be completed by 2016.

PORTLD–2 **General SPD EIS and NEPA Process**

DOE will announce its decision regarding the surplus plutonium disposition program in the SPD EIS ROD. The ROD will be issued no sooner than 30 days after publication of this EIS.

PORTLD–3 **Alternatives**

DOE acknowledges the commentor's support of the hybrid approach to surplus plutonium disposition. The amount of surplus plutonium directed to each option is related to the suitability of the plutonium for use as MOX fuel. In the ROD for the *Storage and Disposition PEIS*, DOE decided that approximately 8 t (9 tons) of the current surplus plutonium were not suitable for use in MOX fuel, and would therefore be immobilized. As described in this SPD EIS, an additional 9 t (10 tons) were identified as unsuitable for MOX fuel fabrication. The 17 t (19 tons) of surplus plutonium are not suitable for fabrication due to the complexity, timing, and cost that would be involved in purifying the material. The remaining 33 t (36 tons) of the 50 t (55 tons) of surplus plutonium would be fabricated into MOX fuel. Both immobilization and MOX technologies are sufficiently mature and demonstrated. Therefore,

I support the can-in-canister technology/approach. What is the difference between the can-in-canister technology and regular vitrification? Is the canister made of steel? When will the container dissolve? Will it last for 10,000 years? When things disintegrate is a primary question when dealing with hot materials. DOE needs to go high-quality, not cut costs at the expense of safety. | 4

Where will the vitrification occur? | 5

decisions on the amount of plutonium to be dispositioned by each method can be made. In fact, MOX fuel is routinely fabricated and used in Western Europe. This experience would be used for disposition of the U.S. surplus plutonium. Any R&D currently underway or planned for the near future would only contribute to fine-tuning and increasing the efficiency of the processes, but would not affect disposition technology decisions.

PORTLD–4 **Immobilization**

DOE acknowledges the commentor's support of the can-in-canister immobilization approach to surplus plutonium disposition. In the "regular" vitrification approach, the surplus plutonium would be blended directly with molten glass and HLW to form a homogenous mixture that would then be poured into large, stainless steel canisters. In the can-in-canister approach, however, the plutonium would first be immobilized in ceramic or glass, and loaded into smaller individual stainless steel cans. A number of these cans would then be placed inside the stainless steel canister, which in turn would be filled with HLW glass. The can-in-canister approach is described further in Section 2.4.2, and the potential environmental impacts associated with the homogenous vitrification and can-in-canister immobilization approaches are compared in Section 4.29. The waste canister used in either approach would be the same as those currently used in DOE's HLW vitrification program, and as such would meet all repository acceptance and performance criteria.

PORTLD–5 **Alternatives**

Immobilization in either glass or ceramic form could take place at either Hanford or SRS. As indicated in Section 1.6, SRS is preferred for the immobilization facility. The preferred can-in-canister approach at SRS complements existing missions, takes advantage of existing infrastructure and staff expertise, and enables DOE to use an existing facility (DWPF). DOE is presently considering a replacement process for the in-tank precipitation (ITP) process at SRS. The ITP process was intended to separate soluble high-activity radionuclides (i.e., cesium, strontium, uranium, and plutonium) from liquid HLW before vitrifying the high-activity fraction of the waste in DWPF. The ITP process as presently configured cannot achieve production goals and safety requirements for processing HLW. Three alternative processes are being evaluated by DOE: ion exchange, small tank precipitation, and direct grout.

I support the SPD EIS, but would like to see full immobilization and no MOX. | 6

I'm opposed to the MOX option. There are safety concerns, more waste will be generated, and it will incur cost overruns. | 7

DOE's preferred immobilization technology (can-in-canister) and immobilization site (SRS) are dependent upon DWPF providing vitrified HLW with sufficient radioactivity. DOE is confident that the technical solution will be available at SRS by using radioactive cesium from the ion exchange or small tank precipitation process. A supplemental EIS (DOE/EIS-0082-S2) on the operation of DWPF and associated ITP alternatives is being prepared. 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. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PORTLD–6 **Alternatives**

DOE acknowledges the commentor's support for the immobilization-only approach. 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.

PORTLD–7 **MOX Approach**

DOE acknowledges the commentor's opposition to the MOX approach based on safety, waste, and cost concerns. DOE continually evaluates equipment performance to identify potential health and safety problems. New design features can be incorporated and operational procedures modified, as necessary, to reduce or even eliminate these problems. As stated in Section 2.4, the designs of the plutonium disposition facilities are not final. They are subject to modification during the design and construction process. Modifications, as appropriate, may be made to reduce radiation exposures

The National Academy of Science is opposed to MOX; they say it is too costly. | 8

and optimize equipment placement and process flow. The proposed surplus plutonium disposition facilities would incorporate design features and be operated in a manner that reduces doses to workers and the public to levels that are as low as is reasonably achievable.

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.

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.

PORTLD–8 **MOX Approach**

DOE acknowledges the commentor's concern regarding cost of the MOX approach. An NAS panel of investigators found the MOX approach promising for the timely disposition of surplus plutonium. In the report, *Management and Disposition of Excess Weapons Plutonium, Reactor-Related Options* (1995), NAS compared the costs of the immobilization and MOX approaches. Both approaches were comparable in cost for most of the MOX fuel options discussed.

If the Department goes to commercial burn, who owns the fuel? | 9

Will the commercial reactors need to be modified for MOX fuel? | 10

DOE stated that MOX fuel fabrication has to be performed on DOE land. Siemens Nuclear Fuels, Inc., is located across the street from FMEF on public land. Siemens is a missed opportunity because it is located on commercial land, but is located adjacent to FMEF. Siemens Nuclear Fuels would be a good choice as a pilot test plant at Hanford. | 11

The MOX mission puts the economy at risk. The Washington Public Power Supply System (WPPSS) is putting out an RFP for MOX. WPPSS has a history of cost overruns. | 12

PORTLD–9 **DOE Policy**

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. DOE would own the unirradiated fuel until it was received at the reactor site, at which time the reactor licensee would take ownership.

PORTLD–10 **MOX RFP**

Commercial reactors in the United States are capable of safely using MOX fuel. An amendment to a reactor's NRC operating license would be required before MOX fuel could be used. For this amendment, the licensee would have to demonstrate that all safety, testing, and environmental impacts had been addressed.

PORTLD–11 **Lead Assemblies**

DOE acknowledges the commentor's suggestion that lead assemblies be fabricated at the Siemens Nuclear Fuels facilities adjacent to FMEF at Hanford. Existing facilities at five candidate DOE sites were evaluated in this SPD EIS. As discussed in the revised Section 1.6, based on consideration of capabilities of the candidate sites and input from the DCS on the MOX approach, DOE prefers LANL for lead assembly fabrication. LANL is preferred because it already has fuel fabrication facilities that would not require major modifications, and takes advantage of existing infrastructure and staff expertise. Additionally, the surplus plutonium dioxide that would be used to fabricate the lead assemblies would already be in inventory at the site. Decisions on lead assembly fabrication will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PORTLD–12 **MOX RFP**

DOE conducted a competitive 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

Commercial reactors are approaching their life expectancy. | 13

Cost savings are a mirage; the project savings are bull. There is a history of cost overruns in commercial reactors, as well as within DOE. The general public assumption is that there will be cost overruns. | 14

Regarding the $2 billion program costs, is the money appropriated? | 15

as irradiate the MOX fuel in domestic, commercial reactors. However, these activities are subject to the completion of the NEPA process. Selection criteria employed ensured that the reactors chosen were capable of safe and successful surplus plutonium disposition. The criteria included, among other factors, recent facility operating history. WPPSS is not one of the reactors chosen to use MOX fuel.

PORTLD–13 **DOE Policy**

Qualification criteria used to select the domestic, commercial reactors included the ability of the reactors to complete the surplus plutonium disposition program within their operational lives as dictated by their licenses. The operating licenses for Catawba Units 1 and 2 expire in 2024 and 2026, respectively; those for McGuire Units 1 and 2, in 2021 and 2023, respectively; and those for North Anna Units 1 and 2, in 2018 and 2020, respectively. Section 4.28 was revised to discuss the potential environmental impacts of operating these reactors.

PORTLD–14 **Cost**

DOE acknowledges the commentor's position. 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* (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.

PORTLD–15 **Cost**

Since the estimates span the lifetime of the surplus plutonium disposition program, which is upwards of 20 years, the money has not yet been appropriated. For fiscal year 1999, money has been appropriated; for near-term out-years (the next 2 years), a budget request will be submitted to the U.S. Congress; for out-years (5 years), a projection is provided to Congress with the fiscal year 2000 budget request of what the program's liability or mortgage will be. More information on the Federal Budget Process may be obtained at http://arc.org.tw/law/majorlaws/96-912.htm.

How much will MOX cost?	16
Is MOX fuel less expensive than fuel made with highly enriched uranium?	17
MOX subsidizes commercial utilities; the program should not be used to subsidize commercial utilities.	18
"Waste produced at commercial reactors" assumes that commercial reactors will continue to operate. Who pays?	19

PORTLD–16 **Cost**

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* (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.

PORTLD–17 **Cost**

LEU, not HEU, fuel is used in the U.S. commercial nuclear industry. If the effective value of 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.

PORTLD–18 **DOE Policy**

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 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 remainder of this comment is addressed in response PORTLD–17.

PORTLD–19 **Cost**

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. These reactors would be operational even if they were not selected to irradiate MOX fuel. As described in

Hanford has facilities, such as FMEF, which lend themselves to reducing plutonium disposition costs. FMEF reduces costs by $50 million; other independent estimates are higher at $200 million to $900 million. 20

Currently, infrastructure costs at Hanford are paid out of cleanup dollars; an additional mission such as MOX could share the infrastructure and overhead expense, and leave more money for cleanup. 21

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. Therefore, DCS would pay for the disposal of MOX spent fuel in the same manner as it would that of LEU spent fuel. Ultimately, the consumer pays the cost of operating the commercial reactor. However, DCS would not have to continue to use MOX fuel if it determined that it was uneconomical to operate the reactor. This would preclude the continuation of reactor operations solely for purposes of the surplus plutonium disposition program. Furthermore, DCS would only be reimbursed for costs solely and exclusively related to the MOX fuel irradiation. This would ensure that the taxpayers were not underwriting otherwise uneconomical electricity-generating assets.

PORTLD–20 **Cost**

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* (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.

PORTLD–21 **Cost**

Funds for the surplus plutonium disposition program and the environmental cleanup program come from different appropriation accounts allocated by the U.S. Congress that cannot be used interchangeably.

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* (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 Kremlin determines the amount of money spent on defense. It seems that Russia is still in the driver's seat for reducing weapons. | 22

Russia's economy is crumbling. The MOX option is a slow process and could possibly slow the declassification of pit materials. | 23

PORTLD–22 **DOE Policy**

The United States and Russia recently made progress in the management and disposition of plutonium. 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 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.

PORTLD–23 **DOE Policy**

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. 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. For 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. Further, selection of the disposition technology (immobilization and/or MOX approach) should not impact the pace of pit declassification. Pit declassification would more likely depend on the agreements reached with Russia.

MOX creates a new plutonium infrastructure that is counter to the nonproliferation treaty. The Atoms for Peace program advocates keeping military nuclear materials separate from commercial nuclear materials. In addition, back in the Eisenhower administration, it was agreed that weapons plutonium could not be used for civilian purposes. 24

Is the program creating plutonium (MOX fuel) that could be used to make a weapon? 25

Hanford should be considered for MOX and immobilization. FMEF is designed for MOX fuel fabrication and meets NRC and other requirements (i.e., National Quality Assurance Standard). FMEF could handle two of the three options; pit disassembly and conversion at Pantex requires a new facility. Pits should remain at Pantex and oxide should be shipped to Hanford. 26

PORTLD–24 **DOE Policy**

DOE acknowledges the commentor's opposition to the commercial use of weapons-usable plutonium. 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.

PORTLD–25 **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. The purpose of the MOX approach is to convert the surplus plutonium to a form that meets the Spent Fuel Standard, thereby providing evidence of irreversible disarmament and establishing a model of proliferation resistance. 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.

MOX fuel fabrication involves blending the plutonium dioxide with uranium dioxide, forming the mixed oxide into pellets, loading the pellets into fuel rods, and assembling the fuel rods into fuel assemblies. The fuel assemblies would be transported to the commercial reactors selected to irradiate the MOX fuel. Following irradiation, the MOX fuel would be removed from the reactor and managed at the reactor site as spent fuel. Final disposition would be at a potential geologic repository pursuant to the NWPA, as amended.

PORTLD–26 **Alternatives**

DOE acknowledges the commentor's support for siting the immobilization and MOX facilities in FMEF 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

It's logical that FMEF be considered since [*plutonium*] materials reside at Hanford. | 27

By using FMEF at Hanford, the timetable for bringing the mission online could be shortened. | 28

Original research for MOX fuel was performed at Hanford; the original concept used plutonium. The MOX pilot plant in Richland was the original breeder reactor. Hanford is experienced in handling MOX fuel. | 29

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, especially in regard to the use of existing facilities.

PORTLD–27 **Alternatives**

DOE acknowledges the commentor's support for the surplus plutonium disposition program using FMEF 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, especially in regard to the use of existing facilities.

PORTLD–28 **Alternatives**

DOE acknowledges the commentor's support for the surplus plutonium disposition program using FMEF at Hanford. Use of FMEF for disposition activities would not shorten the timetable for bringing the proposed surplus plutonium disposition facilities online. FMEF would require extensive renovation for use as a surplus plutonium disposition facility, and would also require construction of annexes for both the immobilization and MOX facilities. 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, especially in regard to the use of existing facilities.

PORTLD–29 **Alternatives**

DOE acknowledges the commentor's support for siting the MOX facility 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

Hanford has about 4 metric tons of scrap plutonium in the Plutonium Finishing Plant, and the new Hanford vitrification facility could handle scrap plutonium disposition. | 30

DOE has proclaimed cleanup as Hanford's No. 1 mission. Congressman Hastings and U.S. Senator Gorton agree with the cleanup mission, but also support FMEF for plutonium disposition mission. SRS has a cleanup mission as well. If SRS can handle it in addition to a plutonium disposition mission, so can Hanford. Other missions at the site will keep federal funds flowing to Hanford. | 31

Not every company at Hanford needs to be involved with cleanup. Other companies can be brought in to perform the MOX mission. | 32

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, especially in regard to the use of existing facilities.

PORTLD–30 **Alternatives**

DOE acknowledges the commentor's support for the surplus plutonium disposition program at Hanford. The 4 t (4.4 tons) of surplus nonpit plutonium referred to in this comment is part of the 17 t (19 tons) of surplus plutonium destined for immobilization under all alternatives analyzed in this SPD EIS except the No Action Alternative. 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, especially in regard to the use of existing facilities.

PORTLD–31 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities using FMEF 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, especially in regard to the use of existing facilities.

PORTLD–32 **Alternatives**

DOE acknowledges the commentor's support for siting the MOX facility 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.

How much waste will be produced by MOX? | 33

Regarding the comment [*refers to DOE's response at the meeting to another comment*] about accidents and latent cancer fatalities, the tone is too flippant. Citizens have serious concerns about any deaths occurring. | 34

Cancer risk projections are a myth. DOE cannot substantiate numbers that say the program does not cause deaths. | 35

PORTLD–33 **Waste Management**

Estimates of the amounts of TRU, LLW, mixed LLW, hazardous and nonhazardous wastes that would be generated by construction and operation of the MOX facility are presented in Appendix H. Appendixes H.1.2.3, H.2.2.2, H.3.2.2, and H.4.2.3 describe the wastes that would be generated by the MOX facility at Hanford, INEEL, Pantex, and SRS, respectively.

PORTLD–34 **Facility Accidents**

DOE is committed to public and worker safety during 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, regulations, and requirements. DOE would also establish an effective ALARA program to ensure that radiological and hazardous chemical doses are reduced to levels that are as low as is reasonably achievable.

PORTLD–35 **Human Health Risk**

The cancer risk projections used in this SPD EIS (see Appendix K.1.4.3) are based on the latest risk estimators available to the scientific community. These estimators are given in Section 3.4.2 of *1990 Recommendations of the International Commission on Radiological Protection* (ICRP Publication 60, November 1991). They are based on updated information on the probability of radiation-induced cancer deaths from the continuing assessment of the more than 90,000 survivors of the atomic bombings of Japan and from other cancer studies. A detailed discussion of all the pertinent sources of information is provided as Annex B of the ICRP publication. The risk estimators were used to project the LCF values given for normal operations and postulated accidents in Chapter 4 of Volume I.

DOE does not claim that its surplus plutonium disposition program would cause no adverse health effects, but rather demonstrates that the risk of fatal cancers among workers and the general public is minimal.

Any new waste generated at Hanford is too much. | 36

Northwest citizens are concerned about health and safety for workers and the public; the health of the Columbia River and fish must be preserved. | 37

The proper weight was not given to the analysis of dose reconstruction. We're not convinced of the argument to give new missions to Hanford. | 38

PORTLD–36 **Waste Management**

Estimates of the amounts of TRU, LLW, mixed LLW, hazardous and nonhazardous wastes that would be generated by construction and operation of the proposed surplus plutonium disposition facilities are presented in Appendix H. Appendix H.1.2.3 describes the wastes that would be generated by the MOX facility 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.

PORTLD–37 **Human Health Risk**

DOE is committed to protecting the safety and health of the public and its workers, which includes designing, constructing, and operating its facilities in such a way as to provide a level of safety and reliability that meets or exceeds that characterized by modern commercial standards.

In regard to any concerns that may be associated with the Columbia River and the aquatic life therein, as described in Section 4.26.1.2, surface water would not be used in construction and operation of the proposed surplus plutonium disposition facilities at Hanford. Due to the dilution capability of the Columbia River, as well as FMEF's location relative to the Columbia River, there would be no discernible contamination of aquatic biota (fish) or drinking water resulting from the proposed facilities at Hanford, either from minute quantities of air deposition into the river or from any other potential wastewater releases. Therefore, no discernible impacts on the Columbia River would be expected.

PORTLD–38 **Human Health Risk**

Potential health impacts (i.e., doses and associated cancer risks) of the different alternatives that involve Hanford are elaborated in the Human Health Risk and Facility Accident sections in Chapter 4 of Volume I, as well as Appendixes J and K. The depth of the dose analyses is in compliance with NEPA (42 U.S.C. 4321 et seq.) and with *Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements* (DOE Office of NEPA Oversight, May 1993).

I represent organic farmers in the Columbia Basin striving for environmentally responsible farming. There is a challenge that continued activities from the nuclear and agricultural industries not impact the land. Friends and family members in the Tri-Cities area experienced health problems. They consumed game and river products. 39

PORTLD–39 **Human Health Risk**

DOE acknowledges the commentor's concern regarding potential health effects of historical releases at Hanford. Section 3.2.4 presents information on past and existing human health risk characteristics. Included are discussions of radiation exposure, chemical exposure, and health effects studies, as well as an accident history.

The Atomic Energy Act of 1954 authorizes DOE to establish standards to protect health and minimize dangers to life. DOE designs, locates, constructs, and operates its facilities in such a way as to provide a level of public safety that meets or exceeds the standards of modern commercial plants. Radiation protection standards are based on keeping radioactive releases at ALARA levels in recognition of the potential risk of radiation exposure. All alternatives proposed in this EIS would conform to those radiation protection standards.

As described in Appendix J.1.1.3, agricultural Census food production data established via DOC were used in the radiological dose assessments for this SPD EIS. These data were separated into eight individual categories: leafy vegetables, root vegetables, fruits, grains, beef (livestock), poultry, milk, and eggs. Analysis of per-county production provided for a high degree of accuracy in the assessment of dose via the ingestion pathway.

As shown in Appendix J.1.2.7.2, if the proposed surplus plutonium disposition facilities were located at Hanford, a very small incremental annual dose to the surrounding public from normal operations would result via radiological emission deposition on agricultural products. This dose (about 6.9 person-rem/yr) would be 0.006 percent of the radiation dose that would be incurred annually from natural background radiation.

Due to the dilution capability of the Columbia River, as well as FMEF's location relative to the Columbia River, there would be no discernible contamination of aquatic biota (fish) or drinking water resulting from surplus plutonium disposition activities at Hanford, either from minute quantities of air deposition into the river or from any potential wastewater releases. Thus, it is estimated that no component of the public dose would be attributable to liquid pathways.

DOE needs to consider the effects of an accident on surrounding communities. Columbia Basin farmers bring their agricultural products to Portland. There is a lot of farmland within the impact zone/sphere of influence of Hanford. It's time that Hanford is removed from service. Optics of a closed site are better for farmers. | 40

What kind of security is proposed when moving materials from site to site? Will it be as tight and secure as Navy transports? | 41

What will happen to Hanford's plutonium? Will it be transported offsite? | 42

Is special handling required to transport the spent fuel once the MOX burn is complete? | 43

PORTLD–40 **Facility Accidents**

The effects of hypothetical accidents are analyzed in this SPD EIS in terms of the estimated population dose within 80 km (50 mi). Doses are conservatively estimated. Economic costs such as those associated with crop loss due to potential accidents have not been estimated; most of the potential contamination would occur on the Hanford site.

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.

PORTLD–41 **Transportation**

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. 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. Details of the security systems are described in Appendix L.3.2. Special nuclear material shipments would be carried out in much the same manner in which the Navy transports HEU.

PORTLD–42 **Transportation**

Depending on the decision made by DOE, the surplus plutonium could be either (1) placed in long-term storage at Hanford (i.e., the No Action Alternative) or (2) immobilized at Hanford or shipped to SRS for immobilization, and subsequently shipped to a potential geologic repository for disposition.

PORTLD–43 **Transportation**

The licensee irradiating the MOX fuel for DOE would handle the MOX spent fuel in the same basic manner as it does the normal LEU spent fuel. There would be no need for new or separate facilities (spent fuel pool), storage containers, or shipping containers.

I disliked receiving 5 pounds of materials that I could not understand. The Department should provide a one page summary of what the EIS is about. 44

The SRS decision is politically motivated (Strom Thurmond, Newt Gingrich). SRS is important to that region politically. 45

Any EIS being produced is driven by politics. The decisions are politically based, not technically based. 46

Why is it so difficult to get adequate funding for cleanup if funding is so readily available for this project? 47

Funding for cleanup is inadequate at Hanford. Cost savings are critical to future cleanup success. If a weapons mission starts up again, it will take away funding for cleanup. I'm skeptical that Hanford will get adequate funding for cleanup, which drives how stakeholders approach getting new missions. Hanford's waste legacy must be dealt with. 48

PORTLD–44 **General SPD EIS and NEPA Process**

The size of this SPD EIS is attributable in part to the level of information required for compliance with NEPA. Other factors are the complexity of the proposed action and the need to include a range of reasonable alternatives. Because of the document's size, DOE has prepared a fact sheet for the purpose of directing readers to information of specific interest, and, also in accordance with NEPA, a short summary of the information.

PORTLD–45 **General SPD EIS and NEPA Process**

Decisions on the surplus plutonium disposition program at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PORTLD–46 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's views on the basis for EIS decisionmaking. This SPD EIS contains the best information and analyses available to allow for a fair comparison among the candidate sites for the proposed surplus plutonium disposition facilities. 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.

PORTLD–47 **DOE Policy**

Funds for the surplus plutonium disposition program and the environmental cleanup program come from different appropriation accounts allocated by the U.S. Congress that cannot be used interchangeably. Further, since Hanford's cleanup mission and funding are not part of the surplus plutonium disposition program, they should not be impacted by decisions made in connection with this SPD EIS.

PORTLD–48 **DOE Policy**

DOE acknowledges the commentor's concern for adequate funding for cleanup. Funds for the surplus plutonium disposition program and the environmental cleanup program come from different appropriation accounts allocated by the U.S. Congress that cannot be used interchangeably. Further,

It's time to get the Tri-Cities off of the public dole. Recruiting new missions is contrary to moving the Tri-Cities away from government missions. The public supports Hanford cleanup, not new missions. 49

The current history of DOE privatization efforts, such as for the Tank Waste Remediation System, proves that privatization is more expensive than if managed by the government. 50

Once the MOX fuel rods are passed through the reactor, where will the spent fuel be stored? 51

I am concerned about the waste. There is spent fuel in temporary storage all over the country with no place available (repository) for permanent storage. The United States is not making any real progress in handling the waste. We should not be generating new waste until the first problem is solved. 52

since Hanford's cleanup mission and funding are not part of the surplus plutonium disposition program, they should not be impacted by decisions made in this SPD EIS.

PORTLD–49 **DOE Policy**

DOE acknowledges the commentor's opposition to new missions 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.

PORTLD–50 **DOE Policy**

DOE's proposed action for surplus plutonium disposition is not a privatization effort, even though the acquisition of MOX fuel fabrication and irradiation services has some similarities to the TWRS privatization efforts.

PORTLD–51 **MOX Approach**

Following irradiation, the MOX spent fuel would be removed from the reactor and stored in the spent fuel pond or in dry storage casks at the reactor site until final disposal at a potential geologic repository pursuant to the NWPA, as amended. Additional information on MOX spent fuel management is provided in Section 4.28.2.8.

PORTLD–52 **Repositories**

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. The characteristics of the MOX spent fuel would be similar to those of normal spent LEU fuel. This SPD EIS assumes, for the purposes of analysis, that Yucca Mountain, Nevada, would be the final disposal site for all immobilized plutonium and MOX spent fuel. As directed by the

Geologic problems at Yucca Mountain have not been solved yet, so we can't depend on Yucca Mountain for permanent storage. It has a water problem. 53

The nuclear industry is out of control and is struggling to meet current requirements. There should be no new nuclear reactors; the nuclear industry has outlived its worth. 54

U.S. Congress through the NWPA, as amended, Yucca Mountain is the only candidate site currently being characterized as a potential geologic repository for HLW and spent fuel. DOE has prepared a separate EIS, *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), which analyzes the environmental impacts from construction, operation and monitoring, related transportation, and eventual closure of a potential geologic repository.

PORTLD–53 **Repositories**

As directed by the U.S. Congress through the NWPA, as amended, Yucca Mountain, Nevada, is the only candidate site currently being characterized as a potential geologic repository for HLW and spent fuel. Thus, this SPD EIS assumes, for the purposes of analysis, that Yucca Mountain would be the final disposal site for all immobilized plutonium and MOX spent fuel. The suitability of Yucca Mountain as a potential geologic repository for HLW and spent nuclear fuel is beyond the scope of this EIS. DOE has prepared a separate EIS, *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), which analyzes the environmental impacts from construction, operation and monitoring, related transportation, and eventual closure of a potential geologic repository. DOE submitted the *Viability Assessment for a Repository at Yucca Mountain* (DOE/RW-0508, December 1998) to the President and Congress. Based on the results of the viability assessment, DOE believes that scientific and technical work at Yucca Mountain should proceed to support a decision by the Secretary of Energy in 2001 on whether to recommend the site to the President for development as a potential geologic repository.

PORTLD–54 **Other**

DOE acknowledges the commentor's concern regarding the nuclear industry. 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

Who makes the decision [*refers to preferred alternative*]? | 55

How did DOE arrive at its preferred alternative? How much influence has the nuclear industry had on the decision? | 56

subject to the completion of the NEPA process. 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; no new reactors would be built to support the surplus plutonium disposition program. 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.

PORTLD–55 **General SPD EIS and NEPA Process**

The Secretary of Energy will make the decision on surplus plutonium disposition. This decision will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

PORTLD–56 **Purpose and Need**

A preferred alternative is the alternative that an agency believes best accomplishes the proposed action, giving consideration to environmental, technical, economic, and other information available at the time. In accordance with CEQ implementing regulations (40 CFR 1502.14(e)), the agency shall identify its preferred alternative, if one or more exists, in the draft EIS and identify such alternative in the final EIS. While DOE has identified its preferences in this SPD EIS, it is open to any new information that may become available and will use this information in making a decision, which will be published in a ROD.

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.

As indicated in the revised Section 1.6, SRS is preferred for the proposed surplus plutonium disposition facilities because the site has extensive experience with plutonium processing, and these facilities complement existing

I agree with the preferred alternative to not site missions at Hanford. | 57

Are there problems in converting plutonium metals to oxides? | 58

DOE should go to 100 percent immobilization of plutonium because it is safer, requires less handling, and is cheaper with fewer hidden costs. Vitrification is the best form for dispositioning surplus plutonium. | 59

missions and take advantage of existing infrastructure. 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. Nuclear industry comments will be given the same consideration as any other public input.

PORTLD–57 **Alternatives**

DOE acknowledges the commentor's support for the preferred alternative. 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.

PORTLD–58 **Pit Disassembly and Conversion**

Conversion of plutonium metals to oxides is made through a hydride-oxidation process in which the plutonium metal reacts with hydrogen, nitrogen, and oxygen at controlled temperatures and pressures to produce plutonium dioxide. This process is rather straightforward and would produce plutonium dioxide that can be used for immobilization or fabrication into MOX fuel. A description of the conversion process is provided in Section 2.4.1.2.

PORTLD–59 **Alternatives**

DOE acknowledges the commentor's support for the immobilization-only approach. 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 DOE rules, regulations, and requirements.

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against any uncertainties 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

I am a retired Hanford worker; working on cleanup was my priority. I support the hybrid approach for plutonium disposition, specifically Alternative 4B. I support 33 metric tons of plutonium converted to MOX. Scrap plutonium should be immobilized (7 metric tons). The decision on immobilizing the other 10 metric tons should be delayed until it is better understood. I support the can-in-canister approach. 60

DOE has a history of working with glass for immobilization. Why are we considering shifting to ceramic forms now? 61

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.

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.

PORTLD–60 **Alternatives**

DOE acknowledges the commentor's support of Alternative 4B, which would use the hybrid 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, especially in regard to the use of existing facilities.

PORTLD–61 **Immobilization**

This SPD EIS considers the immobilization of surplus plutonium in two forms, ceramic and glass; both would be produced using similar processes based on a can-in-canister approach. In order to establish a preferred alternative for the immobilized form and focus research efforts, DOE conducted a series of evaluations to determine whether the properties associated with ceramic or glass would be better suited for immobilizing surplus plutonium. Although

Why is DOE considering MOX? MOX waste is more deadly, more radioactive than before. I do not want to see the MOX burn option. MOX is the worst method for disposing of surplus plutonium. It generates additional waste, costs more, and slows the overall disposition process. I oppose plutonium use in commercial reactors. The MOX option should be rejected because of the increased instability of commercial reactors. 62

past analyses have indicated that both ceramic and glass would be acceptable for immobilizing plutonium, these recent studies indicate that the use of ceramic may present certain advantages over glass. The ceramic form was found: to be more resistant to the threat of theft, diversion, or reuse due to the greater difficulty associated with trying to extract plutonium from the ceramic; likely be more durable over a long period of time under geologic repository conditions; to offer reduced exposure risks to workers; and to potentially provide significant cost savings. In addition, the ceramic technology was found to be more flexible in accommodating potential changes in programmatic or technical requirements.

PORTLD–62 **MOX Approach**

DOE acknowledges the commentor'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. 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.

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.

The MOX argument as the only way to make surplus plutonium unavailable is faulty. You can immobilize plutonium, mix it with ceramic, and surround it with high-level waste. It would make the material difficult to get to. | 63

Will the [*MOX*] fuel be run through a full cycle, or will it be an "in and out" proposition? | 64

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.

PORTLD–63 **Alternatives**

DOE acknowledges the commentor's support for immobilization of the surplus plutonium using the ceramic can-in-canister approach. That approach is accorded full consideration in this SPD EIS; DOE has not characterized MOX fuel fabrication and irradiation as the only way to make plutonium unavailable. In fact, DOE has identified as its preferred alternative the hybrid approach of using both immobilization (ceramic form) and MOX fuel fabrication. Pursuing this approach 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.

PORTLD–64 **MOX Approach**

As discussed in Chapter 2 of Volume I, MOX fuel would be left in the reactor for a full cycle. Under the current reactor options, there are no plans to leave it there only long enough to meet the Spent Fuel Standard.

Will taxpayer dollars be used to convert materials? Taxpayers will bear the cost of plutonium regardless of where the mission is sited. Taxpayers will be subsidizing nuclear utilities. How much money will be made by private corporations? | 65

Why does the United States feel bound to go forward with the most expensive process [*refers to MOX*]? | 66

PORTLD–65 **Cost**

The conversion of various plutonium forms to plutonium-oxides suitable for immobilization or use in MOX fuel would be accomplished solely by U.S. Government funds. For plutonium immobilization, the Government pays the entire sum for the disposition, which includes all capital construction and operating costs. For the MOX fuel option, the government is only responsible for the capital costs for the mission. DOE is proceeding on the basis that DCS will pay for operations of the MOX facility and the reactors without significant federal support. It is assumed the private sector will realize its return on investment in the operating phase by securing a lower cost fuel supply. The amount of money to be made by industry would be determined by its business decisions and the terms and conditions it negotiates with DOE for the contract. DOE is entering into a mutually beneficial situation where a competitively bid private company would make a fair profit, gain a useful product, and the U.S. Government dispositions it's surplus plutonium into a form unattractive to terrorist diversion.

PORTLD–66 **Cost**

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 the hybrid approach 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.

The cost 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

Taxpayer dollars are supporting MOX when they should support cleanup instead.	67
FMEF saves about $200 million over any other facility at any other site. The high range of savings is $500 million saved if FMEF is used.	68
FMEF value is relative. Retrofitting a building to fit in a different missions is so expensive that any cost savings is lost.	69

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.

PORTLD–67 **Cost**

Funds for the surplus plutonium disposition program and the environmental cleanup program come from different appropriation accounts allocated by the U.S. Congress that cannot be used interchangeably.

PORTLD–68 **Cost**

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* (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.

PORTLD–69 **Cost**

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* (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.

I am grateful for the United States/Russian decision to reduce nuclear weapons and that the government is pursuing disoposal of surplus plutonium. | 70

Is Russia still producing plutonium? Does the United States have a deal with Russia to stop new plutonium production? | 71

DOE is splitting hairs on what can actually be produced. Russia has committed to using plutonium. What is the United States gaining? | 72

PORTLD–70 **DOE Policy**

DOE acknowledges the commentor's support of DOE and its surplus plutonium disposition program. The United States and Russia are working hard to achieve the objectives of nonproliferation and arms reduction and to ensure secure management of nuclear weapons materials.

PORTLD–71 **Nonproliferation**

Russia is still producing weapons-usable plutonium in the reactors at Tomsk and Krasnoyarsk. The United States is working with Russia to convert those reactors to nonplutonium production reactors.

PORTLD–72 **DOE Policy**

The *Joint Statement of Principles* signed by Presidents Clinton and Yeltsin in September 1998 provided general guidance for achieving the objectives of a future bilateral agreement to disposition surplus plutonium in the United States and Russia. Sensitive negotiations between the two countries indicated that the Russian government accepts the technology of immobilization for low-concentration, plutonium-bearing materials, but that the MOX approach would be considered for higher-purity feed materials.

Russian cooperation is not the only reason DOE has identified the hybrid approach for the disposition of U.S. surplus plutonium. Pursuing both the immobilization and MOX approaches provides 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.

If the United States is truly going to set an example, then it needs to recognize its mistake in using the MOX option. The MOX option violates the long-standing U.S. policy to not use military materials in commercial reactors (nuclear proliferation). A mixed message is sent if the United States expands infrastructure while urging other countries to reduce theirs. The United States needs to take leadership role seriously. Lead by example, no MOX. 73

DOE is committing to a single pass with no reprocessing. Russia has not committed to stopping after one time. What assurance does the United States have that Russia's use will be a one-time passthrough only? Would plutonium be civilian plutonium in Russia after process? 74

PORTLD–73 **DOE Policy**

DOE acknowledges the commentor's opposition to the MOX approach. 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. In keeping 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.

PORTLD–74 **Nonproliferation**

Close cooperation between the United States and Russia is essential to achieve the objectives of nonproliferation and arms reduction, and to ensure secure management of nuclear weapons materials. To that end, 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. Because each country is responsible for separately dispositioning its own stockpile of surplus plutonium, this statement contains provisions for developing methods and technology for verification. This includes appropriate international verification measures and stringent standards of physical protection, control, and accounting for the management of plutonium. As discussed in Section 2.4, there are provisions for international inspections of each of the proposed

Oregon and Washington and Congress are opposed to MOX. The support is because of the pressure of jobs at Hanford. Is Russia just a bone to get the American public on board with the program? 75

I see a collusion between the nuclear industry, Russia, and the United States. MOX is an attempt by the nuclear industry to subsidize nuclear power. MOX is a bad idea. 76

surplus plutonium disposition facilities. Russia is not committed to a once-through cycle; it has only agreed that it would not reprocess MOX spent fuel until all surplus plutonium was in the form of spent fuel. By that time, it will have verified that the surplus plutonium had been removed from the weapons-usable plutonium stockpile and committed to civilian use.

PORTLD–75 **DOE Policy**

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.

Because the Russians have expressed concern that immobilization would not destroy any plutonium, it is conceivable that the Russians would not eliminate their plutonium stockpile if the United States were to implement an immobilization-only approach. Therefore, the hybrid approach 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.

PORTLD–76 **DOE Policy**

DOE acknowledges the commentor's opposition to the MOX approach. The use of MOX fuel in commercial, domestic 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

Can plutonium be extracted from spent fuel and can it be refined into weapons? Is plutonium 241, 242, and 243 included? Which plutonium can be used for a bomb?	77
A weapon was made using reactor-grade plutonium. It was inefficient and hard to make, but proved that it could be done.	78
It's insignificantly more difficult to build a weapon from reactor plutonium than weapons plutonium. Given today's technology with lasers, it is no more difficult.	79

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.

PORTLD–77 **Nonproliferation**

Plutonium has 15 isotopes with mass numbers ranging from 232 to 246. Weapons-usable plutonium contains mainly plutonium 239, with less than 7 percent plutonium 240. Spent fuel contains plutonium 239, 240, 241, and 242. It is possible to extract plutonium 239 from spent fuel, but the process is extremely dangerous, time consuming, and costly because the plutonium is an integral part of massive spent fuel assemblies that emit large doses of radiation.

PORTLD–78 **Nonproliferation**

DOE has no knowledge of a weapon made with reactor-grade plutonium. 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. The purpose of the MOX approach is to convert surplus plutonium to a form that meets the Spent Fuel Standard, thereby providing evidence of irreversible disarmament and establishing a model for proliferation resistance. 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. While it is possible to extract plutonium from this spent nuclear fuel, the process is extremely dangerous, time consuming, and costly because the plutonium is an integral part of massive spent fuel assemblies that emit large doses of radiation.

PORTLD–79 **Nonproliferation**

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. The purpose of the MOX approach is to convert surplus plutonium

House legislature reaffirmed direction in House Bill 3640. DOE should follow the provisions in [*Oregon*] House Bill 3640. | 80

Pits classified in weapons is the same type of classification and security in the pit disassembly and conversion facility. I don't think it's safe. We don't need a plutonium bomb, just radioactive materials and a big bomb to kill people. | 81

to a form that meets the Spent Fuel Standard, thereby providing evidence of irreversible disarmament and establishing a model for proliferation resistance. 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. While it is possible to extract plutonium from this spent nuclear fuel, the process is extremely dangerous, time consuming, and costly because the plutonium is an integral part of massive spent fuel assemblies that emit large doses of radiation. Any discussion of the processes required to build a nuclear weapon is classified and is beyond the scope of this SPD EIS.

PORTLD–80 **DOE Policy**

DOE acknowledges Enacted Oregon House Bill 3640 relating to nuclear facilities. 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.

PORTLD–81 **DOE Policy**

DOE acknowledges the commentor's concern regarding the safety and security of classified nuclear materials. The proposed DOE surplus plutonium disposition facilities 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 facilities would be implemented 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

The nuclear premise was that it was helpful to humankind; nuclear is harmful, not helpful. DOE has not accepted or developed a new premise. DOE needs to clean house and bring in people that agree with the new premise. There is a blatant disrespect for life in using nuclear weapons. Nuclear weapons are about power. Nuclear weapons/power is evil. 82

Hanford should be used for MOX fuel fabrication, pit disassembly and conversion, and immobilization. Any new facility for pit disassembly and conversion will contaminate a clean facility. FMEF is built specifically to NRC standards for plutonium work and has a nearly completed MOX fuel line in it. Its use would reduce the timetable. Hanford has the most MOX fuel fabrication experience because the process was developed at Hanford. Hanford has a lower population density than the south and has more distance than SRS between the source and the groundwater. A site infrastructure for plutonium disposition already exists at Hanford. 83

Cleanup is the primary/only mission at Hanford. SRS has a cleanup mission as well as a tritium mission. Hanford can handle more than one mission at a time. 84

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.

PORTLD–82 **DOE Policy**

DOE acknowledges the commentor's opposition to nuclear weapons. 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. In keeping 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. The resulting MOX spent fuel would then be placed in a potential geologic repository pursuant to the NWPA, as amended.

PORTLD–83 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities using FMEF 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, especially in regard to the use of existing facilities.

PORTLD–84 **Alternatives**

DOE acknowledges the commentor's support for new missions 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

Hanford employment levels dropped by thousands. MOX would create new jobs. We have a right to be concerned about jobs. | 85

The decision to not use FMEF is based on "not in my back yard," not technology. | 86

Oregon opposes MOX. I am grateful that Oregon represents a sane perspective for disposal and that the SPD EIS does not consider Hanford for the preferred alternative. | 87

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.

PORTLD–85 **Alternatives**

DOE acknowledges the commentor's concern about future employment in the Hanford area. 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.

PORTLD–86 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's concern regarding the decision to not use FMEF at Hanford. The preferred alternative was chosen based on the best information and analyses available to allow for a fair comparison among the candidate sites for the surplus plutonium disposition facilities. 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, especially in regard to the use of existing facilities.

PORTLD–87 **Alternatives**

DOE acknowledges the commentor's opposition to the MOX approach and support of DOE's decision not to include Hanford as a preferred location for the proposed surplus plutonium disposition facilities. 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.

My dad worked at Hanford and died of cancer. A friend lives in Idaho near INEEL and most of his family is dead. | 88

What is the total spent fuel tonnage? What is the generated waste stream, and how will it be disposed of? How much waste will be created from the MOX process? | 89

PORTLD–88 **Human Health Risk**

As discussed in Section 3.2.4.3, epidemiological studies have been carried out on Hanford workers over the years. These studies have consistently shown a statistically significant elevated risk of death from multiple myeloma associated with radiation exposure among male workers. However, the elevated risk was observed only among workers exposed to 10 rads (approximately 10 rem) or more. The studies have also identified an apparent elevated risk of death from pancreatic cancer, but a recent analysis concluded that the risk was not elevated.

As discussed in Section 3.3.4.3, epidemiological studies were also conducted on communities surrounding INEEL to determine whether there are excess cancers in the general population. No excess cancer mortality was reported, and although an excess cancer incidence was observed, no association thereof with INEEL was established. Another study found excess brain cancers in the six counties surrounding INEEL, but a follow-up survey concluded that there was nothing that clearly linked all these cases to one another or to any one thing.

According to the detailed impact assessment presented in Chapter 4 of Volume I, no LCFs are expected as the result of the operations assessed in this SPD EIS. Whatever the alternative, site surveillance and health effects studies would continue throughout the operational period in order to provide a full assessment of impacts on human health.

PORTLD–89 **Waste Management**

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.

Estimates of the amounts of TRU, LLW, mixed LLW, hazardous, and nonhazardous wastes that would be generated by construction and operation of the MOX facility are presented in Appendix H.

The Institute for Environmental Research has stated that reprocessing adds more waste, liquid waste. This flies in the face of answers given at this meeting. 90

MOX creates new wastes with no plan for long-term storage; it is not replacement waste. I resent additional input of poison into the environment without any place or way to handle the waste. There are 120 countries asking the United States not to go forward with MOX. 91

Appendixes H.1.2.3, H.2.2.2, H.3.2.2, and H.4.2.3 describe the wastes that would be generated by the MOX facility at Hanford, INEEL, Pantex, and SRS, respectively. These sections also describe facilities that may be used to treat, store, and dispose of these wastes.

PORTLD–90 **Waste Management**

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.

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.

PORTLD–91 **Waste Management**

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.

Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of

DOE has not informed people of all risks and uncertainties in processing plutonium; the SPD EIS does not include necessary impacts and risks. The latest EIS does not contain air quality concerns. 92

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.

PORTLD–92 **Human Health Risk**

Chapter 4 of Volume I provides the results of detailed impact analyses of plutonium processing in the proposed surplus plutonium disposition facilities. Risks and consequences are addressed as appropriate. The impacts on workers and the general population associated with normal operations and postulated accidents are included in these analyses. Included for separate assessment are the potential impacts on air quality and noise, geology and soils, water resources, ecological resources, cultural and paleontological resources, land use and visual resources, infrastructure, waste management, socioeconomics, human health, and transportation. Issues such as environmental justice are also assessed. Detailed analyses of the resources are provided in the appendixes.

Appendix F describes the methods used to perform the evaluations. More detail on facility accident and transportation assessment methods is provided in Appendixes K and L, respectively. These two appendixes also feature discussions of the calculational uncertainties inherent in accident and transportation assessments. All of the assessments for this SPD EIS involved the use of models and techniques that are accepted in the scientific community and have been used in the preparation of numerous other NEPA documents.

Potential air quality impacts associated with each of the alternatives assessed are included in Chapter 4 and discussed in more detail in Appendixes G and J. The incremental concentrations of nonradiological air pollutants were calculated using the ISCST3 computer code. These concentrations are below the appropriate Federal and State ambient air quality standards, indicating that no adverse effects on the environment would be attributable to the surplus plutonium disposition program.

I am concerned about any action that impacts the Columbia River. Will there be groundwater contamination? What's happening to Hanford groundwater with relation to the Columbia River? There are contaminants in the river. There were recent initiatives to coordinate the groundwater program through Bechtel. A report will be coming out to the public by the end of the year. It's the first time a consolidated study will be available. Successful initiatives are underway and there is still a lot of work to do. Hanford, INEEL, and Pantex have about 100 feet of vadose zone above groundwater, and SRS has none. 93

I oppose contaminating any clean land or facility at Hanford. 94

What will the Department do if a MOX reactor explodes? What is the worst case scenario of a reactor accident at a DOE facility? Placing plutonium in the hands of the commercial nuclear industry increases risks, increases transportation, etc. 95

PORTLD–93 **Water Resources**

DOE acknowledges the commentor's concerns regarding groundwater and surface water contamination at Hanford, although the impacts of existing contamination at Hanford are beyond the scope of this SPD EIS. Activities to remediate existing contamination at Hanford are ongoing.

As discussed in Sections 4.26.1.2, 4.26.2.2, 4.26.3.2, and 4.26.4.2, there would be no discernible impacts on surface water or groundwater quality at Hanford, INEEL, Pantex, or SRS from construction and operation of the proposed surplus plutonium disposition facilities.

PORTLD–94 **Alternatives**

DOE acknowledges the commentor's concern regarding potential contamination 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, especially in regard to the use of existing facilities.

PORTLD–95 **Facility Accidents**

Design basis and beyond–design basis accidents at the proposed reactors have been evaluated in Section 4.28 of this SPD EIS. As discussed in Section 4.28.2.5, studies by NAS have led it to the following conclusion: "no important overall adverse impact of MOX use on the accident probabilities of the LWRs involved will occur; if there are adequate reactivity and thermal margins in the fuel, as licensing review should ensure, the main remaining determinants of accident probabilities will involve factors not related to fuel composition and hence unaffected by the use of MOX rather than LEU fuel." The analysis reflected in Section 4.28 indicates that the change in risk to the population within 80 km (50 m) of the reactors for the beyond-design-basis accidents involving MOX fuel would range from minus 4 to plus 14 percent. For the design basis accidents, the incremental change in risk from MOX fuel would range from minus 6 to plus 3 percent.

How will materials be transported? How will safety be ensured? What are the transportation accident scenarios? | 96

Will Russian plutonium be coming through Oregon? Will Hanford plutonium be coming through Oregon? | 97

Will the public know how, when, and where materials will be transported? I oppose transporting materials. | 98

PORTLD–96 **Transportation**

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. Safety is ensured by compliance with stringent DOE, NRC, and DOT standards for containers, vehicles, and driving. The accident scenarios range from minor accidents that release no hazardous materials to hypothetical, extremely severe accidents. A quantification of the risks associated with these scenarios is presented in Appendix L.

PORTLD–97 **Transportation**

The disposition of Russian plutonium in the United States is not being considered by DOE and is therefore beyond the scope of this SPD EIS. DOE is considering alternatives that include immobilization at SRS, under which the Hanford plutonium would pass through Oregon, as well as alternatives that include immobilization of the surplus plutonium at Hanford, in which it is possible that plutonium from several DOE sites would pass through Oregon. The impacts of transporting nuclear materials to disposition 50 t (55 tons) of surplus plutonium 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.

PORTLD–98 **Transportation**

DOE acknowledges the commentor's opposition to transporting materials. 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 stipulated. These plans would be coordinated with State, tribal, and local officials. The shipment of waste would be done 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). Transportation of

There is an increased risk of accidents from transporting materials for the MOX option. | 99

I am grateful that DOE decided to hold a meeting in Oregon. I am grateful for citizen participation and the opportunity to testify. Oregon needs the opportunity to fully participate. | 100

What is DOE doing to inform the American public about what's going on with this program? | 101

special nuclear materials would use DOE's SST/SGT system. 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, was 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.

PORTLD–99 **Transportation**

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 evaluated in this SPD EIS. The risk of transporting plutonium materials is presented in Table L–6.

PORTLD–100 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's support of the public outreach program regarding the surplus plutonium disposition program. In compliance with NEPA, DOE provided appropriate opportunities and means for public comment on the program, and gave equal consideration to all comments, regardless of how they were submitted.

PORTLD–101 **General SPD EIS and NEPA Process**

DOE provides information on the disposition of fissile materials to the public in various forms. These include public hearing presentations, fact sheets, exhibits, technical reports, visual aids, and a video. Information is distributed by such mechanisms as mail, email, fax, the MD Web site, telephone, and press interviews. It is important to note that DOE uses most of these same mechanisms to obtain comments from the public as part of its decisionmaking process.

Regarding national security of pit configuration—what does information security mean? I am concerned about making nuclear weapons without a communication process; the Department is bringing down the veil of secrecy again. How will this affect the public process? Will the auxiliary process also be classified? How can the public ensure that the process scope is actually what's proposed in the EIS if information is classified? 102

I object to the structure of the meeting. DOE is taking up comment time. 103

Environmentalists should be allowed on the program. 104

The heart of the issue is that DOE has been lying to the public for 50 years. There are more issues, and the DOE is hurting people no matter what it's talking about. Taxpayers will pay the price of the MOX program. What is DOE going to do for the U.S. public? 105

PORTLD–102 General SPD EIS and NEPA Process

Information security refers to a national security program whereby access to specific information is restricted to individuals who need that information to perform their official duties. DOE has for a number of years been engaged in a formal process to ensure that only information meeting this criterion remains classified. This process should allow for improved public knowledge of the actions being proposed by DOE for surplus plutonium disposition. Two types of information involved in the disposition of surplus plutonium are typically classified: (1) pit information (e.g., the design, construction, and disassembly of individual pit types), and (2) special nuclear material transportation information (e.g., shipping routes and times). It is expected that no other disposition-related processes would be classified, and that, in fact, unclassified processes in the pit conversion, immobilization, and MOX facilities would be subject to international inspection.

PORTLD–103 General SPD EIS and NEPA Process

DOE used an interactive hearing format so that participants could obtain immediate answers to their questions and provide DOE with comments that truly represented their concerns. Written comments were also accepted at these hearings from participants who preferred not to speak. The hearings continued until all participants desiring to speak had the opportunity.

PORTLD–104 General SPD EIS and NEPA Process

NEPA compliance is DOE's responsibility. Environmentalists are encouraged to participate through the comment process.

PORTLD–105 General SPD EIS and NEPA Process

DOE acknowledges the commentor's views on DOE policy and programs. DOE is committed to providing the public with comprehensive environmental reviews of its proposed actions in accordance with NEPA.

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

The most significant fact in the universe is the existence of life; preservation of life is important. We cannot preserve life while endangering others. The nuclear situation began with a lie, and it remains a lie. Biological weapons deterrence is a lie, nuclear weapons deterrence is a lie. All public meetings are a lie. 106

WPPSS is responding to the procurement. 107

Hanford's sole mission should be cleanup, and the mission must remain on schedule. Keep the focus on safety and cleanup at Hanford. Hanford's cleanup job is so large that it requires the undivided attention of the workforce focused on the job. 108

It is pointless to discuss cleaning up wastes if the nuclear industry keeps generating wastes. I would like DOE to comment on the Waste Isolation Pilot Plant (WIPP) site shutdown. What happens to the waste resulting from plutonium disposition? What if Yucca Mountain does not open? There is no long-term storage available. Material needs to be stored in a safe location where no one can get to it. 109

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.

PORTLD–106 **General SPD EIS and NEPA Process**

DOE acknowledges the commentor's views on the importance of the preservation of life. DOE is committed to providing the public with comprehensive environmental reviews of its proposed actions in accordance with NEPA, and to providing ample opportunity for public comment on those actions.

PORTLD–107 **MOX RFP**

DOE acknowledges the commentor's observation. Information on the procurement is provided in the revised Section 4.28. WPPSS is not one of the reactors chosen to use MOX fuel.

PORTLD–108 **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.

PORTLD–109 **Repositories**

The management of TRU wastes generated by the proposed surplus plutonium disposition facilities is evaluated in this SPD EIS. DOE alternatives for TRU waste management are evaluated in 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*

There is a large amount of waste in the ground [*refers to Hanford*]; 450 billion gallons went into the ground; over 1 million gallons/ curies leaked from tanks to the soil. The timeframe to handle materials equals 750 generations; it is too vast of a time to think in. 110

I protest PUREX [*refers to the Plutonium-Uranium Extraction Facility*] and uranium tailings. DOE needs to recognize impacts to Native Americans. Tailings went into the fill below their high school. The Navaho recycle and they use items on their houses that came from the plant. 111

(DOE/EIS-0026-S-2, September 1997). WIPP began receiving shipments of TRU waste for permanent disposal on March 26, 1999. As for MOX spent fuel, following irradiation, the MOX fuel would be removed from the reactor and managed at the reactor site as spent fuel in accordance with the site's normal spent-fuel-handling procedures. This SPD EIS assumes, for the purposes of analysis, that Yucca Mountain, Nevada, would be the final disposal site for all immobilized plutonium and MOX spent fuel. As directed by the U.S. Congress through the NWPA, as amended, Yucca Mountain is the only candidate site currently being characterized as a potential geologic repository for HLW and spent fuel. DOE has prepared a separate EIS, *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), which analyzes the environmental impacts from construction, operation and monitoring, related transportation, and eventual closure of a potential geologic repository. If at some future time it were determined that Yucca Mountain was not a suitable location for these activities, Congress would have to decide on an alternative path forward for the disposal of spent nuclear fuel and other HLW slated for the repository. The immobilized plutonium and MOX spent fuel would be included in any such decision and managed in the same fashion.

PORTLD–110 **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.

PORTLD–111 **Environmental Justice**

DOE acknowledges the commentor's concern regarding impacts of the surplus plutonium disposition program on Native Americans. However, the PUREX facility and uranium tailings are beyond the scope of this SPD EIS. Impacts on minorities resulting from the surplus plutonium disposition program are analyzed in the Environmental Justice sections of Chapter 4 of Volume I. DOE consulted with Native American groups in the environs of all candidate sites considered in this SPD EIS.

Shut all commercial reactors down. Get rid of nuclear industry. | 112

What the government has done to the environment is wrong. The Mesabe Range is completely trashed. Turn away from military-focused missions. Don't bring new materials to the Northwest. We have only one world—don't destroy what we have. It's time to stop the military complex. | 113

PORTLD–112 **Other**

DOE acknowledges the commentor's opposition to nuclear power.

PORTLD–113 **Alternatives**

DOE acknowledges the commentor's concern regarding the contamination of the environment resulting from military-focused missions. 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.

One-hundred percent immobilization does not require gallium removal. The polishing process is not needed. Why was this not included in the analyses? 1

Nonpit materials: can the chosen facility be modified to accommodate a hydride-oxidation process for single processing? Did the Department analyze pit disassembly and conversion without gallium removal, or can it be attached to the facility? 2

IDFALS–1 Plutonium Polishing and Aqueous Processing

The commentor is correct in that immobilization of the full 50 t (55 tons) of surplus plutonium is not anticipated to require a plutonium polishing process to remove gallium concentrations. This SPD EIS analyzed the option to immobilize all the surplus plutonium as discussed in Alternatives 11 and 12. In terms of hybrid alternatives, which also consider plutonium disposition through a combination of immobilization and use as MOX fuel, there has been some discussion that the pit conversion process might not be able to produce plutonium dioxide powder that would consistently meet specifications for MOX fuel. 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 the plutonium dioxide. Section 2.4.3 and the hybrid alternatives analyses in Chapter 4 of Volume I were revised to include a discussion of plutonium polishing.

IDFALS–2 Plutonium Polishing and Aqueous Processing

The final configuration of the pit conversion facility, which could also process nonpit plutonium metal and oxide, will be based on information collected from the demonstration project under way at LANL. This could include a hydride-oxidation process.

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 facilities 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 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.

DOE should go with the No Action Alternative and store the material in a secure place.	3
Define a pit. Immobilizing pits could be as little as changing shape?	4
Is it technically possible to attach immobilization to the front end of pit disassembly and conversion?	5
How was the decision made to designate some plutonium for MOX and some for immobilization?	6

IDFALS–3 **Alternatives**

The No Action Alternative would not satisfy the purpose of and need for the proposed action, which 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. DOE has identified as its preferred alternative the hybrid approach (i.e., immobilization and MOX) to surplus plutonium disposition.

IDFALS–4 **Pit Disassembly and Conversion**

A pit, the design of which is classified, is the core component of a nuclear weapon's "primary" or fusion component. The immobilization process is more complicated than just changing the shape of the pits. Changing the shape of the pits would not render the plutonium proliferation resistant or remove the classified nature of the pit. The plutonium, present in pits as metal, must be removed from the other components of the pit and converted to an oxide powder before it can be further processed for disposition. This process would occur at the pit conversion facility. The plutonium dioxide powder would then be transferred to the immobilization facility where it would be mixed with other materials and turned into a ceramic or vitrified form, then loaded into stainless steel cans approximately the size of a coffee can. These cans would then be placed on racks and loaded into HLW canisters which would then be filled with the vitrified HLW.

IDFALS–5 **Pit Disassembly and Conversion**

It is technically possible to locate the two processes together. However, pit disassembly and conversion would have to occur prior to immobilization.

IDFALS–6 **Alternatives**

The amount directed to each option is related to the suitability of the plutonium for use as MOX fuel. In the ROD for the *Storage and Disposition PEIS*, DOE decided that approximately 8 t (9 tons) of the current surplus plutonium were not suitable for use in MOX fuel and therefore would be immobilized. As

I support DOE's efforts to get plutonium off the market. The nuclear proliferation threat is a real danger and must be contained. I advocate full immobilization as the single source disposition method. MOX costs more, has a longer timeframe for startup, and threatens the nonproliferation policy. The Program's goal should be to get rid of plutonium, not to produce electricity. Given these factors, the SPD EIS should address decision factors for determining whether to go to MOX or to full immobilization. This issue needs to be further addressed. 7

described in this SPD EIS, an additional 9 t (10 tons) of surplus plutonium were identified as unsuitable for MOX fuel fabrication. The 17 t (19 tons) of surplus plutonium are not suitable for fabrication due to the complexity, timing, and cost that would be involved in purifying the material. The remaining 33 t (36 tons) of the 50 t (55 tons) of surplus plutonium would be fabricated into MOX fuel.

IDFALS–7 **Alternatives**

DOE acknowledges the commentor's support for the immobilization-only approach. 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.

Use of MOX fuel in domestic, commercial reactors is not proposed in order to produce electricity. 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.

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

I am amazed at the number of people making their livelihood maintaining problems. MOX as the preferred option falls short. | 8

There are a lot of misconceptions in the public about plutonium. Plutonium has always been burned in reactors; there's nothing new about burning plutonium in reactors. The hybrid strategy was chosen in case one of the options fails. | 9

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.

IDFALS–8 **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. 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.

IDFALS–9 **Alternatives**

DOE acknowledges the commentor's support for 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.

We know that 17 metric tons must be immobilized, so why is MOX still being considered? What are the factors for determining success or failure? | 10

Is the MOX fuel fabrication process designed to fabricate Russian-originated plutonium? | 11

The INEEL Citizens' Advisory Board (CAB) researched and considered the MOX decision. We could not reach a consensus, but will continue looking at the issue. The INEEL CAB has concerns about the MOX program. | 12

Immobilizing plutonium is disposing $2.5 billion dollars. Taxpayers are throwing money down the hole in the form of glass. DOE is making plutonium available free. Recycling it is not hazardous. It's reducing waste, not adding it. | 13

IDFALS–10 **Purpose and Need**

Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. 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.

IDFALS–11 **Alternatives**

MOX fuel fabrication is essentially the same regardless of the origin of the plutonium used in the process. The surplus plutonium disposition program proposed in this SPD EIS would only process 50 t (55 tons) of U.S.-origin plutonium.

IDFALS–12 **MOX Approach**

DOE acknowledges the commentor's concern regarding the MOX approach. Decisions on the surplus plutonium disposition program at INEEL will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

IDFALS–13 **Alternatives**

DOE acknowledges the commentor's opposition to the immobilization approach. 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

Is the end use of MOX to replace highly enriched uranium for power purposes? Is there a commitment from power companies to use MOX? 14

Will the commercial industry's response determine the final decision of whether to use MOX or to go to a 100 percent immobilization option? Does DOE's decision of going to 33 metric tons or 0 metric tons [*for MOX fuel*] depend on commercial end-users? 15

MOX fuel replaces commercial fuel that would exist anyway. The facilities analyzed in SPD EIS are anticipated to classify material to meet WIPP waste acceptance criteria requirements. Shouldn't the MOX facility be a classified facility? 16

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.

IDFALS–14 **DOE Policy**

The MOX approach is not intended to affect the viability of nuclear power. The purpose of the MOX approach is to convert surplus plutonium to a form that meets the Spent Fuel Standard, thereby providing evidence of irreversible disarmament and setting a model for proliferation resistance. 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. 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.

IDFALS–15 **DOE Policy**

Potential users of MOX fuel have been identified by DOE and are part of the DCS team contracted to operate the MOX facility and offer irradiation services in the hybrid approach is selected.

IDFALS–16 **DOE Policy**

It is DOE's policy that the various wastes generated from the surplus plutonium disposition program would meet the performance criteria for disposal at the respective repositories. The feed material for the MOX facility, plutonium dioxide, is made from pits or pure plutonium metal that have been declassified. The MOX fuel produced from the facility (licensable by NRC) would be used in domestic, commercial reactors. Therefore, the MOX facility would not be a classified facility.

I am aware of the economic impact on nuclear energy. I am concerned about the economic impact of MOX. What will the program cost? Who bears the cost? | 17

Modifications to commercial reactors will be required for MOX, also relicensing will be required. Who is responsible for paying for this? Any estimate on cost? | 18

IDFALS–17 **Cost**

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.

Because cost issues are beyond the scope of this EIS, this comment has been forwarded to the cost analysis team for response. For a better understanding of the cost and schedule estimates for each alternative, consult *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998) and the *Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document* (DOE/MD-0013, November 1999). These documents 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.

IDFALS–18 **MOX RFP**

DOE conducted a procurement process to acquire MOX fuel fabrication and irradiation services. As a result of this procurement process, DOE identified the reactors proposed to irradiate MOX fuel, Catawba, McGuire, and North Anna, as part of the proposed action in this SPD EIS. Because commercial reactors in the United States are capable of safely using MOX fuel. DOE believes that the cost to make these reactors suitable for using MOX fuel would be relatively low. The costs would be limited to some analyses and

What is Russia planning to do? Are there agreements in place to ensure that Russia will follow through?	19
What other technologies are being looked at by Russia other than MOX?	20

operating license amendments, and would be reimbursable to the utilities by DOE under the terms of the RFP. Irrespective of the combination of actions implemented, costs to the taxpayer would be associated with the disposition of surplus U.S. plutonium. A separate report, *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998), analyzes the site-specific cost estimates for each alternative. 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.

IDFALS–19 **Nonproliferation**

The United States and Russia recently made progress in the management and disposition of plutonium. 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 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.

IDFALS–20 **Nonproliferation**

Like the United States, Russia is pursuing studies to address both the immobilization and MOX approaches to surplus plutonium disposition. A feasibility study, in parallel with small-scale testing, is currently under way in Russia to determine the technology to be used to convert Russian plutonium to a form suitable for disposition and international inspection. The Russian pilot-scale study would demonstrate the capability to convert plutonium metal to an oxide form, suitable for either disposition approach (i.e., immobilization or MOX).

Was the United States asked by Russia to assist in funding a safe, secure facility? | 21

I have heard of low-enriched uranium or highly enriched plutonium being redirected or lost. There's no indication that the material was ever used. There may be leakage of nuclear materials at the universities in Russia. | 22

Don't invest huge sums in the United States until the confidence level in Russia's commitment to do down the MOX path is higher. | 23

IDFALS–21 **Nonproliferation**

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. For 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.

IDFALS–22 **Nonproliferation**

DOE acknowledges the commentor's concern regarding the safety and security of nuclear materials in Russia. While the quantities and condition of Russian nuclear materials are beyond the scope of this SPD EIS, safeguards and security issues are being addressed in negotiations between the United States and Russia. 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. One of the principles of this agreement states acceptable methods and technology for transparency measures, including appropriate international verification measures and stringent standards of physical protection, control, and accounting for the management of plutonium would be developed.

IDFALS–23 **DOE Policy**

DOE acknowledges the commentor's concern regarding investment of U.S. dollars without evidence of Russia's commitment to a MOX approach. The United States and Russia recently made progress in the management and disposition of plutonium. In late July 1998, Vice President Gore and

To what extent will the United States fund pit conversion. Clarify the bounds of the European program. Why does it keep them from handling U.S. fuel?	24

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. However, in order to avoid putting the United States at a strategic disadvantage in future negotiations with Russia as well as to avoid the large-scale expenditure of funds until necessary, the Administration has made it clear that it will not construct new facilities for disposing of U.S. surplus plutonium unless there is significant progress on plans for plutonium disposition in Russia.

IDFALS-24 **DOE Policy**

The pit disassembly and conversion process recovers plutonium from pits and clean metal and converts the plutonium to an unclassified form. It is a necessary first step for accomplishing plutonium disposition. Funding for the surplus plutonium disposition program is appropriated annually by the U.S. Congress.

The U.S. Government held discussions with the European governments and the European MOX industry concerning this issue. The Europeans are not interested in processing U.S. weapons-usable plutonium in their MOX facilities because their program has reached a balance between the cycle times of the reactors served and the fuel processing and fabrication schedules. The introduction of U.S. surplus plutonium into that balance would disrupt the equilibrium of their fuel cycle, increase plutonium inventories and storage requirements, and increase cost for the European MOX industry. In addition, administrative barriers, including the need to negotiate multiple agreements with other governments, transportation concerns, and working through permit requirements would result in schedule delays in the U.S. surplus plutonium disposition program. This in turn would make it more difficult to reach a surplus plutonium disposition agreement with the Russian government in a timely manner.

Russia lacks the money to go after "Fort Knox" in Russia. There are limited funds for the Russian space program. Russia lacks the money to do anything. I do not think that Russia is going to invest in a multibillion dollar MOX program. 25

When Senator Dominici was visiting in Russia, did he hear that Russia would accept the immobilization process? 26

Both Russia and the United States agree about the benefits of working together and building a relationship between the countries. The United States has good reason to maintain a strong relationship with Russia. 27

IDFALS–25 **Nonproliferation**

The Russian economy is a concern, and 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. For 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.

IDFALS–26 **Nonproliferation**

The *Joint Statement of Principles* signed by Presidents Clinton and Yeltsin in September 1998 provide general guidance for achieving the objectives of a future bilateral agreement to disposition surplus plutonium in the United States and Russia. The principles include the acceptance of either the immobilization of plutonium in glass or ceramic form or the consumption of plutonium in MOX fuel in reactors.

IDFALS–27 **DOE Policy**

DOE agrees that close cooperation between the two countries is required to achieve the objectives of nonproliferation and arms reduction, and to ensure secure management of nuclear weapons materials. Toward that end, the United States and Russia recently made progress in the management and disposition of plutonium. 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.

Why is DOE planning for new construction adjacent to APSF when it already owns a state-of-the-art facility (FMEF) designed for MOX fuel production? | 28

FMEF has design flaws that would be difficult and costly to correct in order to meet the MOX mission. It's much cheaper for the Department to dismantle a "cold" (clean) facility than it is to dismantle a "hot" (contaminated) facility. | 29

INEEL has a basic advantage for manufacturing MOX fuel. Why is the Secretary so eager to reach a preferred alternative in siting the facility in the south? | 30

INEEL has never been a weapons site or laboratory. In keeping with the "swords to plowshares" intent of the plutonium disposition concept, wouldn't the mission fit better at a nonweapons site, such as INEEL? | 31

IDFALS–28 **Alternatives**

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, especially in regard to the use of existing facilities.

IDFALS–29 **Alternatives**

DOE acknowledges the commentor's opposition to siting the MOX facility in FMEF 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, especially in regard to the use of existing facilities.

IDFALS–30 **Alternatives**

DOE acknowledges the commentor's support for siting the MOX facility at INEEL. As indicated in 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. Decisions on the surplus plutonium disposition program at INEEL will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

IDFALS–31 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at INEEL. Decisions on the surplus plutonium disposition program at INEEL will be based on environmental analyses, technical and cost reports, national policy and nonproliferation

If all spent fuel rods slated to be moved to Nevada are stored at INEEL on a temporary basis, doesn't it make sense to site the MOX mission at INEEL? 32

The Advanced Mixed-Waste Facility at INEEL is used for TRU waste. DOE is proposing to build a new facility that will ultimately become alpha-contaminated. The facility will be used to contain a small amount of easily contained plutonium. The plutonium disposition program is going to generate more TRU waste. It doesn't make sense. 33

considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

IDFALS–32 **Alternatives**

DOE acknowledges the commentor's support for siting the MOX facility at INEEL. Only 10 lead assemblies would be made and fewer than that number irradiated. Only a small number of rods from those assemblies would be sent for postirradiation examination. This small number of fuel rods that could be stored at INEEL, should the rods be sent to ANL–W for postirradiation examination, does not, on its own, support siting the MOX facility at INEEL.

As discussed in the revised Section 1.6, DOE prefers ORNL for postirradiation examination activities because the site has existing facilities and staff expertise needed to perform postirradiation examination as a matter of its routine activities; no major modifications to facilities or processing capabilities would be required. In addition, ORNL is about 500 km (300 mi) from the reactor site that would irradiate the fuel. Decisions on the surplus plutonium disposition program at INEEL will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

IDFALS–33 **Waste Management**

Although waste generation would be minimized to the extent possible, alternatives for the disposition of surplus plutonium would generate some additional TRU waste. As shown in Section 4.14.2.2, and Appendix H.2.2.3, if both the pit conversion and MOX facilities were located at INEEL, 64 m^3/yr (83 yd^3/yr) of TRU waste would be generated. This is approximately 1 percent of the 6,500-m^3/yr (8,500-yd^3/yr) planned capacity of the Advanced Mixed Waste Treatment Project. In addition, the 640 m^3 (837 yd^3/yr) of TRU waste generated over the 10-year operating period of the surplus plutonium disposition facilities would be less than 1 percent of the 39,300 m^3 (51,400 yd^3) of TRU waste in storage at INEEL.

The SPD EIS is yet another EIS that doesn't answer questions on high-efficiency particulate air filters and their ability to contain exhausts in processing facilities. Air quality questions are not answered regarding particulate filtration. I am concerned about public health and safety if an accident occurs. The general public does not want to be downwind if an accident occurs. Accident analyses need to be put back into air quality permitting. 34

IDFALS–34 **Human Health Risk**

The chemical and radiological emissions associated with each of the proposed surplus plutonium disposition facilities would be processed through HEPA filters prior to their release to the atmosphere. The post HEPA filter emission rates for chemical releases are given in Appendix G, those for radiological releases in Appendix J. These rates represent the source terms analyzed by the computer codes (described in Appendixes F and J) to determine the air concentrations of chemical releases at the site boundary and to determine doses to the public from radiological releases. For chemical releases, the increases in air pollutant concentrations represent small fractions of the Federal and State ambient air quality standards and would be expected to have an insignificant effect on human health. In addition, analyses of the hazardous chemical releases to the atmosphere indicate that no cancers or other adverse health effects to the public or onsite workers would be expected from operations of any of the proposed facilities. For radiological releases, the resulting doses would be well within regulatory limits and would not cause any cancer fatalities. Chapter 4 of Volume I presents these impacts in detail.

If an accident involving chemical releases were to occur, temporary exceedances of ambient air quality standards could occur. The State regulatory agencies would be kept informed of developments, and appropriate actions would be taken in accordance with existing procedures to minimize adverse impacts on the public and workers. No fatal cancers are predicted for any accident having the potential to release radioactive material to the environment.

In response to the commentor's concerns, contacts have been made with the Idaho Division of Environmental Quality and with the contractor responsible for air quality permits for INEEL. There have been no State requirements to perform an accident analysis as part of the air-permitting process regardless of the type of pollutant that could be emitted (criteria pollutants, toxic pollutants, or radionuclides). Only routine operations are considered in the air-permitting process.

Low-level waste disposal is always an ongoing concern. | 35

The material would have to be processed through a classification facility (Mixed Waste Facility) before going to WIPP. TRU waste may be processed elsewhere. DOE is committing some facility to being contaminated with TRU waste. | 36

I disagree with fatality data from MOX for INEEL. There would be the same impacts from burning [*MOX fuel*] as other reactor fuel. | 37

IDFALS–35 **Waste Management**

DOE acknowledges the commentor's concerns regarding LLW disposal. Analyses presented in the Waste Management sections of Chapter 4 of Volume I and Appendix H indicate that there would likely be no major impacts to the LLW disposal infrastructure at the sites. The impacts of LLW disposal are evaluated in detail in 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 in other NEPA documents prepared for the DOE sites.

IDFALS–36 **Waste Management**

As shown in Section 4.14.2.2 and Appendix H.2.2.3, INEEL already has 39,300 m^3 (51,400 yd^3) of TRU waste that will require certification and packaging before shipment to WIPP. The 640 m^3 (837 yd^3) of TRU waste generated over the 10-year operating period of the pit conversion and MOX facilities would be a small addition to the existing waste load at the site and would not be expected to appreciably change the levels of contamination in the TRU waste processing facilities.

IDFALS–37 **Human Health Risk**

DOE acknowledges the commentor's concern about the MOX approach. The commentor raises two separate issues: the fabrication of MOX fuel at INEEL, and the use of MOX fuel in a domestic, commercial reactor at another location.

Human health risks associated with MOX fuel fabrication at INEEL are addressed in Section 4.14. The risk assessments were performed using models accepted within the scientific community: the GENII computer code for the evaluation of normal operations; the MACCS2 code for the accident analysis; and best estimation of input parameters (e.g., radioactive source terms, meteorological conditions, population distributions, and agricultural data).

Section 4.28 was revised to provide reactor-specific analyses and discuss the potential environmental impacts of using a partial MOX core during routine operations and reactor accidents. These impacts have also been

Why wasn't a meeting held in Washington, D.C., for the SPD EIS? Considering the magnitude of the facility, it would seem that given the interest of nationally based groups, that a meeting would be warranted. 38

Will the [*commercial fuel*] plant need to be relicensed? Does the licensing process need to be completed before a commitment is made? 39

Will facility construction begin at the same time as the licensing process? Will MOX fuel fabrication begin before the licensing process is complete? 40

calculated using state-of-the-art computer models. The impacts associated with the use of MOX fuel are similar to those associated with the use of LEU fuel, the typical fuel used in U.S. commercial reactors.

IDFALS–38 **General SPD EIS and NEPA Process**

DOE held public hearings near the potentially affected DOE sites and Washington, D.C. Approximately 1,700 copies of the SPD Draft EIS were mailed, and an NOA letter was mailed to an additional 5,500 members of the public. Approximately 1,300 copies of the *Supplement to the SPD Draft EIS* were mailed, and an NOA postcard was mailed to an additional 5,800 members of the public. Several means were available for providing 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.

IDFALS–39 **NRC Licensing**

The MOX facility would be licensed by NRC under 10 CFR 70. This would be a new license, not an amendment to an existing license, because the MOX facility would be a new facility, even if it were located in FMEF at Hanford. If the commentor is referring to a commitment to make MOX fuel, that decision would be made prior to completing, or even commencing, the licensing process. In fact, decisions regarding making MOX fuel, or immobilizing all the surplus plutonium will be made in the ROD for this SPD EIS. Theoretically, a facility could be completely constructed prior to issuance of a Part 70 license, but it would not be practical or prudent to do so. NRC must approve the safety and environmental reports, and the plant features relating to criticality and nuclear safety. Therefore, it would be in the best interest of the facility owners and operators to work closely with NRC during the design and construction process to ensure that NRC approves of the way its requirements are being met. However, MOX fuel fabrication will not begin before a license is issued for the MOX facility because special nuclear materials cannot be brought into the facility before the license is issued.

IDFALS–40 **NRC Licensing**

Fabrication of MOX fuel would not begin until a license was issued for the MOX facility under 10 CFR 70, because special nuclear materials may not be brought into an unlicensed facility. Theoretically, a facility could be completely

If DOE goes down the MOX path, and commercial reactors never burn MOX fuel, what then? Where will the MOX fuel be stored? Where besides Yucca Mountain? I am concerned about going down the path of investing and manufacturing MOX fuel and then not burning the fuel if communities resist. WIPP is a long ways off. DOE needs contingency planning for these issues.

41

constructed prior to issuance of a 10 CFR 70 license, but that would not be practical. NRC must approve the safety and environmental reports, as well as the plant features relating to criticality and nuclear safety. Therefore, it would be in the best interests of the facility owners and operators to work closely with NRC during the design and construction process to ensure that NRC approved of the way its requirements were being met.

IDFALS–41 **DOE Policy**

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. It is highly unlikely that fresh fuel would be fabricated for a reactor and then not irradiated by that reactor. Such a condition would be a contractual default by DCS, and would have to be remedied at DCS expense. Speculation as to the DCS response to this highly unlikely scenario would center on two courses of action: it could return the fuel to the fabricator for reuse in the fabrication of fuel for sister DCS reactors, or more likely, it could ship the MOX assemblies directly to sister reactors for use there (the reactor fuels would probably be interchangeable). Whatever its ultimate disposition, of course, the fresh fuel would at all times be subject to stringent security controls.

The resulting spent nuclear fuel would be placed in a potential geologic repository pursuant to the NWPA, as amended. This SPD EIS assumes, for the purposes of analysis, that Yucca Mountain, Nevada, would be the final disposal site for all immobilized plutonium and MOX spent fuel. DOE has prepared a separate EIS, *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), which analyzes the environmental impacts from construction, operation and monitoring, related transportation, and eventual closure of a potential geologic repository.

TRU and mixed waste would be certified on the site to current WIPP waste acceptance criteria prior to shipment to WIPP for disposal. DOE alternatives

I agree that DOE is supposed to take back the spent fuel (in a repository). A lawsuit is out on behalf of commercial reactors because Yucca Mountain is not open. Is it a possibility that the Consortium could tell DOE to take the MOX fuel back? 42

WIPP is not open, and may not have the capacity if it does open. I do not know if WIPP is expandable. WIPP is not large enough to handle the current TRU waste inventory. 43

for TRU waste management are evaluated in 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). WIPP began receiving shipments of TRU waste for permanent disposal on March 26, 1999. DOE does not envision fresh fuel going directly to WIPP nor MOX spent nuclear fuel going anywhere but to Yucca Mountain. Section 4.28 was revised to discuss the potential environmental impacts of the reactors that would use the MOX fuel, and Section 1.8.2 describes the environmental documents associated with Yucca Mountain and WIPP.

IDFALS–42 **DOE Policy**

Operating criteria for the MOX facility stipulates that fabrication of the fuel shall meet the reactor demand schedules. However, to avoid excessive inventory at the fuel fabrication facility and the reactors, fuel would not be fabricated more than 18 months in advance of shipment to the reactor, and the fresh fuel would not be stored at the reactor site longer than the current and next scheduled reload. 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, as amended. This SPD EIS assumes, for the purposes of analysis, that Yucca Mountain, Nevada, would be the final disposal site for all immobilized plutonium and MOX spent fuel. DOE has prepared a separate EIS, *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), which analyzes the environmental impacts from construction, operation and monitoring, related transportation, and eventual closure of a potential geologic repository.

IDFALS–43 **Repositories**

The management of TRU wastes generated by the proposed surplus plutonium disposition facilities is evaluated in this SPD EIS. DOE alternatives for TRU waste management are evaluated in the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*

What is the status with triple play [*refers to tritium production*]? | 44

I am open-minded as to the future of the nuclear industry. | 45

We need State rights to veto projects. | 46

Senators are bought by nuclear advocates. | 47

(DOE/EIS-0200-F, May 1997) and the *WIPP Disposal Phase Final Supplemental EIS* (DOE/EIS-0026-S-2, September 1997). WIPP began receiving shipments of TRU waste for permanent disposal on March 26, 1999. As described in Appendix F.8.1 and the Waste Management sections in Chapter 4 of Volume I, it is conservatively assumed that TRU waste would be stored at the candidate sites until 2016, at which time it would be shipped to WIPP in accordance with DOE's plans. Expected TRU waste generated by the proposed facilities is included in the *WIPP Disposal Phase Final Supplemental EIS* cumulative impacts estimates, as well as in *The National TRU Waste Management Plan* (DOE/NTP-96-1204, December 1997).

IDFALS–44 **DOE Policy**

The "triple play," where MOX fuel fabricated from surplus plutonium would be used in a reactor to make tritium and generate electricity was analyzed in the *Final Programmatic Environmental Impact Statement for Tritium Supply and Recycling* (DOE/EIS-0161, October 1995). In May 1999, the Secretary of Energy decided that TVA's Watts Bar and Sequoyah reactors would produce a future supply of tritium (64 FR 26369). Therefore, the triple play option is no longer under consideration.

IDFALS–45 **Other**

DOE acknowledges the commentor's position regarding the future of the nuclear industry.

IDFALS–46 **Other**

DOE acknowledges the commentor's view that States should have the right to veto decisions made on the surplus plutonium disposition program. DOE has been charged by the U.S. Congress with determining how surplus plutonium will be dispositioned. Public input is a crucial component of this decisionmaking process. 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.

IDFALS–47 **Other**

DOE acknowledges the commentor's concern.

The United States should not be so dependent on fossil fuel. With more knowledge, people wouldn't be so afraid of nuclear power. | 48

Is MOX utilization based on pure economics? | 49

Was an economic analysis between highly enriched uranium and MOX performed? With a smaller quantity of fuel, is it cost effective to do? | 50

IDFALS–48 **Other**

DOE acknowledges the commentor's support for nuclear power. However, the purpose of the surplus plutonium disposition program is not to generate energy. The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner.

IDFALS–49 **Cost**

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.

IDFALS–50 **Cost**

No economic comparison of MOX and HEU fuels was conducted in conjunction with this SPD EIS. HEU is dedicated to defense purposes only. Because cost issues are beyond the scope of this EIS, this comment has been forwarded to the cost analysis team for response. 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* (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 current Administration is strictly antinuclear. The Russians consider plutonium a national treasure, and the United States should as well. 51

The United States should be using spent fuel for power. The nuclear industry is the safest source of power. We need to turn trend around and revitalize industry. 52

IDFALS–51 **DOE Policy**

DOE acknowledges the commentor's concern regarding the value of surplus plutonium. 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. However, not all of the surplus plutonium would be made into MOX fuel because some of it is not suitable for fabrication due to complexity, timing, and cost that would be involved in purifying the material. Furthermore, 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 national policy and nonproliferation considerations, environmental analyses, technical and cost reports, and public input.

IDFALS–52 **DOE Policy**

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. Therefore, the United States will not build an inventory of plutonium that has been separated from commercial irradiated fuel.

DOE should plan to save plutonium in spent fuel and should use this fuel for environmental and economic reasons.	53
How did you arrive at the figure for TRU waste?	54
We need some means for recovering fuel. We need interim storage, not permanent storage.	55
The RFPs are due in September and will be awarded in November. Isn't this inconsistent with the overall timescale?	56

IDFALS–53 **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. U.S. policy dating back to the Ford Administration has prohibited the commercial, chemical reprocessing and separation of plutonium from spent nuclear fuel.

IDFALS–54 **Waste Management**

The waste generation data used in this SPD EIS were obtained from data reports prepared by the DOE national laboratories. The TRU waste volumes in these reports were estimated from process knowledge, or obtained by extrapolation of information on TRU waste generation at similar existing facilities. Supporting reports are available in the public reading rooms at the following locations: Hanford, INEEL, Pantex, SRS, and Washington, D.C.

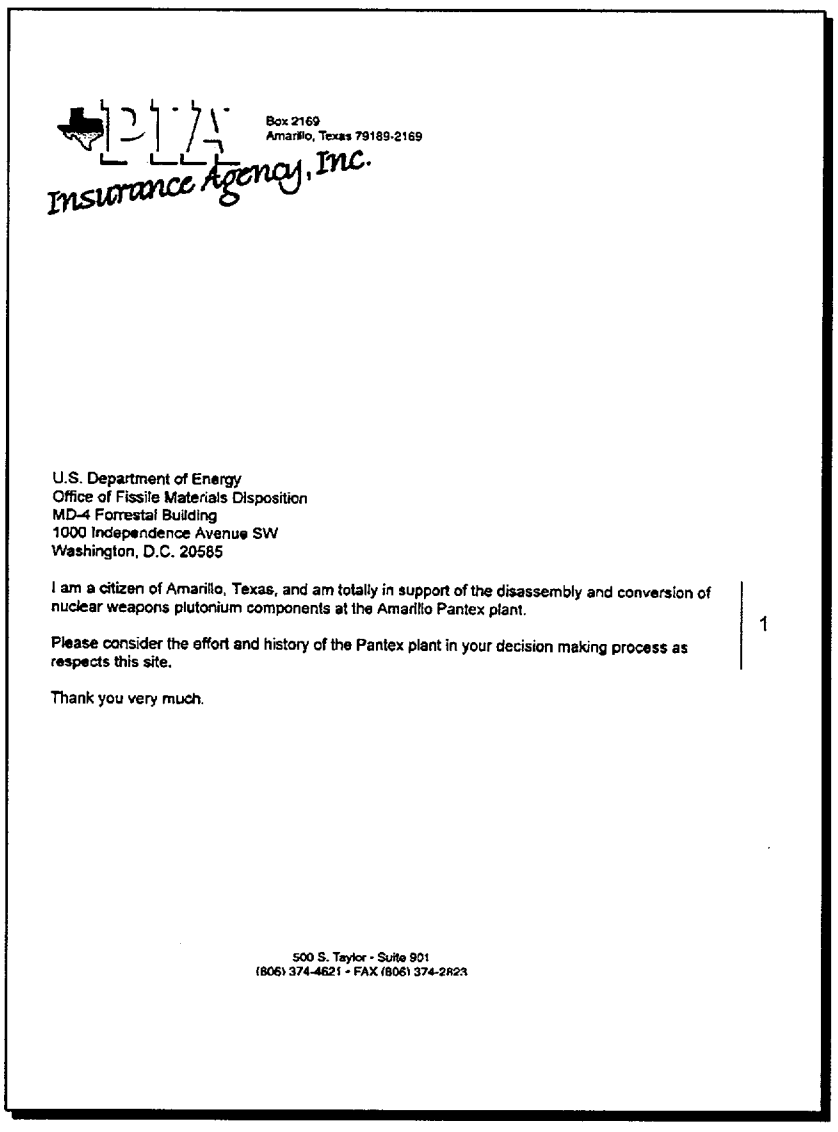
IDFALS–55 **DOE Policy**

This SPD EIS assumes, for the purposes of analysis, that Yucca Mountain, Nevada, would be the final disposal site for all immobilized plutonium and MOX spent fuel. As directed by the U.S. Congress through the NWPA, as amended, Yucca Mountain is the only candidate site currently being characterized as a potential geologic repository for HLW and spent fuel. DOE has prepared a separate EIS, *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), which analyzes the environmental impacts from construction, operation and monitoring, related transportation, and eventual closure of a potential geologic repository. Section 122 of the NWPA requires DOE to maintain the ability to retrieve emplaced materials. Therefore, DOE would maintain the ability to retrieve spent nuclear fuel and HLW for at least 100 years, and possibly as long as 300 years.

IDFALS–56 **MOX RFP**

Fabrication of MOX fuel would not begin until a license was issued for the MOX facility under 10 CFR 70, because special nuclear materials may not be

brought into an unlicensed facility. Theoretically, a facility could be completely constructed prior to issuance of a 10 CFR 70 license, but that would not be practical. NRC must approve the safety and environmental reports, as well as the plant features relating to criticality and nuclear safety. Therefore, it would be in the best interests of the facility owners and operators to work closely with NRC during the design and construction process to ensure that NRC approved of the way its requirements were being met.



Box 2169
Amarillo, Texas 79189-2169

Insurance Agency, Inc.

U.S. Department of Energy
Office of Fissile Materials Disposition
MD-4 Forrestal Building
1000 Independence Avenue SW
Washington, D.C. 20585

I am a citizen of Amarillo, Texas, and am totally in support of the disassembly and conversion of nuclear weapons plutonium components at the Amarillo Pantex plant. 1

Please consider the effort and history of the Pantex plant in your decision making process as respects this site.

Thank you very much.

500 S. Taylor - Suite 901
(806) 374-4621 - FAX (806) 374-2823

1 **Alternatives**

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

Letter Expressing Reasons for Not Supporting Plutonium Processing at the Pantex Plant
Page 1 of 3

U.S. Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, DC, 20026-3786

Dear Department of Energy, Office of Fissile Materials Disposition:

I do not support plutonium processing at the Pantex Plant. In the *Surplus Plutonium Disposition Draft Environmental Impact Statement*, the Department of Energy prudently decided against locating one plutonium processing facility (MOX fuel fabrication) at the Pantex Plant. For the following additional reasons, a Plutonium Pit Disassembly and Conversion facility also should not be located at Pantex:

1

Pantex Should Not Become the Next Rocky Flats

Pantex has never processed plutonium. The Pantex Superfund site has so far apparently escaped the type of radioactive contamination found at plutonium processing sites like Rocky Flats in Colorado and Hanford in Washington.

Risks That Are Unknown Are Too High

The Pantex Plant occupies an area that is a fraction of the size of other plutonium sites.

SIZE MATTERS: A Comparison of the Area of the Four Candidate Sites (Square Miles)			
Pantex	**Savannah River Site**	**Idaho National Engineering Lab.**	**Hanford**
23	**309**	**890**	**560**

2

The technologies proposed in the Plutonium Pit Disassembly and Conversion Facility are undemonstrated and unproven. It is unacceptable to have plutonium operations above the Ogallala Aquifer and only one mile from where people live and work in a vibrant agricultural producing area. The Pantex legacy already includes heavy contamination in a perched layer of groundwater less than one hundred feet above the Ogallala Aquifer. This pollution extends from under the Pantex Plant to adjacent private property and the real impacts remain unknown. The risk of any additional groundwater pollution is unacceptable in an agricultural region.

Common sense dictates that negative consequences to people and farmland from nuclear accidents are far more likely in a small, open, windy location like Pantex. The Department of Energy has acknowledged that the most visually unappealing feature of the plutonium facilities will be their smokestacks. Visual blight will be a minor inconvenience compared to the air pollutants--many of them radioactive--expected to escape into the atmosphere daily through smokestack filters. Routine air emissions of tritium, plutonium, americium, and beryllium constitute unacceptable new hazards to the Texas Panhandle.

3

1 Alternatives

DOE acknowledges the commentor's opposition to siting the proposed surplus plutonium disposition facilities at Pantex. As described in Chapter 4 of Volume I and summarized in Section 2.18, potential impacts of any of the proposed activities during routine operations at any of the candidate sites would likely be minor. To avoid contamination that has occurred in the past at some DOE sites, DOE would design, build, and operate the proposed surplus plutonium disposition facilities in compliance with today's environmental, safety, and health requirements. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

2 Human Health Risk

Although Pantex is smaller in overall size in comparison with the other candidate sites, analyses in Chapter 4 of Volume I indicate that impacts of operating the pit conversion facility on health, safety, and the environment at Pantex would likely be minor (e.g., see Section 4.6).

While it is true that the pit conversion facility is the first consolidated facility for accomplishing this mission on a large scale, the processes that would be used in this facility are not entirely new. Many of these processes are in use at LANL and LLNL. In addition, DOE has recently started a pit disassembly and conversion demonstration project at LANL, where processes will be further developed and tested.

Section 4.26.3.2 analyzes impacts to the environment (including contamination to the Ogallala aquifer) due to construction and normal operation of a pit conversion facility at Pantex. There would be no discernible contamination of aquatic biota (fish) or drinking water, either from the deposition of minute quantities of airborne contaminants into small water bodies or from 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. If the proposed surplus plutonium disposition facilities were located at Pantex, a very small incremental annual dose to the surrounding public from normal operations would result via radiological emission deposition on agricultural products (i.e., food ingestion pathway). This dose (about 0.56 person-rem/yr) would be 0.0006 percent of the dose that would be incurred annually from natural background radiation. This analysis indicates that impacts of operating the pit conversion facility on agricultural products, livestock, and human health at Pantex would likely be minor.

3 Human Health Risk

It is DOE policy to operate in compliance with all applicable air quality requirements and to protect human health and the environment. DOE takes into consideration pollution reduction techniques to minimize air releases when designing, constructing, and operating its facilities. It also considers aesthetic and scenic resources in the design, location, construction, and operation of facilities. Potential concentrations of air pollutants at Pantex for the various alternatives have been estimated, considering appropriate local meteorology and other data associated with the area. Because the releases from the pit conversion and MOX facilities would be very small (see Appendix J.3.1.4), estimates of resultant radiological health risks are small. As indicated in Section 4.17.2.4, the maximum possible dose delivered to a member of the public during normal operations of the MOX and pit conversion facilities at Pantex would be 0.068 mrem/yr, 0.02 percent of the dose that individual would receive annually from natural background radiation. The estimated dose to the public from radiological emissions (e.g., amercium, tritium, and plutonium) would be 0.077 person-rem/yr which would result in an increase of 2.9×10^{-3} LCFs over the 10-year operating life of the pit conversion facility. Any new facilities that might be built would be within existing site boundaries, and would be matched aesthetically with the current plant to limit potential visual impacts.

There is Valid, Strong Criticism of Safety in the Storage of Plutonium at Pantex

Since Pantex became the nation's long-term storage location for up to 20,000 plutonium pits, promises to improve safety conditions have not happened. The U.S. Government Accounting Office and the Defense Nuclear Facilities Safety Board have issued reports critical of plutonium storage safety at Pantex. Fifty million taxpayer dollars were spent on a failed plutonium pit container program (the AT-400A) and the plan to move over 10,000 pits into a safer remodeled building (Building 12-66) has also failed.

When it comes to plutonium pit storage problems, Panhandle residents are back to square one. The plutonium remains in old, unsuitable, corroding storage containers and in 35-55 year old "bunkers" that the Department of Energy promised were for "temporary" use. Plutonium that is supposed to be stored in a stable environment now sits in the bunkers--all but three without air conditioning--even as the Texas Panhandle experiences a spell of more than 40 consecutive days of 90+ degree temperatures, and more than 20 days this summer with thermometers registering 100+ degrees. If the Department of Energy cannot accomplish the job of safely storing Pantex plutonium in the most stable environment, there is no reason to accept its unsubstantiated assurances to safely process deadly plutonium powders at Pantex.

4

Thank you for this opportunity to comment.

Sincerely:

4 **DOE Policy**

DOE acknowledges the commentor's concern regarding safe storage of plutonium pits at Pantex. DOE is committed to the safe, secure storage of pits and is evaluating options for upgrades to Pantex Zone 4 facilities to address plutonium storage requirements. DOE has addressed some of the commentor's concerns in an environmental review concerning the repackaging of Pantex pits into a more robust container. This evaluation is documented in the *Supplement Analysis for: Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components—AL–R8 Sealed Insert Container* (August 1998). This document is on the MD Web site at http://www.doe-md.com. Based on this supplement analysis, the decision was made to repackage pits at Pantex into the AL–R8 sealed insert container and to discontinue plans to repackage pits into the AT–400A container.

Worker exposure estimates attributable to the decision to repackage pits in AL–R8 sealed insert containers were incorporated in the revised Section 2.18 and Appendix L.5.1.

The issues raised in this comment relate to pit storage decisions made in the *Storage and Disposition PEIS* and the *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components* (DOE/EIS-0225, November 1996). DOE is considering leaving the repackaged surplus pits in Zone 4 at Pantex for long-term storage. An appropriate environmental review will be conducted when the specific proposal for this change has been developed; addressing, for example, whether additional magazines need to be air-conditioned. The analysis in this SPD EIS assumes that the surplus pits are stored in Zone 12 in accordance with the ROD for the *Storage and Disposition PEIS*.

Letter Expressing Reasons Why the Fuels and Materials Examination Facility at the Hanford Site Should Be Selected to Disposition U.S. Surplus Plutonium
Page 1 of 1

U. S. Department of Energy
Office of Fissile Materials Disposition

Submittal to the Surplus Plutonium Disposition Draft Environmental Impact Statement Public Comment Period.

The Department of Energy (DOE) should select the Fuels and Materials Examination Facility (**FMEF**) at the Hanford Site to disposition the Nation's surplus plutonium. The **FMEF** is a $750 million national asset designed for Mixed Oxide (MOX) fuel fabrication and postirradiation examination. A DOE study estimates $200 million in capital savings if this facility were used instead of building a new MOX facility. Savings could double if pit disassembly/conversion activities were performed in **FMEF**. The DOE and the Nuclear Regulatory Commission (NRC) have acknowledged that collocation of both programs in the facility is possible. Savings from a dual mission could be used to accelerate cleanup at DOE sites.

The **FMEF** is DOE's most expeditious and most economical choice for surplus plutonium disposition. Neither hazardous or radioactive materials have ever been used in the **FMEF**. Modifications for plutonium disposition activities could be accomplished faster and at less cost because the facility is uncontaminated. The **FMEF** is operationally complete with 120,000 square feet of process space (250,000 sq. ft. total). It was designed and constructed to NRC reactor standards, it meets current safety standards, and it is deemed capable of NRC licensing. 1

The draft Surplus Plutonium Disposition Environmental Impact Statement (SPD-EIS) is complete and the preferred alternatives for pit disassembly and MOX fuel fabrication do not include Hanford. I strongly urge the Office of Fissile Materials Disposition and the Secretary of Energy to thoroughly reevaluate the preferred alternatives for plutonium disposition. The Record of Decision for the SPD-EIS should reflect the realities of a balanced federal budget and the assets that DOE already has. Don't ignore the cost advantages of using the **FMEF** and the potential for misusing billions of dollars if a new MOX facility were built.

Thank you.

1 Alternatives

DOE acknowledges the commentor's support for collocating pit disassembly and conversion and MOX fuel fabrication in FMEF 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, especially in regard to the use of existing facilities.

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* (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.

U.S. Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, DC, 20026-3786

Dear Department of Energy, Office of Fissile Materials Disposition:

In the *Surplus Plutonium Disposition Draft Environmental Impact Statement*, the Department of Energy proposes to build new plutonium processing facilities and dispose of 55 tons of "surplus" plutonium. I ask that the following comments reflecting my concerns and reservations regarding these proposals be incorporated into the decisions made for the plutonium disposition program.

Immobilize

The objective of plutonium disposition is to make weapons-usable plutonium as inaccessible for reuse in nuclear weapons as the plutonium in irradiated nuclear fuel, and to do so in a timely and safe manner. For the following reasons the Department of Energy should choose to immobilize all surplus plutonium and consider the possibility of doing this at more than one location:

- Immobilizing all plutonium is a safer option because it involves less handling, processing, and transporting of plutonium and other radioactive materials, and is less expensive because it involves fewer new facilities and avoids the costs of subsidizing the nuclear industry. These same factors would allow disposition to occur in a much more timely manner; 1
- According to the Department of Energy's own studies, the "ceramification can-in-canister" approach to immobilization results in a waste product that is more resistant to theft, diversion, and reuse than irradiated mixed oxide (MOX) fuel;
- The immobilization approach does not involve increasing the risk to persons living near nuclear reactors because it avoids burning--for the first time ever--large amounts of weapons-grade plutonium.

If delays arise in the immobilization program, the Department of Energy should insure that:

- Tons of presently unstable plutonium oxide scheduled for immobilization are put in a safer, more stable form suitable for storage, inventory, and international inspection;
- The objective of interim demilitarization of currently stable forms of plutonium, such as plutonium in pits, must be the minimal alteration of its current form necessary for safe storage, inventory, and international inspection. 2

No To MOX

The ill-conceived mixed oxide (MOX) fuel option should be rejected because there is no rational justification to convert stable plutonium to less stable, more dangerous plutonium oxide powder for use in MOX fuel, and then subsidize the nuclear industry to irradiate the fuel in aging nuclear reactors. Now that it appears obvious that producing plutonium oxide powder suitable for use in MOX fuel will require liquid acid plutonium processing, the MOX option is a proven threat to human health and the environment. 3

The United States' rationale that it must choose the MOX option to appease Russia is unsubstantiated and flawed in several respects:

- There is little support for a plutonium fuel economy in Russia, where people voting in public referendums have overwhelmingly rejected new nuclear developments;

1 Immobilization

DOE acknowledges the commentor's support for the immobilization approach to surplus plutonium disposition. However, 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.

Multiple immobilization facilities would be very costly and time-consuming to implement, and therefore were not considered as an option in this SPD EIS. With only 50 t (55 tons) of surplus plutonium to disposition, it would not be practical to construct and operate more than one immobilization facility, even if the decision were made to immobilize all the surplus plutonium.

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. NAS identified that the Spent Fuel Standard could be met through disposition by either the immobilization or 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.

NAS is currently conducting studies to confirm the ability of the ceramic can-in-canister immobilization approach to meet the Spent Fuel Standard.

This SPD EIS analyzes the potential environmental impacts associated with implementing the proposed surplus plutonium disposition activities at the candidate sites. The results of these analyses, presented in Chapter 4 of Volume I and summarized in Section 2.18, demonstrate that the activities would likely have minor impacts on the health, safety and environment at any of the candidate sites, including transportation impacts. Section 4.28 was revised to provide reactor-specific analyses and discuss the potential environmental impacts of using a partial MOX core during routine operations and reactor accidents.

2 DOE Policy

Surplus plutonium dioxides would be stabilized in conformance with DNFSB Recommendation 94-1 prior to being immobilized under the surplus plutonium disposition program. As discussed in Section 2.4, secure storage and monitoring provisions, including international inspection, and other safeguards will be integral components of the proposed facilities.

DOE is committed to the safe, secure storage of pits and is evaluating options for upgrades to Pantex Zone 4 facilities to address plutonium storage requirements. Evaluation of repackaging Pantex pits into a more robust container is documented in the *Supplement Analysis for: Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components—AL–R8 Sealed Insert Container* (August 1998). This document is on the MD Web site at http://www.doe-md.com. Based on this supplement analysis, the decision was made to repackage pits at Pantex into the AL–R8 sealed insert container and to discontinue plans to repackage pits into the AT–400A container.

- The argument that the Russian government opposes immobilization because the plutonium is more easily retrieved is undermined by the fact that irradiated MOX fuel is easier to re-use in nuclear weapons than the ceramification can-in-canister disposition approach;

- The United States should not be encouraging Russia to develop MOX capability due to the uncertainties produced by the U.S. underwriting costs of a Russian infrastructure to reprocess plutonium;

- Russia's choice of technology should not determine the U.S. choice. The governments themselves have recognized this, as in the United States-Russian Joint Plutonium Disposition study in 1996, which found that, *"The United States and Russia need not use the same plutonium disposition technology. Indeed, given the very different economic circumstances, nuclear infrastructures, and fuel cycle policies in the two countries, it is likely that the best approaches will be different in the two countries."*

3

Already, politically powerful voices are suggesting that United States policy regarding plutonium be re-examined. By establishing a new level of plutonium processing infrastructure which encourages plutonium commerce, U.S. non-proliferation policy is clearly undermined.

Inform People of the Real Hazards, Risks, and Uncertainties

The Department of Energy has not fulfilled its legal obligation to fully inform people of the real risks, hazards, uncertainties and long-term implications of processing tons of plutonium powder that is hazardous to human health at the scale of micrograms. This latest voluminous, and largely unreadable, environmental document does not even contain the most basic information about hazards, such as the expected quantities of radioactive air pollutants. Instead, the public is forced to follow a paper maze if the information is available at all.

4

The Department of Energy must admit that the real hazards and risks are largely unknown, and that uncertainty is the only constant at this time. There is only one mixed oxide (MOX) fuel plant currently operating at the capacity proposed by this document--100 tons of MOX fuel fabricated per year--and that facility uses reactor-grade plutonium. No MOX fuel from weapons-grade plutonium has ever been fabricated or used on an industrial scale, and no weapons-grade plutonium has ever been immobilized on an industrial scale. The plutonium pit disassembly and conversion plant would be a first-of-its-kind facility utilizing unproven technologies that are controversial even within the nuclear establishment.

5

6

To compound the uncertainties, the Department of Energy plutonium disposition plan is not a model for success. Under the existing proposals, the Department of Energy would design facilities requiring unproven technologies while the technology demonstration and testing is ongoing, and begin facility construction before finishing their design. The Department of Energy has followed this model of development before and the result has always been cost overruns, delays, unexpected negative impacts on human health and the environment, and massive waste of taxpayer dollars.

7

Thank you for this opportunity to comment.

Sincerely:

3 MOX Approach

DOE acknowledges the commentor's opposition to the MOX approach. The *Joint Statement of Principles* signed by Presidents Clinton and Yeltsin in September 1998 provide general guidance for achieving the objectives of a future bilateral agreement to disposition surplus plutonium in the United States and Russia. Sensitive negotiations between the two countries have indicated that the Russian government accepts the technology of immobilization for low-concentration, plutonium-bearing materials, but that the MOX approach would be considered for higher-purity feed materials.

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 addition of the plutonium-polishing process was analyzed and a description of the potential environmental impacts was added to the impact sections presented for the MOX facility in Chapter 4 of Volume I. As indicated by the analyses, the addition of this process is not expected to materially affect human health of the population living within 80 km (50 mi) of the candidate sites. For example, the annual dose associated with operating the MOX facility is expected to increase by between 0.017 and 0.18 person-rem/yr for the population living within 80 km (50 mi) of the candidate sites.

4 General SPD EIS and NEPA Process

DOE has prepared this SPD EIS in accordance with the provisions of NEPA (42 U.S.C. 4321 et seq.) and the related CEQ and DOE implementation regulations (40 CFR 1500 through 1508 and 10 CFR 1021, respectively). It is intended as a source of environmental information for the DOE decisionmakers and the public. The primary objective of the EIS is a comprehensive description of proposed surplus plutonium disposition actions and alternatives and their potential environmental impacts. As with any EIS, technical information is included to the extent that it is required to understand those actions and impacts. Other data were added in the course of the EIS development—for example, expected radiological

release quantities, including airborne releases, in Appendix J. Additional technical information concerning the proposed facilities is given in various data reports reflected in the list of references for Chapter 2, Volume I. These referenced materials are available in DOE reading rooms.

5 MOX Approach

The commentor is correct that MOX fuel is not widely produced, however, the process is similar to production of LEU fuel. In fact, after the uranium and plutonium oxide powders are blended, the MOX fuel fabrication process is essentially identical to LEU fuel fabrication. While weapons-grade plutonium is currently used in MOX fuel, its behavior in fuel is essentially the same as that of non-weapons origin plutonium, and so does not present a situation different from MOX fuel experience to date. In addition, a limited number of MOX fuel assemblies would be irradiated and tested in accordance with NRC requirements to verify acceptability prior to fabricating the fuel on a larger scale for insertion into the reactors. NRC will also license the MOX facility under 10 CFR 70, and be responsible for issuing operating license amendments under 10 CFR 50 for the domestic, commercial reactors that have been selected to irradiate the MOX fuel. There are always uncertainties involved with construction projects and startup of new facilities and processes. However, DOE has considered the uncertainties in its evaluations and determined that MOX fuel fabrication for use in commercial reactors is a viable option to surplus plutonium disposition.

6 Pit Disassembly and Conversion

While it is true that the pit conversion facility is the first consolidated facility for accomplishing this mission on a large scale, the processes that would be used in this facility are not entirely new. Many of these processes are in use at LANL and LLNL. However, to ensure successful transition to full-scale operation, DOE is testing these components as an integrated system at LANL. This pit disassembly and conversion demonstration is focusing on equipment design and process development and will provide information for fine-tuning the process and operational parameters prior to pit conversion facility operation. While this demonstration could

continue for up to 4 years, the information from the demonstration would be generated, gathered, and be available on a continuous basis throughout the facility design phase. This demonstration project and other R&D projects are described in the *Pit Disassembly and Conversion Demonstration EA* (DOE/EA-1207, August 1998), which is available on the MD Web site at http://www.doe-md.com.

7 Alternatives

DOE acknowledges the commentor's concern for potential shortcomings in the surplus plutonium disposition program. While it is correct that the disposition of large quantities of plutonium is a new endeavor, the various disposition alternatives are not. Several countries, including Russia and the United States have experience with immobilizing high-level wastes and the proposed can-in-canister approach, using ceramic instead of glass, offers advantages in the areas of proliferation resistance, repository durability, lower worker radiation exposure during processing, and cost effectiveness.

Commercial reactors in the United States are capable of safely using MOX fuel without any physical modifications to the reactor vessel or supporting systems. (Operating procedures, fuel management plans, and other activities would need to be modified.) The MOX technology is used in Europe, and therefore does not require extensive research and development for implementation in the United States. The R&D effort would be concentrated on fabricating samples of MOX fuel and conducting limited experiments and tests on those samples to assess fuel performance. The main objectives of this effort by DOE are to ensure that the plutonium and uranium feed materials will produce acceptable MOX fuel and to examine key issues relative to the performance of MOX fuel in commercial reactors.

U.S. Department of Energy
Office of Missile Materials Disposition
MD-4 Forrestal Building
1000 Independence Avenue, SW
Washington D.C., 20585

As a citizen of Amarillo, I wish to express my feeling about the location of the disassembly and conversion of nuclear weapons plutonium components("pits") at the Amarillo Pantex Plant. I am totally in support of this function and hope you will consider the effort and the history of the Pantex plant in your decision making process for this site. 1

Sincerely,

Signature

Address

1 Alternatives

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PETITION EXPRESSING OPPOSITION TO MIXED OXIDE FUEL TRANSPORTATION ACROSS THE UNITED STATES
PAGE 1 OF 3

Petition / Opposed to MOX fuel transportation across the U.S.

We, the undersigned, are opposed to the fabrication and transportation of mixed oxide fuel (MOX), to be created from U.S. bomb plutonium. We oppose this government initiative because plutonium fuel, or MOX, presents many serious problems including: 1

1. Plutonium would be transported through the thumb area, the heart of the Great Lakes Region. Transport accidents would endanger millions of citizens and our precious environment.
2. Plutonium is a radioactive substance that lasts for thousands of years and one-millionth of a gram of plutonium can be lethal to a human being. 2
3. Use of MOX turns plutonium into high-level atomic waste, for which no safe storage solution is known. 3
4. The MOX program would allow foreign corporations to have significant control over plutonium - the most sensitive material in nuclear weapons - and would contradict more than 20 years of U.S. nuclear non-proliferation policy. 4

Full Name (please print)	Address	Signature (written)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

Send completed petitions to: CAP, Citizens For a Healthy Planet, P.O. Box 335, Emmett, Mi. 48022

1 MOX Approach

DOE acknowledges the commentor'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. 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.

The transportation of surplus plutonium through the Great Lakes Region is beyond the scope of the proposed action analyzed in this SPD EIS. Shipments of a small quantity of MOX fuel from LANL to Canada were part of a separate proposed action. DOE has prepared an *Environmental Assessment for the Parallex Project Fuel Manufacture and Shipment* (DOE/EA-1216, January 1999) and FONSI, signed August 13, 1999, on fabrication of the MOX fuel and its transportation to Canada. The transportation analyses in the Parallex EA indicate that no serious health effects would occur due to the transport of MOX fuel. This EA and FONSI can be viewed on the MD Web site at http://www.doe-md.com.

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 as described in Appendix L.3.2. 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.

2 Human Health Risk

The small radiological release quantities expected from each of the proposed surplus plutonium disposition facilities are presented in the Source Term Data sections of Appendix J. The Atomic Energy Act of 1954

authorizes DOE to establish standards to protect health and minimize dangers to life. Radiation protection standards are based on controlling radioactive releases to ALARA levels in recognition of the potential risk of radiation exposure. The small cancer risks presented in this SPD EIS are a direct result of the small quantities of material (plutonium, etc.) expected to be released from the facilities. Calculation of these cancer risks is based on methodologies presented in the accredited National Research Council's publication *Health Effects of Exposure to Low Levels of Ionizing Radiation BEIR V* (1990). As is shown in the radiological impact tables in Chapter 4 of Volume I, the cancer risk (associated with the estimated plutonium releases) to members of the public is well below one, thus demonstrating that the quantity of plutonium released would not be close to the amount associated with causing a fatality.

3 Repositories

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.

This SPD EIS assumes, for the purposes of analysis, that Yucca Mountain, Nevada, would be the final disposal site for all immobilized plutonium and MOX spent fuel. As directed by the U.S. Congress through the NWPA, as amended, Yucca Mountain is the only candidate site currently being characterized as a potential geologic repository for HLW and spent fuel. DOE has prepared a separate EIS, *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), which analyzes the environmental impacts from construction, operation and monitoring, related transportation, and eventual closure of a potential geologic repository.

4 **Nonproliferation**

The DOE contract under which DCS would provide MOX fuel fabrication and irradiation services has very specific provisions that would not allow foreign corporations or governments to have control over the surplus plutonium or have the ability to access any sensitive U.S. technology information. Prior to awarding the contract, a National Interest Determination and a Foreign Ownership Control and Influence Determination were made to ensure that there would be, among other things, no breach of nonproliferation policy.

PETITION EXPRESSING SUPPORT FOR SITING THE PIT DISASSEMBLY AND CONVERSION FACILITY AT THE PANTEX PLANT
PAGE 1 OF 1

PETITION

We, the undersigned, believe it is in the best interests of our country and the Department of Energy, to site the Pit Disassembly and Conversion Facility at the Pantex Plant in Amarillo, Texas. 1

Alternatives

1

DOE acknowledges the commentor's support for siting the pit conversion facility at Pantex. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

PROTECT the Mission at Pantex!

An accident at the proposed Pit Disassembly and Conversion Facility (PDCF) could contaminate and close the nuclear weapon disassembly and pit storage missions at Pantex. We petition President Bill Clinton and the Department of Energy not to risk the much more important weapon disassembly mission. Please do not site the PDCF at Pantex. 1

Name	Address	City/ZIP

Original: Copy sent to President Clinton

1 Facility Accidents

DOE acknowledges the commentor's opposition to siting the pit conversion facility at Pantex. The accident risks associated with constructing and operating the pit conversion facility at Pantex are described in the Facility Accidents sections in Chapter 4 of Volume I and in Appendix K. The most severe design basis accidents were analyzed, and no LCFs in the general population would be expected to result. Decisions on the surplus plutonium disposition program at Pantex will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

POSTCARD CITING SAVINGS FROM CONSOLIDATING ALL OF DOE'S PLUTONIUM DISPOSITION MISSIONS AT THE SAVANNAH RIVER SITE
PAGE 1 OF 1

Dear Secretary Peña:

As I'm sure you know, a decision to consolidate all of DOE's plutonium disposition missions at the Savannah River Site would result in a near-term capital cost savings of over $500 Million and a total life cycle savings of about $1.6 Billion. 1

I and taxpayers throughout the nation will thank you for keeping our interests in mind when you make your plutonium decisions later this year.

Thank-You,

_____
Signature

_____
County of residence/affiliation

1 Alternatives

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at SRS. As indicated in the revised Section 1.6, SRS is preferred the proposed facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure.

Because this comment relates directly to the cost analysis report, it has been forwarded to the cost analysis team for consideration. 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, is 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.

POSTCARD CITING COST SAVINGS AND SUPPORT FOR CONSOLIDATING DOE'S PLUTONIUM DISPOSITION MISSIONS AT THE SAVANNAH RIVER SITE
PAGE 1 OF 1

Dear Mr. Secretary:

As you already know, consolidating the DOE's plutonium disposition missions at the Savannah River Site—pit disassembly and conversion, MOX fuel fabrication and immobilization—will save millions of dollars by reducing or eliminating operating costs of other DOE mission sites. 1

As a resident of the Central Savannah River Area, I can assure you that these missions are wanted and community support is strong.

Thank-You,

_____

Signature

_____

County of residence/affiliation

1 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at SRS. As indicated in the revised Section 1.6, SRS is preferred the proposed facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure.

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* (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.

☑	**YES!**	**Keep Texas Panhandle water, air, and soil safe from radioactive pollutants**	1
☑	**NO!**	**To any plutonium processing in the Texas Panhandle**	2
☑	**YES!**	**To minimal handling and processing of plutonium and other nuclear materials**	3
☑	**NO!**	**To converting military plutonium for use in mixed oxide (MOX) fuel**	4

Signed: _____

1 **Alternatives**

Sections 4.17, among others, and 4.26.3 describe the potential effects of the maximum impact alternative on air quality, water resources, and soil. These analyses indicate that the impacts of construction and normal operation of the pit conversion and MOX facilities on air, water, and soil at Pantex would likely be minor.

2 **Alternatives**

DOE acknowledges the commentor's opposition to the surplus plutonium disposition program at Pantex. 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.

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. 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.

4 **MOX Approach**

DOE acknowledges the commentor'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.

Dear Secretary Peña:

The Savannah River Site is ready to serve the nation in meeting its need to dispose of excess plutonium from nuclear weapons.

We know this plutonium can be converted into MOX fuel to help meet our electrical energy needs for years to come. We view plutonium as an important national resource not as a waste material, and we welcome DOE's plutonium disposition missions at the Savannah River Site. 1

We're prepared to do it all -- pit disassembly and conversion, MOX fuel fabrication and immobilization. We look forward to the opportunity to accomplish these missions at one of the safest and most proven facilities in the DOE complex.

Thank-You,

Signature

County of residence/affiliation

1 **Alternatives**

DOE acknowledges the commentor's support for siting the proposed surplus plutonium disposition facilities at SRS. As indicated in the revised Section 1.6, SRS is preferred for the proposed facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure. Decisions on the surplus plutonium disposition program at SRS will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input. DOE will announce its decisions regarding facility siting and approach to surplus plutonium disposition in the SPD EIS ROD.

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?
Yes No

5. How concerned are you about the transportation of Plutonium through the Northwest? | 4
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_____
Address_____
Phone_____

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

3–1379

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.

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.

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. DOE has determined that 17 t (19 tons) of the surplus plutonium would be immobilized due to the complexity, timing, and cost that would be involved in purifying those plutonium materials to make them suitable for use in MOX fuel. Therefore, fabricating all 50 t (55 tons) of surplus plutonium into MOX fuel is not considered a reasonable alternative at this time 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.

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.

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.

6 **DOE Policy**

As discussed in Appendix D of the SPD Draft EIS, DOE did consider FFTF in the *Storage and Disposition PEIS*, but it was eliminated from further study because it was in a standby status and it could not satisfy the criterion of completing the disposition mission within 25 years using the historic FFTF plutonium enrichment specifications. In December 1998, the Secretary of Energy decided that FFTF would not play a role in producing tritium. As discussed in Section 1.7.4, Appendix D was deleted from the SPD Final EIS because none of the proposals to restart FFTF currently consider the use of surplus plutonium as a fuel source.

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? 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?
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 cannisters for entombment)
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?
Not concerned Slightly Concerned Very Concerned Completely opposed

7. Should MOX fuel be used to restart the Fast Flux Text Facility (FFTF), a risky liquid-metal reactor at Hanford, to produce tritium for nuclear bombs? 6
Yes No

Name _____

Address _____

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

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.

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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.

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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.

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.

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Transportation

5

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DOE Policy

6

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