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# **Final Environmental Impact Statement**

## **for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Tooele County, Utah**

### **Appendix G - Public Comments and Responses**

### **Appendix H - Index of Commenters**

Docket No. 72-22  
Private Fuel Storage, L.L.C.

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**U.S. Nuclear Regulatory Commission**  
**Office of Nuclear Material Safety and Safeguards**  
**U.S. Bureau of Indian Affairs**  
**U.S. Bureau of Land Management**  
**U.S. Surface Transportation Board**

December 2001



## **ABSTRACT**

Private Fuel Storage, L.L.C. (PFS), proposes to construct and operate an independent spent fuel storage installation on the Reservation of the Skull Valley Band of Goshute Indians. The Reservation is located geographically within Tooele County, Utah. Spent nuclear fuel (SNF) would be transported by rail from existing U.S. commercial reactor sites to Skull Valley. To transport the SNF from the existing rail line to the proposed facility, PFS proposed to construct and operate a rail siding and a 51 m (32 mile) rail line from the rail line near Low, Utah to the reservation.

This final environmental impact statement evaluates the potential environmental impacts of the PFS proposal. The document discusses the purpose and need for the PFS proposed facility, describes the proposed action and its reasonable alternatives, describes the environment potentially affected by the proposal, presents and compares the potential environmental impacts resulting from the proposed action and its alternatives, and identifies mitigation measures that could eliminate or lessen the potential environmental impacts.

The PFS proposal requires approval from four federal agencies: the U. S. Nuclear Regulatory Commission, the U.S. Department of Interior's Bureau of Indian Affairs and Bureau of Land Management, and the U.S. Surface Transportation Board. The actions required of these agencies are administrative. The environmental issues that each of these agencies must evaluate pursuant to the National Environmental Policy Act of 1969 (NEPA) are interrelated; therefore; the agencies have cooperated in the preparation of this final environmental impact statement, and this document serves to satisfy each agency's statutory responsibilities under NEPA.

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## APPENDIX G

### PUBLIC COMMENTS AND RESPONSES

#### G.1 Overview

The NRC and the Cooperating Agencies (the BIA, the BLM, and the STB) made the DEIS (June 2000) available for public review and comment in accordance with 10 CFR 51.74 and 40 CFR 1503.1. The NRC and the other Cooperating Agencies provided a 90-day public comment period on the DEIS. The length of the comment period exceeded the minimum of 45 days specified in 10 CFR 51.73 and the STB regulations in 49 CFR 1105.10. The comment period also exceeded the recommended 60-day comment period in the BIA NEPA guidance (30 BIA Manual Supplement 1, 1993), and met the 90-day period required for EISs involving BLM resource plan amendments (43 CFR 1610.2(c)).

During the public comment period, the NRC and the other Cooperating Agencies held four public meetings in Utah to receive oral comments regarding the contents of the DEIS. These public meetings were held on July 27, 2000, in Salt Lake City; July 28, 2000, in Grantsville; and August 21, 2000, (afternoon and evening) in Salt Lake City. The NRC provided notice of these meetings in the *Federal Register* (65 Fed. Reg. 39206, June 23, 2000 and 65 Fed. Reg. 49029, August 10, 2000) and provided notice of all the meetings on its website and in local newspapers.

Approximately 145 people provided oral comments at the public meetings. A certified court reporter recorded these oral comments and prepared written transcripts of the meetings. The transcripts of the public meetings are part of the public record for the proposed project and were used in developing the comment summaries contained in this Appendix. In addition to oral comments received at the public meetings, the NRC received 264 written comments, letters, facsimile transmittals, and e-mails. The comment period closed on September 21, 2000.

The NRC and the Cooperating Agencies have reviewed each comment letter and all transcripts of the public meetings and grouped together comments relating to similar issues and topics, as permitted by the CEQ NEPA regulations and the NRC regulations at 10 CFR 51.91 and 40 CFR 1503.4(b). Because the comments were exceptionally voluminous, this appendix provides summaries of all substantive comments received on the DEIS. When the agencies received more than one comment raising a particular topic or issue, or when the comments were voluminous, the staff prepared a summary of the comments. The NRC and the Cooperating Agencies then prepared responses to each of the comments or summaries of comments. Commenters are identified in each summary with a commenter number. Appendix H is an index of commenter names and commenter numbers.

Many of the comments specifically addressed the scope of the environmental review, analyses, and issues contained in the DEIS, including comments about existing conditions, potential impacts, proposed mitigation, the agency review process, and the public comment period. Detailed responses to each of these comments are provided in this Appendix.

Many comments addressed topics and issues that are not part of the environmental review process for the proposed action. These comments included questions about the NRC's safety evaluation, general statements of support or opposition to nuclear power, observations regarding national nuclear waste management policies, comments on the NRC regulatory process in general, and comments on the NRC and Cooperating Agencies' policies. This Appendix includes summaries of these comments, but does not include detailed responses to such comments since they address



issues that do not directly relate to the environmental effects of the proposed action and are outside the scope of the NEPA review of the proposed action.

In some instances, many general comments and several detailed, specific comments addressed a particular subject. In such situations, the general comments did not provide any information in addition to that included in the specific comments. Accordingly, the NRC and the Cooperating Agencies responded to the detailed, specific comments but did not provide an additional response to the general comments. The NRC staff nonetheless listed the general comments as directed to the particular subject.

The following sections present the comments, or summaries of those comments, along with the NRC and Cooperating Agencies' responses to them. When comments have resulted in modification or supplementation of information presented in the DEIS, those changes are noted. In some cases the comments do not warrant a detailed response and in these cases an explanation of why no further response is necessary is provided. In all cases, the NRC and the Cooperating Agencies sought to respond to all comments received during the public comment period. Appendix H provides a list of commenters identified by name and comment number.

## G.2 Major Issues and Responses

More than 400 individuals and organizations provided approximately 4,000 written and oral comments on the DEIS. As indicated above, many of the comments were related to similar concerns or topics. To provide the reader with a quick reference regarding the major issues raised during the DEIS public comment period, the NRC and the Cooperating Agencies prepared summaries of the major issues. These summaries and the agencies' responses to these major issues are set forth below.

The summaries of major issues and the responses to them do not include verbatim, the entire range of issues raised during the public comment period. However, in this Appendix, the NRC and the Cooperating Agencies have summarized the complete range of issues raised in all the comments submitted during the public comment period, and have addressed those issues. The NRC and the Cooperating Agencies encourage members of the public to review all the comments, summaries, and responses to the comments.

The major issues raised during the public comment period for the DEIS included questions and comments about the following subjects:

- NRC's regulatory process;
- NRC's safety evaluation;
- Policies and responsibilities of the Cooperating Agencies;
- Project purpose and need;
- Impacts on human health;
- Transportation analysis and potential impacts;
- Socioeconomic impacts; and
- Public participation process.

### NRC Regulatory Process

A number of comments questioned the NRC review process for the license application for the proposed PFSF. Some of the concerns deal with the NRC's relationship with the nuclear power industry. Many comments questioned the NRC's ability to review such a proposal independently and impartially. Other comments expressed concern that the NRC review process was proceeding too quickly for a project of this magnitude. Still other comments expressed concern that the NRC review process did not adequately evaluate alternative locations and stated that alternatives such as continuing to store SNF at its source would have less environmental impact.

### Response

The commenters questioned many aspects of the NRC's process for considering license applications. The NRC staff's responses to many of these comments are based on the specific NRC procedures for considering applications. Accordingly, the following first describes the NRC licensing procedures, and then responds to the commenters' more specific concerns with the process.

Congress, in the Atomic Energy Act of 1954 (hereinafter the Act), as amended, has authorized the NRC to establish safety standards and procedures for licensing various kinds of facilities. The NRC regulations in 10 CFR Parts 2, 51, and 72 govern the submission of an application for an ISFSI. Pursuant to 10 CFR 72.16, the NRC staff assigns a docket number to an application upon receipt, and publishes a notice of receipt in the *Federal Register*. The notice of receipt may include a notice of proposed action and notice of opportunity for a hearing, or the NRC staff may issue the notice of proposed action and opportunity for a hearing later, pursuant to 10 CFR 2.105 and 72.46.

Upon publication of a notice of opportunity for hearing, as described in 10 CFR 2.714, any person whose interest may be affected by the proposed action may request a hearing. Normally, the

Commission refers requests for hearings to the Atomic Safety and Licensing Board (ASLB) Panel, and the Chairman of the ASLB Panel designates an ASLB to preside over the proceeding. A person other than the applicant or the NRC staff who wishes to participate in the proceeding is said to seek “intervention,” must petition for intervention, and, if admitted as a party to the proceeding, is called an “intervenor.” The Executive Summary of this FEIS sets forth the dates on which the NRC staff published the notices identified above in the *Federal Register* for this proposed action.

Section 2.714 of the NRC’s regulations requires a person seeking to intervene (called a “petitioner”) to establish “standing” by identifying an interest in the proceeding and showing how that interest might be affected by the proposed action before being admitted as a party. That section also requires the petitioner to identify an admissible contention, *i.e.*, a specific issue of law or fact that the petitioner would controvert, and provide a brief explanation of the bases for each proposed contention. A contention may relate to safety or environmental issues. Under section 2.714, a petitioner for intervention must support each contention by alleging facts or providing expert opinion. If the petitioner does not do so, or if he or she does not provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of fact or law, the particular contention for which this information is lacking is not admissible. Finally, section 2.714 requires the ASLB to refuse to admit a contention if it would not entitle the petitioner to relief even if the contention were proven. That is, the ASLB must deny admission if the contention, if proven, would not provide a basis for the ASLB to deny the application or require a condition on the issuance of the requested license.

The parties (NRC, applicant, and intervenors) may litigate the proceeding during the period that NRC staff is conducting its safety review. Typical actions might include written or aural depositions and requests for disposition of contentions. However the litigation process may not be completed (hearings conducted and ASLB findings issued) until the NRC staff completes its safety review of the application and documents that review in an SER. The NRC staff, in addressing other general comments, has described the purpose of the SER (See the following response). The NRC will not issue a license unless an applicant satisfies the safety requirements established in the NRC’s regulations, or satisfies the standards in 10 CFR 72.7 for the granting of an exemption. The NRC may not grant any such exemption unless it determines that the exemption will not endanger life or property.

The NRC’s environmental review also begins with the receipt and docketing of an application, which is described above. Pursuant to 10 CFR 51.61, the applicant must submit an environmental report to the NRC with the application. If the NRC determines that an EIS is required for a particular action, the NRC staff also issues, pursuant to 10 CFR 51.26, a notice of intent to prepare an EIS, which is published in the *Federal Register*. In the notice of intent, the NRC staff describes, among other things, the scoping process proposed for the requested action. While a public meeting on the scoping process is not required under 10 CFR 51.27, should the NRC staff decide that such a meeting is appropriate, the notice of intent identifies its time and place, or when the time and place will be announced. Pursuant to 10 CFR 51.28, the NRC staff invites designated persons to participate in the scoping process, including any person who has requested to participate. The Executive Summary to this FEIS describes how the NRC staff implemented this process for the proposed PFSF.

Once the NRC staff has completed the scoping process, defined the proposed action, and determined the scope of the EIS, the staff prepares a DEIS. Pursuant to 10 CFR 51.72, the NRC staff then makes the DEIS publically available, publishes notice of the DEIS’s availability in the *Federal Register*, and requests public comment on it. 10 CFR 51.73 specifies the minimum public comment period as 45 days. The NRC staff also distributes copies of the DEIS to the persons or organizations identified in 10 CFR 51.74, including the EPA, certain State and local agencies, and American Indian Tribes, and, upon written request and to the extent copies are available, to any other person. The Executive Summary describes how the NRC staff implemented this process with respect to the DEIS for the proposed PFSF.

Some commenters questioned whether the NRC had authority to enforce its safety regulations on the Reservation should the license be issued. Federal law generally applies to American Indian Reservations. In this instance Section 81 of the Act, 42 USC 2111, provides that no person may possess byproduct material, except to the extent that the NRC may authorize a person to do so. (The Act defines byproduct material in Section 11, 42 USC 2014, and this definition includes SNF.) Because the NRC issues licenses to authorize activities including possession of such nuclear material, the NRC has jurisdiction over all its licensees, regardless of where within the U.S. a licensee performs those activities. Accordingly, should the NRC ultimately determine to grant the application for the proposed PFSF, the NRC retains jurisdiction to enforce the NRC's safety regulations even on the Reservation.

### **NRC's Safety Evaluation**

Many comments were related to the NRC's safety evaluation, which includes preparation of a Safety Evaluation Report (SER). Many of the comments questioned the adequacy of the SER, and indicated that the public should be able to review and comment on the SER's contents and analyses.

#### **Response**

The NRC staff evaluates a license application to determine whether an applicant has demonstrated compliance with the regulatory requirements which pertain to the type of license being sought. In the case of the PFS license application, the NRC staff evaluated this license application against the Commission's regulations found at 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste." The Commission's regulations are developed through an open public process. The public's comments are sought on these regulations before they are promulgated and the resolution of the comments is documented and made publicly available. The NRC staff's evaluation of an applicant's demonstration of compliance with the regulations is documented in an SER. The NRC staff evaluates an applicant's attempt to demonstrate compliance with the regulations by reviewing the license application against the regulations. This review is performed in an open public manner. Meetings between the NRC staff and the applicant are open to the public. Requests by the NRC staff for additional information from the applicant are made publicly available. The license application and all information, other than proprietary information, submitted by the applicant are docketed and are also publicly available. The public is free to comment on any information provided by the applicant and on any SER which is published by the NRC. However, there is no requirement for a formal public comment resolution process for SERs.

### **Cooperating Agency Policies and Responsibilities**

Many commenters expressed concern about the policies and responsibilities of the Cooperating Agencies that are working with the NRC in preparing the EIS. Commenters raised general concerns that the Cooperating Agencies were not following their own regulations and laws with regard to the processing and evaluation of the PFS application before them. Specifically, commenters expressed concern that the BIA had conditionally approved the lease between the applicant and the Skull Valley Band of Goshute Indians without completing a NEPA review. Commenters questioned whether the BLM was adhering to its mission, which is to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. Commenters also expressed concern that the STB had not conducted a comprehensive environmental evaluation as required by its regulations.

#### **Response**

The BIA, the BLM, and the STB are participating in preparation of the EIS for the proposed PFSF in accordance with the CEQ regulations implementing NEPA (40 CFR 1501.6). The NRC requested that these Federal agencies participate in the development of this EIS because each of these agencies

has jurisdiction by law over some portion of the proposed project. In addition, the Cooperating Agencies also have special expertise with regard to the environmental impacts that could result from the proposed PFSF.

Each of the Cooperating Agencies has actively participated in developing the EIS by providing input and analysis to the NRC. Each Cooperating Agency has also reviewed the EIS and its associated analyses to ensure that the EIS contains the necessary information, in accordance with each agency's implementing procedures under NEPA. One purpose of this coordination is to ensure that the views and analysis requirements of each Cooperating Agency have been included in the EIS. Another purpose of this coordination is to ensure that the information contained in the EIS is sufficient for the Cooperating Agencies to determine whether to approve or deny the required permits, licenses, service agreements, and lease necessary for the applicant to construct and operate the proposed PFSF.

The EIS is an informational document and each Cooperating Agency will consider the EIS in preparing its own ROD, which will explain each Cooperating Agency's reasons for approval or denial of the permits or licenses requested for the project.

The BIA is participating as a Cooperating Agency because it has jurisdiction over the approval of any lease on the Reservation of the Skull Valley Band of Goshute Indians and because of its special expertise relative to American Indian issues. Leases and permits on Tribal lands are issued in accordance with 25 CFR 162 and other applicable Federal regulations, and no lease is approved without consent of the American Indian owners (with some exceptions not relevant here). In this case, the proposed lease is for land located on the Reservation of the Skull Valley Band of Goshute Indians, and a resolution by the recognized governing body of the Skull Valley Band authorizing approval is sufficient. A majority of the Skull Valley Band members approved a resolution granting authority to the Executive Committee of the Skull Valley Band to negotiate and enter into the lease. Skull Valley Band members also gave the Executive Committee the authority to approve future amendments. The BIA has not yet given final approval to the proposed lease between the Skull Valley Band of Goshute Indians and the applicant. Final approval of the lease will be considered after completion of the NEPA process and if the NRC grants a license.

The BLM is participating as a Cooperating Agency because it has jurisdiction over the lands needed for a ROW for the proposed rail line or intermodal transfer facility. As a result, the BLM is responsible for approving or denying a ROW grant under 43 CFR 2800. The BLM's Mission Statement provides for the use of public lands by qualified right-of-way applicants. The ROW, if approved, would be subject to stipulations necessary to reduce or avoid environmental harm to the public lands. The BLM has worked closely with the NRC during the EIS process to assure compliance with NEPA. The BLM is presently considering a land use plan amendment to the Transportation and Utility Corridor Decision of the Pony Express RMP, to determine if the ROW for the proposed rail line is an appropriate use of public land. If amended, construction of a rail line outside a currently designated corridor would be allowed. The proposed ROWs are not in conflict with the remaining RMP decisions. However, the National Defense Authorization Act for Fiscal Year 2000 has constrained the BLM from completing the amendment at this time until the DOD has prepared its study or the act has been rescinded, amended or clarified in a manner which would allow the BLM to proceed with the necessary planning and decision-making.

The STB has jurisdiction over the construction and operation of new rail lines in the United States. The STB will consider whether to approve or deny a license for the construction and operation of the applicant's proposed rail line from Skunk Ridge to the proposed PFSF site. The STB has worked closely with the NRC in developing the EIS analysis related to construction and operation of the proposed rail line and believes that the analysis is comprehensive with regard to these issues and in conformance with STB's environmental rules (49 CFR Part 1105). As a result, no additional NEPA review or analysis will be necessary for the STB to issue a ROD regarding the license application for construction and operation of the proposed rail line.

## Project Purpose and Need

Many commenters expressed concern about the purpose and need for the project. In general, many did not see the need for interim storage of SNF since the Federal government is characterizing a potential site for a permanent geologic repository at Yucca Mountain, Nevada. Commenters also questioned why the SNF cannot continue to be stored at reactors and current storage facilities, and some stated that the GAO had concluded that such on-site storage was feasible. Commenters pointed out that the NRC has approved expanded and continued storage of SNF at existing reactors and storage sites. Other commenters questioned whether a centralized interim storage facility for SNF was even allowed under NWPA. Some commenters stated that the proposed PFSF could become a permanent storage facility if the proposed Yucca Mountain project continues to be delayed. For this reason, many argued, the proposed PFSF should be designed as a permanent storage facility.

## Response

The NRC agrees that SNF can be safely stored at reactor sites. The NRC staff is aware that several at-reactor ISFSIs have been constructed and several more are intended to be constructed at other reactor sites. The GAO report referenced by several commenters evaluates the feasibility of the no action alternative (i.e., not to build the proposed PFSF and maintain the status quo, which includes constructing at-reactor ISFSIs). The NRC staff does not question the feasibility of the no action alternative and evaluates the environmental impacts of the no action alternative in section 6.7 of the FEIS. The NRC staff concluded that the environmental impacts from building at-reactor ISFSIs are small. Furthermore, the NRC Waste Confidence Decision (10 CFR 51.23) states that "if necessary, spent fuel generated in any reactor can be stored... without significant environmental impacts for at least 30 years beyond the licensed life for operation ... of that reactor at ... on-site or off-site [ISFSIs]."

Although the Federal government is planning for a permanent geological repository, the applicant desires an alternative to at-reactor storage that can be implemented before a permanent geological repository becomes available. The proposed PFSF would be an away-from-reactor ISFSI and would serve as an alternative to at-reactor storage. Section 1.3 of the FEIS discusses specific reasons why the applicant is requesting an alternative to at-reactor storage.

The applicant requested, under the provisions of 10 CFR Part 72, a license for an away-from-reactor ISFSI. As a regulatory agency, the NRC will review the license application and will either grant the license without conditions, grant the license with conditions, or deny the license. The five presidentially -appointed NRC commissioners will appropriately consider the information provided in the NRC staff's SER and the FEIS. In making this decision, NEPA allows Federal agencies to select the proposed action even if other alternatives can satisfy the purpose and need, or can satisfy the need with less environmental impact. NEPA is intended to assure that Federal agencies are informed of the environmental impacts before making decisions. The decision-maker should have an understanding of how the proposed action or any other alternative selected affects the environment. This is to assure that each Federal agency's decision-making process appropriately considers the environment, as well as economic and technical issues and the particular agency's statutory mission.

Regarding the NWPA, the applicant requested a license for an ISFSI, not a monitored retrievable storage (MRS) facility (i.e., a DOE-owned central interim storage facility permitted by the NWPA or a permanent storage facility). The regulatory requirements governing the licensing of an ISFSI are promulgated in 10 CFR Part 72. These regulations do not require the NRC or any other entity to comply with the requirements for an MRS in the NWPA when licensing an ISFSI. An MRS could only be built by DOE. The applicant's proposed PFSF is a commercial facility. If the DOE were to request a license for an MRS, then the requirements of the NWPA would apply. Likewise, the NWPA governs the requirements for siting a permanent repository.

Regarding the concern that the proposed PFSF will become permanent and should be designed as a permanent facility, the NRC staff disagrees. As discussed in Section 1.2 of this FEIS, the Commission determined in the Waste Confidence Decision that there is reasonable assurance that at least one geologic high-level waste repository will be available within the first quarter of the twenty-first century. Therefore, the NRC staff analysis assumes a repository will be available to receive SNF from the proposed PFSF after its 40-year life (if the NRC grants a license for 20 years and renews it for an additional 20 years).

Although the staff assumes in its analysis that a permanent geological repository will be available, the owners of the power facilities storing SNF at the proposed PFSF would continue to retain ownership and responsibility of their SNF if licensed operations ceased before a repository is available (e.g., through NRC modification or expiration of the initial 20-year license). Because the requirements in 10 CFR 72.54 would require the applicant to decommission the proposed PFSF, the owners of the SNF would be responsible for maintaining the SNF in a safe condition and bearing the cost for its continued storage at a different location.

## Human Health Impacts

Many commenters expressed concern about potential health effects from living near the proposed PFSF and the shipping of SNF to the proposed PFSF. These concerns ranged from exposure to radiation downwind of the proposed PFSF and from normal shipments along the proposed shipping routes, to the leakage of radiation in the event of a terrorist attack on the proposed PFSF or a shipment. In general, many commenters stated concerns that the potential health effects from shipping SNF would be too great for the project to go forward. Commenters also expressed concerns about the health effects of an accident and concerns that large areas would become contaminated and clean-up costs would be astronomical. Commenters also stated that there would be no way to protect against possible terrorist attacks, especially during transportation of the SNF, and that emergency response equipment and facilities are not adequate to deal with an accidental or intentional release of radiation.

## Response

The human health impacts of the proposed action are discussed in Sections 4.7, 5.7 and 6.1.7 of the EIS. As discussed in Sections 4.7.2 and 5.7.2 of the EIS, the staff determined that the radiological and non-radiological health impacts from the proposed PFSF, including shipment of the SNF, would be small. The EIS considered potential human health impacts of ionizing radiation (e.g., radiation dose and latent cancer fatalities) received by the public from possible ingestion or inhalation of radioactive materials and from possible exposure to radiation (e.g., gamma rays and neutrons) that would be directly emitted from the SNF. The EIS also considered the radiological impacts from incident-free (routine) SNF shipment and from potential transportation accidents involving SNF.

In its analysis of radiological impacts, the NRC staff considered the inherent ability of the cask designs to confine SNF and minimize direct radiation during normal operations, off-normal operations, and credible accidents. As discussed in Section 2.1.2 of the EIS, the SNF would be completely sealed (welded shut) in steel canisters during its entire stay at the proposed PFSF. The exterior of each canister would be decontaminated prior to shipment to the proposed PFSF in order to remove any significant amounts of radioactive material. Each steel canister would be surrounded by a robust transportation cask (overpack of thick layers of steel) at all times during shipment to the proposed PFSF and would then be surrounded by a robust storage cask (overpack of thick layers of concrete and steel) during storage at the proposed PFSF. The staff further considered the effect on the storage cask and proposed PFSF of several potential hazards, such as nearby military activities, and credible accidents, such as tornados, wildfires, and earthquakes in the vicinity of the proposed site. The NRC staff also considered the ability of the proposed PFSF Physical Protection Plan to protect against acts of sabotage and provide for the common defense and security and protection of the public health and safety (10 CFR Part 73).

As discussed in the EIS, the design of the welded canister would prevent the release of its radioactive contents during normal operations and credible accident scenarios at the proposed PFSF. Therefore, there would not be any accumulation or movement of the radioactive contents in the environment that would impact the public. The EIS also determined that the health impact from direct radiation to the public would be minimal and a small fraction (approximately 2 percent) of the radiation impacts that would be expected from natural background radiation. The EIS also determined that the health impact to workers at the proposed PFSF would be small and below radiation safety limits for workers as required by the NRC (10 CFR Part 20). Finally, the EIS determined that the radiological impacts from incident-free transportation or potential transportation accidents during transport to the proposed PFSF would be small.

The EIS did not directly consider the adequacy of emergency response plans for the proposed PFSF. The required contents of emergency response and contingency plans are described by Federal regulations applicable to the proposed PFSF. However, the staff evaluated the applicant's Emergency Plan in its safety review of the proposed PFSF. The staff's evaluation is documented in the SER. The Emergency Plan described the means and equipment that would be provided to mitigate the consequences of potential emergencies at the proposed PFSF. The Emergency Plan even considered the consequences and planned response to a hypothetical breach of a canister and release of radioactive contents, even though such an event is considered non-credible. The Emergency Plan also considered coordination with off-site organizations and arrangements for requesting and effectively using off-site assistance. The staff noted that the Emergency Plan was reviewed by the applicable off-site response organization that would be expected to respond to an accident. As documented in Chapter 16 of the SER, the staff found that the Emergency Plan was acceptable and satisfied regulatory safety requirements.

## **Safety of Transporting SNF**

Several commenters expressed concerns about the safety of transporting SNF across the country to the proposed PFSF. Commenters questioned the safety and potential risks of the transportation cask, as well as the methodology used by the NRC to estimate the transportation related radiological impacts.

Several comments addressed the methodology the NRC staff used to estimate the transportation impacts. Several commenters believed that the NRC could not rely on previous studies and had to perform a project-specific analysis. These commenters asserted that while the NRC appropriately used RADTRAN, the assumptions used by the NRC staff were not conservative; therefore, the commenters concluded that the analysis underestimated the risk of transporting SNF. Other commenters stated that the NRC should have relied on past generic studies, including 10 CFR 51.52, Table S-4, to estimate the radiological impacts of transporting SNF from reactor sites.

Several commenters stated that the DEIS was deficient because it did not discuss the economic impacts of transportation accidents or sabotage.

Several commenters stated that the analysis in the DEIS underestimated the risk of a severe transportation accident. Commenters stated that many of the key parameters used in the analysis are not conservative and result in understating the risk. Commenters also stated that the presentation of the radiological impacts of an accident in terms of dose-risks is inappropriate and the EIS should be revised to discuss the consequences of a maximum reasonably foreseeable accident.

## **Response**

The transportation analysis in the FEIS adequately estimates the radiological impacts associated with the transportation of SNF to the proposed PFSF. For the following reasons, as set forth below, the assumptions used in the analysis are conservative. The NRC staff has performed a number of generic studies on the transportation of SNF. Notable among these studies are the 1972 WASH-1238



study and the 1977 NUREG-0170 study. Overall, these earlier studies show that the incident-free impacts from transportation are small, and that the risks from accidents are lower than the incident-free impacts.

WASH-1238, "Environmental Survey of Transportation of Radioactive Materials to and from Nuclear Power Plants," (December 1972), and Supplement 1, NUREG-75/038 (April 1975), led to codification of the environmental impacts of shipping fuel and waste to and from a reactor. These impacts are codified in Table S-4 in 10 CFR Part 51. In nuclear reactor licensing, an applicant for a license to operate a nuclear power plant may refer to Table S-4 in its environmental report and the NRC staff may rely on it in environmental impact statements, in lieu of a specific assessment of transportation impacts, provided the reactor design and operation satisfy a specific set of conditions. These conditions are set forth in 10 CFR 51.52(a). The NRC reviewed 10 CFR 51.52(a) and determined that the proposed PFSF did not satisfy all of the conditions; therefore, consistent with 10 CFR 51.52(b), the NRC staff performed an assessment of the proposed PFS transportation activities. The NRC staff could have used a less rigorous approach; however, part of the reason the NRC staff chose to perform a RADTRAN analysis was to provide readers with an understanding of the magnitude of the radiological impacts from transportation of SNF to the proposed PFSF. The NRC staff has compared the results of this assessment with the results from NUREG-0170, another previous generic assessment that explicitly considered the impacts of shipping SNF from multiple reactor sites.

The DEIS only provided a comparison of the estimated radiological impacts from the proposed action with NUREG-0170. Based on comments received, the FEIS has been revised to include a comparison to the environmental impacts from transportation of fuel and waste from one light-water cooled reactor as codified in 10 CFR 51.52, Table S-4. The comparison demonstrates that the impacts associated with the transportation activities connected with the proposed PFSF fall within the impacts stated in either Table S-4 or NUREG-0170. Information has also been added to the FEIS transportation analysis to explain and clarify the revised analysis.

Regarding economic consequences, the NRC staff does not claim or imply in the FEIS that a severe transportation accident resulting in a release of radioactive material would have small economic consequences. However, the NRC staff has employed a qualitative argument rather than an explicit, quantitative estimate of economic costs of transportation accidents.

Only a small fraction of accidents would result in any release of radioactive material and the probability of a significant release is very small. For example, in NUREG/CR-4829, *Shipping Container Response to Severe Highway and Rail Accident Conditions*, February 1987, (frequently referred to as the Modal Study), the NRC estimates that (1) 99.4 percent of potential rail transportation accidents involving SNF shipments would not result in any release of radioactive material, (2) that 99.98 percent of potential rail transportation accidents would not result in a release that exceeds the allowable limits in 10 CFR Part 71, and (3) only a small fraction of the remaining 0.02 percent of potential rail transportation accidents would result in a significant release of radioactive material.

As set forth below, an attempt to calculate the economic costs of these unlikely accidents with any precision is speculative and difficult. The methods available to calculate the economic cost are dependent upon several uncertain variables and the calculated cost can vary significantly depending upon the location of the accident. Some of the key variables include spread of contamination, including contamination dispersion and deposition; land use (including human consumption of fruits and vegetables grown on the land as well as grains, milk, and meat from sources within the area of the accident); and cleanup standards. Because of the uncertainty in the variables, results from these methods are conservative and can only be considered rough estimates. A quantitative estimate of cost would require the NRC to speculate on many of the key variables, one of which would be the location of the accident. Therefore, the NRC staff has not attempted to quantify the economic cost of any particular accident in this FEIS. Nevertheless, in view of the above the NRC staff believes that for the majority of possible accidents, members of the public would incur little to no economic cost. Moreover, accidents resulting from transportation of SNF from reactor sites to the proposed PFSF are

covered under the Price-Anderson Act. One of the objectives of the Price-Anderson Act is to ensure that adequate funds are available to satisfy liability claims in the unlikely event that an accident occurs. The NRC has specific indemnity and insurance requirements for the transport of SNF to and from reactor sites. As a result of the Price-Anderson Act, the nuclear power industry is insured to a maximum per-incident dollar level of \$9.1 billion. This Act is now structured so that the entire \$9.1 billion would come from private sources. Furthermore, Congress enacted legislation in 1988 that developed a method to promptly consider compensation claims of the public for liabilities resulting from nuclear accidents that exceed the \$9.1 billion limit (NUREG/CR-6617).

Concerning the transportation accident analysis, the DEIS adequately discusses the consequences of a severe transportation accident associated with the proposed PFSF. NEPA does not require the consideration of the consequences of an event without any consideration of the probability (i.e., likelihood) of the event. As documented in the DEIS, the NRC staff used RADTRAN to calculate the impact of transportation accidents. RADTRAN expresses the results of the accident analysis in terms of a dose risk. A dose risk is the product of the radiological consequences of an accident and the likelihood of the accident occurring.

The existing analysis considers a broad range of accidents. The range of accidents considered in the analysis spans from those with little to no radiological consequences but with relatively high probabilities of occurrence as well as accidents with high radiological consequences but with very low probabilities of occurrence. Based on continuing study of cask response in accidents, the NRC staff believes that it is very unlikely that any transportation accident involving an SNF shipment to the proposed PFSF would result in the release of radioactive material. The probability of an accident resulting in a significant release of material is so low that the staff does not believe such an accident is credible. Nevertheless, the consequences and conservative probabilities of such accidents have been included in the FEIS.

The NRC staff used data from the Modal Study to calculate the accident risk included in the FEIS. The assumptions used in the Modal Study contribute to a conservative estimate of SNF cask response to accident conditions. For example, the analysis in the Modal Study was based on lead-shielded representative package designs for both the truck and rail SNF casks. The package designs used for the proposed PFSF shipments are not lead-shielded, and are a more robust design and intrinsically more resistant to accident forces than the lead-shielded cask designs evaluated in the Modal Study.

Consequently, the SNF shipment accident impacts contained in this FEIS are based on a conservative prediction of the performance of the cask design that would be used for shipping SNF to the proposed PFSF.

In addition, as documented in the Modal Study, the NRC staff analysis is conservative in at least three aspects. First the NRC staff estimated the magnitude and frequency of rail cask impact velocity based on train velocity, disregarding the fact that the railcar carrying the cask, as well as the rest of the train, would absorb energy in an accident, which would reduce the impact velocity of the cask. Second, the NRC staff's analysis in the Modal Study assumes that the impact angle and cask orientation are both head-on in all accidents, and that the impact occurs at the cask mid-plane; these conditions would result in the most damage to the cask. Third, the Modal Study includes a worst-case evaluation of cask seal performance by presuming, rather than modeling, the loss of function of the seal which results in a release of radioactive material. That is, rather than identifying mechanisms for seal failure and estimating the probabilities under varying conditions, the NRC staff evaluation is based on the seals always failing. Notwithstanding these conservative assumptions, the NRC has concluded that dose risk estimates stated in the FEIS are small. Therefore, the NRC concludes that the potential impacts from transportation accidents for the proposed PFSF are small.

To date, more than 1,300 SNF shipments have been made in the United States and no accident resulting in a radiological release has occurred. The requirements that cask designs must meet to be

certified in 10 CFR Part 71 and the compliance with the DOT regulations (various Parts of 49 CFR), provide a reasonable level of assurance that SNF can be safely shipped. In the Modal Study, as discussed above, the NRC staff concluded that 99.98 percent of all potential transportation accidents would not result in a release of radioactive material greater than that permitted by 10 CFR Part 71 acceptance criteria, and only a small fraction of the remaining 0.02 percent of accidents could result in a significant release of radioactive material.

## Socioeconomic Impacts

Many commenters indicated that the proposed PFSF and the shipment of SNF to the proposed site would adversely affect property values in Tooele County, Utah and along all shipping routes. The commenters urged the NRC and Cooperating Agencies to evaluate and mitigate such an impact on property values. Many of the commenters also believed that the project would adversely affect the economy of Tooele County and Utah because of the stigma attached to the storage of nuclear waste and could result in people moving out of the County and State. Many commenters also believed that the presence of the proposed PFSF would require restrictions on activities at Hill AFB and the Utah Test and Training Range (UTTR), and that reductions in operations at these facilities could have drastic economic impacts on the State. Others pointed out that if one of the purposes of the proposed action is to provide economic development opportunities to the Skull Valley Band of Goshute Indians, there are better options with less impact on the environment.

## Response

The NRC staff notes that some commenters believe that the mere presence of SNF (whether at the proposed PFSF or along the rail transportation routes) can create perceptions that adverse impacts will occur. To warrant consideration in an EIS, environmental effects must have a reasonably close causal relationship to a change in the physical environment. See Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 774 (1983) (PANE). Therefore, this EIS must consider any effects on property values from the proposed action and alternatives only if those effects are caused by a change in the physical environment. The Supreme Court specifically ruled in PANE, however, that “*risk of an accident is not an effect on the physical environment.*” PANE, 460 U.S. at 775 (emphasis in original). In a causal chain from any accident to an effect on property values, risk and its perception are necessary links. Consistent with the Supreme Court’s decision in PANE, these links lengthen the causal chain beyond the scope of NEPA. The NRC staff and the cooperating agencies are not, therefore, required to consider in the EIS matters such as stigma and perceived risk, and any potential impacts on property values.

Regarding adverse impacts on Hill AFB and the UTTR, the NRC staff has conducted an independent assessment of the impact of construction and operation of the proposed PFSF on Hill AFB, the UTTR, Dugway Proving Ground, Tooele Army Depot, and the Deseret Chemical Facility, and has met with the USAF about the potential for impacts to the test range or the mission of Hill AFB. The NRC staff has not identified any impact on the operations on any of these facilities, from the presence of the proposed PFSF. The NRC staff evaluated potential hazards to the proposed PFSF from military operations and other facilities in the Skull Valley area. These operations included military aircraft operations and cruise missile testing in the UTTR and other past and present military operations. The staff determined from its review and the applicant’s analyses that an accident at the proposed PFSF, such as F-16 air crash, resulting from these activities is extremely unlikely (approximately one in a million per year).

The USAF will be aware of the presence of the proposed PFSF when planning future activities. The USAF has indicated they will not require any significant restrictions on military operations within the UTTR due to the presence of the proposed PFSF. Therefore, the NRC staff concluded that the proposed PFSF would not pose any significant limitation or other impacts on nearby military installations and other military operations. As a result, the staff has not identified any socioeconomic or national security impacts on nearby military operations from the proposed PFSF.

The NRC staff is not aware of any overflight restrictions being contemplated to accommodate the proposed SNF storage facility. There appears to be no basis for the types of cumulative or socioeconomic impacts described in the comments.

Regarding economic development opportunities for the Skull Valley Band of Goshute Indians, the NRC staff notes that many comments were made that expressed concern with the choice made by the Skull Valley Band to bring economic benefits to themselves through the leasing of part of their Reservation to the applicant for the construction and installation of an SNF storage facility. The purpose and need discussion in the EIS addresses, from the BIA's perspective, how to assist the Skull Valley Band's economic development. Any such assistance must be in the context of both the government-to-government relationship between the United States and the Skull Valley Band and the trust responsibility of the United States to the Skull Valley Band. The government-to-government relationship means that the consideration of alternatives is limited to those that the government of the Skull Valley Band has presented to the Secretary of the Interior for his approval. Among the ways that the lead and Cooperating Agencies facilitate their exercise of the trust responsibility of the United States is by analyzing the positive and negative impacts of the proposed PFSF on the quality of the human environment in this FEIS.

It is the Skull Valley Band's decision to allow construction of the proposed PFSF on the Reservation rather than some other suggested development to generate revenue such as a casino, a plant nursery, or a Polynesian cultural center. If the State of Utah or other organizations are willing to work with the Skull Valley Band to assist them in finding a viable solution to their economic needs with other options, the BIA is available to the Skull Valley Band for technical assistance concerning other economic development opportunities and conducting appropriate NEPA review for such proposals.

## Public Participation

Many commenters indicated dissatisfaction with the NRC's and Cooperating Agencies' efforts to solicit public participation in the NEPA process for the proposed action, given its scope. In particular, commenters expressed dissatisfaction with the availability of the DEIS, the number of public meetings for submitting comments on the DEIS, and the length and extent of public notice of the public meetings. In addition, many commenters stated their belief that the NRC and Cooperating Agencies should have solicited comments on the DEIS by holding public meetings in communities along potential routes for transportation of SNF to the proposed PFSF. Many commenters, including a large number of people who signed petitions, requested that the NRC and the Cooperating Agencies extend the time for submitting comments on the DEIS.

## Response

The NRC and the Cooperating Agencies conducted an open public EIS development process, consistent with the requirements of NEPA and the NRC's and Cooperating Agencies' regulations. See detailed discussions below. The NRC held two sets of public scoping meetings early in the environmental review process (June 1998 and April 1999) and four public meetings on the DEIS during the public comment period (July 27 and 28, and two meetings on August 21, 2000). The agencies provided a 90-day public comment period for agencies and the public to review the DEIS and provide comments. This FEIS considers and addresses nearly 4,000 individual comments the NRC received, including more than 250 letters, facsimile transmittals, and e-mails, and more than 150 oral comments. There has been ample opportunity for public involvement in the development of the EIS.

**Initial Notification and Formal Proceeding.** When the NRC received the PFS application for the proposed PFSF and accepted it for docketing, the NRC staff placed a public notice in the *Federal Register* (62 Fed. Reg. 41099) on July 31, 1997. This notice began the process that resulted in the State of Utah and others being admitted as parties to the formal NRC licensing proceeding on the PFS application. Therefore, since the summer of 1997, the interests of the citizens of Utah have been

directly represented through the participation of their State government in the formal NRC licensing proceeding on the application. An ASLB, which is independent of the NRC staff, is presiding over this formal proceeding.

**Public Scoping.** The NRC and Cooperating Agencies conducted a public scoping process before preparing the DEIS. The agencies held scoping meetings for the EIS in Salt Lake City, Utah (June, 1998 and April 1999) and Tooele, Utah (April 1999). At these meetings, the agencies discussed the proposed schedule and solicited input from the general public on environmental concerns related to the proposed PFSF. The NRC published notice of the scoping meetings in the *Federal Register* (63 Fed. Reg. 24197; 64 Fed. Reg. 18491) and advertised the meeting in the *Salt Lake Tribune*, the *Deseret News*, and the *Tooele Transcript Bulletin*.

**Comment Period.** The NRC staff published a notice on June 23, 2000, that it had made the DEIS publicly available (65 Fed. Reg. 39206), and that the NRC and Cooperating Agencies had provided a 90-day comment period on the DEIS. This period exceeded the 45-day comment period required under the NRC regulations and those of the STB. The comment period also exceeded the 60-day comment period recommended in the BIA NEPA guidance, and met the 90-day comment period required for EISs involving the BLM resource plan amendments. In view of the already expanded opportunities for public comment on the DEIS, earlier NRC staff efforts to solicit public involvement in the environmental impact statement scoping process, and public meetings held during the comment period, the Cooperating Agencies concluded that an extension to the comment period was not warranted. Since the NRC received thousands of comments from several hundred commenters by the September 21, 2000, comment period closing date, it appears that the length of the comment period did not preclude meaningful public comment on the DEIS.

**Draft EIS Availability.** In accordance with NRC regulations, the NRC staff published a notice of availability for the DEIS in the *Federal Register* (65 Fed. Reg. 39206, June 23, 2000). In the notice, the NRC staff provided information on how to obtain a free copy of the DEIS, and also informed the public that the DEIS was available on the NRC web page. The NRC distributed approximately 700 copies of the DEIS to Federal, Tribal, State, and local government officials, as well as members of the general public. The NRC staff also provided multiple copies of the DEIS to the University of Utah Marriott Library. In view of the above, the NRC staff concluded that the availability and distribution of the DEIS were adequate.

**Public Meetings.** During the public comment period, the NRC and the Cooperating Agencies scheduled two public meetings on the DEIS (July 27, 2000 in Salt Lake City, Utah, and July 28, 2000 in Grantsville, Utah) to receive oral public comments on the DEIS. The agencies selected Grantsville because it is near the proposed site and Salt Lake City because it is the largest population center in Utah and is located 58 miles by direct distance (75 miles by highway) from the proposed site. In response to concerns expressed at these public hearings, the agencies scheduled two additional public meetings on August 21, 2000, in Salt Lake City, to allow for additional public comment. The NRC published notice of these meetings in the *Federal Register* (65 Fed. Reg. 39206, June 23, 2000, and 65 Fed. Reg. 49029, August 10, 2000) and as requested provided written notification to interested members of the public. The NRC staff also advertised these meetings in Utah newspapers, and issued nationwide press releases. The meetings received substantial coverage in the Salt Lake City area media. In view of the above, the agencies concluded the public meeting notification process was adequate.

**Additional Meetings on Transportation Routes.** The NRC staff reviewed several requests to hold additional meetings along "the proposed transportation routes" and concluded that the requested additional meetings were not warranted. Although the transportation of SNF is considered in the analysis documented in the this FEIS, specific routes have not yet been identified for SNF shipments to the proposed PFSF. Therefore, it would be premature for the NRC staff to begin to hold public meetings along transportation corridors in areas that may or may not be on a route to the proposed PFSF. Should the facility be licensed and become operational, persons living along actual

transportation corridors may contact the NRC and request additional information. Nevertheless, the NRC staff analysis concluded that the environmental impacts from transportation of SNF to the proposed SNF are small.

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### G.3 Specific Comments and Responses

The NRC received over 4,000 comments from more than 400 individuals and organizations. In view of this large number of commenters and comments, the NRC and the Cooperating Agencies have created an index for easy cross-referencing of the comments. Accordingly, the agencies assigned numbers to each commenter and to each comment received, as described below.

For written comments, the commenter number corresponds to the number assigned to each letter received. With respect to the oral comments recorded on the transcripts of the public meetings, the agencies assigned commenter numbers by first establishing a prefix for each public meeting, as follows:

Salt Lake City, Utah, July 27, 2000:	SL1
Grantsville, Utah, July 28, 2000:	GR
Salt Lake City, Utah, August 21, 2000 (afternoon):	SL2
Salt Lake City, Utah, August 21, 2000 (evening):	SL3

The individual commenter number for each speaker at a public meeting corresponds to the order in which the speakers were called.

Because an individual commenter may have multiple comments, the agencies designated each such comment with an additional number attached as a suffix to the commenter number. (Some commenter or comment numbers also include letters.) Each comment summary in Section G.3 of this Appendix ends with a parenthetical notation of the identifying numbers for the individual comments covered by that summary. If an individual or organization made a comment more than once, e.g., orally and in writing, the summary identifies only one reference (comment number) for that comment.

Appendix H provides a list of commenters identified by name and comment number.



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### **G.3.1 Purpose and Need**

#### **G.3.1.1 Basis for Project Need**

##### **Comment Summary:**

Many commenters opposed the construction and operation of an ISFSI on the Goshute Reservation. They stated that the DEIS failed to substantiate the need for the project and that there are no economic, health, or safety reasons for transporting the SNF. (0007, 0015, 0018, 0019, 0039, 0041, 0042, 0043, 0044, 0048, 0053, 0056, 0057, 0067, 0074, 0075, 0077, 0093, 0096, 0101, 0103, 0111, 0112, 0115, 0121, 0127, 0128, 0135, 0136, 0141, 0147, 0156, 0157, 0158, 0166, 0180, 0189, 0194, 0197, 0198, 0198h, 0208, 0210a, 0217, 0224, 0242, 0249, 0256, 0257, GR-01, GR-06, GR-13, GR-22, GR-23, SL1-06, SL1-07, SL1-09, SL1-10, SL1-11, SL1-13, SL1-14, SL1-15, SL1-16, SL1-18, SL1-38, SL2-05, SL2-12, SL3-04, SL3-18, SL3-19, SL3-23, SL3-25, SL3-26, SL3-32, SL3-33, SL3-36, SL3-38, SL3-41, SL3-43, SL3-47, SL3-49)

##### **Need for the Facility**

##### **Comment Summary:**

Many commenters opposed the construction and operation of an ISFSI on the Goshute Reservation, stating reasons such as the DEIS failed to substantiate the need for the project. (0007, 0015, 0018, 0019, 0039, 0041, 0042, 0043, 0044, 0048, 0053, 0056, 0057, 0067, 0074, 0075, 0077, 0093, 0096, 0101, 0103, 0111, 0112, 0115, 0121, 0127, 0128, 0135, 0136, 0141, 0147, 0156, 0157, 0158, 0166, 0180, 0189, 0194, 0197, 0198, 0198h, 0208, 0210a, 0217, 0224, 0242, 0249, 0256, 0257, GR-01, GR-06, GR-13, GR-22, GR-23, SL1-06, SL1-07, SL1-09, SL1-10, SL1-11, SL1-13, SL1-14, SL1-15, SL1-16, SL1-18, SL1-38, SL2-05, SL2-12, SL3-04, SL3-18, SL3-19, SL3-23, SL3-25, SL3-26, SL3-32, SL3-33, SL3-36, SL3-38, SL3-41, SL3-43, SL3-47, SL3-49)

One commenter stated that the DEIS failed to demonstrate the need for the proposed PFSF because the three reasons for the proposed PFSF (DEIS page 1-11, lines 1-12) fail to address a current need of any of the applicant's participants or other customers for the proposed PFSF. (0018) Another commenter said that statements of need in the DEIS included words such as "many," "some," and "several." The commenter stated further that these words are too vague to form any justifiable basis for a conclusion of need. (0156)

##### **Response:**

The NRC regulations require that an EIS briefly state the purpose and need for the proposed action. 10 CFR Part 51, Subpart A, Appendix A. NEPA does not define "purpose and need," nor does it state that the proposed action be absolutely required to avoid some adverse outcome. In practice, an action is proposed because it is an attempt to satisfy some underlying need. The underlying need can be a desire for something wanted, to take advantage of an opportunity, or to solve a problem. An EIS discusses the purpose and need for the proposed action to establish a range of reasonable alternatives, in addition to the proposed action, that can satisfy the underlying need.

Section 1.3 of this FEIS discusses the underlying need for the proposed PFSF. The applicant's underlying need for the proposed PFSF is to satisfy a desire for an alternative to at-reactor storage, and the applicant provided specific reasons why it desires an alternative to at-reactor storage. As a result of this underlying need, the applicant requested, under the provisions of 10 CFR Part 72, a license for an away-from-reactor ISFSI. With regard to the comment that words such as "many," "some," and "several," are too vague to justify the basis for a conclusion of need, the NRC staff determined that these terms were adequate to provide a general description of the current SNF storage environment.

**Contradicting Statements on Loss of On-Site Storage Space****Comment Summary:**

Another commenter identified apparent contradictory statements in the DEIS. The commenter indicated that the DEIS stated that power plants will run out of space for on-site storage of SNF by 2010, yet the DOE may complete a permanent repository location by 2010. (page xxx, lines 18 and 30 of the Executive Summary, and page 1-7, lines 11 and 12 of the DEIS) The commenter stated that text on page xli (lines 26 to 29) of the Executive Summary stated that continued on-site storage is a safe and feasible alternative for 30 more years, and claims that this contradicted the previous statements. (0039, 0077)

**Response:**

Regarding the comment that the DEIS includes contradictory statements, the NRC staff did not intend to imply that SNF could not be safely stored at reactor sites as described in the Commission's Waste Confidence Decision. The sentence referenced by the commenter recognizes that the storage capacity for most reactor SNF pools is becoming limited and reactor licensees are being faced with decisions about how they will provide additional SNF storage. The Executive Summary in this FEIS was revised to clarify that the NRC staff projects that most nuclear reactors will lose full core off-load capability in spent fuel pools by 2010 unless another form of SNF storage is developed. However, the statement in the Waste Confidence Decision that "if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation ... of that reactor ... at either on-site or off-site [ISFSIs]" does not mean that all reactor storage facilities have adequate on site existing storage capacity for 30 years, but that the technology exists to allow SNF to be safely stored on or off each reactor site for at least 30 years beyond the facility's licensed life.

**Termination of Operations****Comment Summary:**

One commenter stated that in several different instances the DEIS refers to the assertion, sometimes attributed to the applicant and other times unattributed, that some (unidentified) commercial power reactors would be forced to terminate operations prior to the expiration of their reactor licenses if their available SNF storage capacity is filled. The commenter stated that there is no basis for this assertion, and no supporting evidence is provided for it in the DEIS. The commenter states that while it is reasonable to assume that a few operating reactors could be required to make alternative arrangements for some of their SNF due to lack of space for expansion, it is unlikely that any reactor will be forced to shut down prematurely as a result of the lack of SNF storage capacity. (0204)

**Response:**

Section 6.7 was revised to be consistent with other parts of the FEIS where the staff recognized premature shutdown as a possible outcome, but not a certain outcome. Other sections of the DEIS appropriately characterized this situation.

**Applicant Preference for Centralized Versus Decentralized Storage****Comment Summary:**

One commenter requested that the analysis of the proposed PFSF be revised to more fully state the reasons (along with supporting analysis) for why the applicant prefers centralized versus decentralized storage. The commenter said that such an analysis would provide decision-makers and the public

complete information concerning the alternatives, and that several recent NRC and DOE NEPA documents may contain similar analyses. (0089)

**Response:**

Section 1.3 of the FEIS discusses three reasons the applicant identified as to why it prefers centralized storage. The NRC regulations do not require that an EIS provide more reasons and supporting analysis for an applicant's preference for a proposed action than what has been provided in the DEIS and NEPA only requires a brief statement of the purpose and need. The discussion in the FEIS provides the statement required by NEPA.

**Storage Capacity at Reactors**

**Comment Summary:**

One commenter noted that the DEIS should include a more thorough or detailed analysis of storage capacity at reactors, including existing and potential storage capacity for both the members of PFS and other reactor owners and the timing for Yucca Mountain to become operational. The commenter said that this analysis should also consider the 15 to 20 ISFSIs that have been proposed. (0156, SL1-07)

Several commenters noted that a GAO study has found that there is adequate storage at the plants themselves. "Nuclear Waste: Operating Monitored Retrievable Storage Facility Unlikely by 1998," 1991 GAO/RCED 91-194. (0042, 0054, 0090, 0096, 0198, 0198h, 0201, SL1-20, SL1-39, SL3-18) One commenter stated that the DEIS does not demonstrate a need for the proposed PFSF, citing the GAO report, which identifies adequate existing storage for SNF. The same commenter stated that the GAO report's findings should have been included in the DEIS discussion, and the findings should have been utilized or specifically refuted with facts. In the limited case where space was not available, the utility could build its own dry cask storage on-site or contract with the DOE to manage the SNF. (0198)

Some commenters stated that the NRC said in 1984, and reaffirmed in 1990 and 1999, that SNF generated in any reactor can be stored without significant environmental impacts for at least 30 years beyond the licensed life for operation of that reactor at on-site or off-site independent SNF storage installations. 10 CFR 51.23, 49 Fed. Reg. 34688. (0090, 0142, 0166, 0204, 0215, SL1-38) Two commenters stated that the NRC reported a finding of no significant impact in 1984, 1989, 1990, and 1999; on-site storage of SNF has been licensed eight times at eight reactor sites with an environmental assessment finding of no significant impact in each case. (0156, SL3-23) One commenter cited testimony submitted on February 10, 1999, before the U.S. House of Representatives Commerce Committee's Subcommittee on Energy and Power by NRC Chairman Dr. Shirley Ann Jackson that continued at-reactor storage, for an interim period, will continue to protect public health and safety. (0142) One commenter stated that despite the "running out of space" claims, it is clear that some existing sites can be expanded with no risk. (0007) One commenter stated that there is no reason dry cask storage cannot be used at the reactor sites where the waste is currently located. (0246)

One commenter stated that if the proposed PFSF is not built, and if reactors continue to produce SNF, numerous reactor sites across the country will have to build dry storage facilities (i.e., decentralized rather than centralized ISFSIs). The commenter stated that the proposed PFSF would store only half of the nation's anticipated commercial SNF, so the other half would have to remain at reactors. As a result, nuclear power plant licensees must commit to on-site storage, regardless of whether the proposed PFSF is built. The commenter noted that the DEIS stated that the NRC has approved eight specific at-reactor ISFSI applications, the NRC has never denied a license amendment for an ISFSI, and the NRC does not consider decentralized ISFSIs unsafe. (0198g)

**Response:**

Based on the applicant's underlying need, the NRC staff identified a reasonable range of alternatives, as discussed in Section 2.2 of the FEIS. This range of alternatives includes the no action alternative (i.e., not building the proposed PFSF thus maintaining the status quo). The NRC staff did not include a detailed analysis of the potential storage capacity for each reactor site. Accordingly, the additional level of detail in such an analysis would not further specify the degree of environmental impact of the no action alternative, because such an analysis is not necessary to evaluate the no action alternative. In Section 6.7, "Impacts of No Action Alternative," of the DEIS, the staff assumed that licensees of reactors at sites with available space would build at-reactor ISFSIs, and concluded that the impacts would be small. Furthermore, in the EA for the 1990 rulemaking in which the NRC issued a general license for the storage of SNF in ISFSIs at reactor sites, the NRC concluded that constructing at-reactor ISFSIs at U.S. nuclear power plants would result in small environmental impacts. Based on this understanding, the NRC staff does not believe that the benefits gained from a detailed analysis of each reactor site's SNF storage capacity and each utility's plans for managing its site's SNF match the requisite effort and resources required to complete such an analysis. Furthermore, the NRC staff determined that it is not necessary to include the GAO report referenced by the commenter. The GAO report essentially evaluates the feasibility of the no action alternative. The NRC staff does not question the feasibility of the no action alternative and evaluates the environmental impacts of the no action alternative in Section 6.7 of the FEIS.

**Local Opposition at Reactors****Comment Summary:**

One commenter stated that in some cases local laws or local political pressure could prevent expansion of on-site or near-site storage, thus shutting down a facility. The commenter said that the Cooperating Agencies must not mistake these local choices for a need for additional storage space. (0198) Another commenter claimed that the only reason on-site storage is not seen as a long-term solution is because many of the communities that use nuclear energy have passed laws against permanent storage in their communities. (SL3-33)

**Response:**

Regarding the comment that local laws and political pressure should not be mistaken as a need for additional storage, the applicant identified political constraints as one of its reasons for filing an application for the proposed PFSF. While political pressures and local laws are clearly some of the reasons why the applicant filed an application for an away-from-reactor ISFSI, the NRC regulatory decision will be based on the technical adequacy of the proposal, and the NRC's consideration of the environmental impacts of the proposed PFSF. This decision will consider, but not rely exclusively on, the applicant's stated purpose and need.

**Other Reasons for Project Need****Comment Summary:**

Two commenters said that the DEIS is deceptive and false because the actual need of the proposed PFSF is to address the lawsuit against the DOE by the nuclear industry. (0077, SL2-05) Another commenter stated that the absence of a national policy for nuclear waste storage is the reason behind the applicant's proposal. (SL3-49) One commenter stated that contentions made by the industry that they are running out of space for storage are driven by economics. (SL1-05)

**Response:**

Consideration of any lawsuits against the DOE was not a factor in the NRC staff's conduct of the NEPA review. The NRC is not a proponent of the proposed PFSF. The NRC staff is evaluating the application for the proposed PFSF as part of its regulatory responsibility, based on the requirements of NEPA and the NRC regulations. With respect to the comment concerning economics, the applicant's reasons for its license application are described in Section 1.3 of this FEIS, and some of these reasons include economic considerations. (For a detailed explanation of the NWPA, see Section 1.3 of the FEIS.) In regard to the comment indicating an absence of a national waste storage policy, such policies are set forth in the NRC Waste Confidence Decision (10 CFR 51.23) and the NWPA.

**Other General Comments****Comment Summary:**

Several commenters stated that it is the responsibility of the reactor licensees to handle the SNF they generate until a long-term storage facility can be approved and built. (0053, 0087, 0090, 0096, 0208, GR-14, SL1-06, SL1-18, SL3-16, SL3-18, SL3-29, SL3-36, SL3-46) Other commenters indicated that the reactor licensees should stop producing nuclear waste or at least stop production until they find a way to store the waste. (0027, 0030, 0057, 0061, 0076, 0208, 0249, SL3-26)

**Response:**

The NRC staff acknowledges the comments. However, the comments do not identify any specific concerns with the DEIS or an environmental issue, and therefore no further response is required.

**General Opposition****Comment Summary:**

Other commenters assert that elected officials, the people of Utah, grass-roots organizations, and one-third of the members of the Skull Valley Band do not support the proposed PFSF. (0053, 0065, 0134, 0142, 0246, GR-01, GR-22, SL1-34, SL3-11, SL3-57)

**Response:**

The NRC staff acknowledges the opposition to the proposed PFSF.

**Fairness and Recipients of Benefits****Comment Summary:**

One commenter stated that the need for the proposed PFSF has only been considered in the context of a math problem. The commenter stated that consideration of need should include questions of fairness, who benefits, and why. Also, the commenter indicated that the DEIS is not the appropriate avenue for this discussion and stated that consideration of need for the proposed PFSF should involve a vigorous civic dialogue. (GR-13)

**Response:**

The NRC staff acknowledges the comment that the consideration of need should include questions of fairness, who benefits, and why, and that a vigorous civic dialogue is the best avenue for that discussion, not the EIS. The NRC staff agrees that a discussion of fairness and benefits would not be appropriate for an EIS when addressing the need for a proposed action. The NEPA regulations require a brief discussion of need (40 CFR 1502.13). The NRC's regulations for reviewing ISFSI

license applications under Part 72 provide an opportunity for public comments during the rulemaking and licensing processes. In addition the NRC held meetings in Utah to gather scoping information and comments for its EIS preparation.

### **G.3.1.2 Conflict with the NWPA**

#### **Comment Summary:**

Three commenters stated that the NWPA and NWPAA did not authorize central interim storage. (0018, SL1-13, SL1-14) One commenter stated that the DEIS incorrectly stated that “Both the original NWPA and the NWPA of 1987 (NWPAA) recognized that some form of centralized interim storage would be a component of the national program” (pages 1-7, lines 1-2). The commenter said that this statement is incorrect because, while both Acts set out a siting process for an MRS facility, neither Act authorized such a facility. The commenter stated that the such a facility could be a component of the national program, if approved by Congress. (0018) Commenters said that there is no indication that such a facility was considered an integral component of the national nuclear waste program, and that numerous reviews have concluded that there are no outstanding safety issues that would lead to the need for a centralized storage facility. (0018, SL1-13)

One commenter stated that the NRC must comply with Federal statutes and policies in drafting its EIS. In particular, the commenter said that the EIS must consider whether the need for a centralized national private ISFSI is a violation of the intent and the policies contained in the NWPA (42 USC 10101 to 10270). Referring to 42 USC 10155, “Storage of Spent Nuclear Fuel,” subsection (d)(2), the commenter said that under the NWPA, the state in which a Federally-owned interim disposal facility is located is guaranteed involvement in “all stages of planning, development, modification, expansion, operation, and closure of storage capacity at a site or facility within such State for the interim storage of spent fuel from civilian nuclear power reactors.” The commenter noted that according to 42 USC 10155(d)(1), the governor and the state legislature are involved in the site selection investigation and that cooperative agreements between the DOE and the state are available for state funding and involvement, according to 42 USC 10155(d)(3). Furthermore, the commenter noted that equipment, funds, and training are available to states along the transportation corridor routes as well as to the state in which the site is located. The commenter said that the EIS must evaluate the environmental consequences that result from the applicant’s proposal, which has none of the state participation and involvement contemplated by NWPA, and must evaluate whether the applicant’s proposal is a deliberate effort to avoid NWPA requirements. (0198h)

The commenter also stated that the State of Utah had to expend resources to participate as a party to the NRC proceeding on the PFS application, and that this was not the role envisioned for states under the NWPA. (State participation provisions in the siting procedures for storage of SNF under the NWPA are found in 42 USC 10155(d).) In addition, the commenter stated that the State submitted to the NRC two petitions for action under 10 CFR 2.206 that raised some of its issues and claimed that the NRC ignored these petitions. (0198a)

#### **Response:**

The NRC staff disagrees with the comment that the DEIS incorrectly characterizes the national policy with regard to a central interim storage facility. The statements in the DEIS concerning the MRS are included only to provide background information to the reader about SNF storage. The applicant requested a license for a privately-owned ISFSI, not an MRS or a Federal ISFSI. The regulatory requirements that govern the licensing of an ISFSI are promulgated by 10 CFR Part 72 under the authority of the Atomic Energy Act of 1954, as amended. The NWPA is not applicable to a privately-owned ISFSI under 10 CFR Part 72. The content of the DEIS is consistent with the NWPA. An MRS would be a DOE-owned facility rather than a commercial facility as the applicant proposed. If the DOE were to request a license for an MRS or a federally-owned ISFSI, then the requirements of the NWPA would apply.

Regarding the comment on state participation requirements in the NWPA, the NRC staff responded to the State of Utah's petitions dated June 27, 1997, and July 21, 1997, by letter dated August 6, 1997. As explained in that letter, the purpose of 10 CFR 2.206 is to permit members of the public to request that the NRC take some type of enforcement action. As explained in the NRC's August 1997 letter, the State's petitions requested that the NRC reject the license application, a licensing action, and did not request enforcement action. The comments are beyond the scope of the EIS.

### **G.3.1.3 Costs and Benefits**

#### **Comment Summary:**

Several commenters expressed concern that the evaluation of the need for the proposed PFSF did not consider the social costs or benefits, but rather focused on the economic benefits to the reactor licensees. The commenters also stated that a determination of the need for the proposed PFSF should consider the overall public costs and benefits for Utah and the general public. (0096, 0121, 0198h, SL1-06)

#### **Response:**

Section 1.3 of the EIS presents a discussion of the applicant's justification for constructing the proposed PFSF. The societal benefits and costs of the proposed PFSF are evaluated in Chapter 8 of the EIS. This analysis is in compliance with the NRC's NEPA implementation regulations (10 CFR 51.71). Also see Section G.3.19 of this Appendix.

### **G.3.1.4 Economic Development and BIA Responsibilities**

#### **Comment Summary:**

Several commenters expressed concern about the purpose and need for economic development of the Reservation. Three commenters stated that the economic struggle of the Goshute Indian Reservation is a poor reason to locate a high-level radioactive waste storage facility on the Reservation. (GR-06, SL1-05, SL1-15) One commenter said that the proposed PFSF cannot be justified on the basis of moral integrity and the ethics recently acknowledged by the BIA regarding its responsibilities for Native Americans. (0112)

One commenter stated that the statement of purpose for the BIA's action is inappropriate. The NRC suggests in the DEIS that the purpose of the BIA's decision is to promote economic development objectives of the Skull Valley Band. The commenter stated that the Cooperating Agencies have precluded a meaningful assessment of the proposed PFSF by beginning the analysis with an artificially restrictive statement regarding the purpose and need for the proposed PFSF. By characterizing the purpose of the project in that way, the BIA has foreclosed objective consideration of any other alternative that would not accomplish exactly what the applicant and the Skull Valley Band have proposed. It is also not clear that the economic or other well-being of the Skull Valley Band members is analogous to the economic development objectives of the Skull Valley Band. (0158)

#### **Response:**

A discussion of the BIA Federal Action is included in Section 1.5.2 of the EIS. The purpose and need of the EIS addressed the question of how and where to store SNF and, from the BIA's perspective, how to assist the Skull Valley Band's economic development. Any such assistance must be in the context of both the government-to-government relationship between the United States and the Skull Valley Band and the trust responsibility of the United States to the Band. The government-to-government relationship means that the consideration of alternatives is limited to those that the government of the Skull Valley Band has presented to the Secretary of the Interior for approval. Among the ways that the NRC and the Cooperating Agencies exercise the trust responsibility of the



United States is by analyzing in this FEIS the positive and negative impacts of the proposed PFSF on the quality of the human environment. Sections 6.2 and 6.3 provide evaluations of environmental justice and cumulative impacts of the proposed PFSF. Neither analysis concluded that the proposed PFSF would result in any significant adverse impact to the Skull Valley Band. It is the Skull Valley Band's decision whether to allow construction and operation of the proposed PFSF.

A commenter also stated that the economic or other well-being of the Skull Valley Band members is not clearly analogous to the economic development objectives of the Skull Valley Band. Because the Skull Valley Band is composed of members of the Band, the economic development objectives of the Skull Valley Band are intended to promote the economic well-being of the Band members.

### **G.3.1.5 Support for Purpose and Need for Action**

#### **Comment Summary:**

Several commenters supported the construction and operation of an ISFSI on the Reservation. (0014, 0016, 0020, 0070, 0122, 0132, 0143, 0179, 0235, 0236, 0255, 0259, GR-02, GR-07, GR-10, GR-12, GR-24, SL1-03, SL1-08, SL1-19, SL1-23, SL1-33, SL1-40, SL1-41, SL2-03, SL2-04, SL2-10, SL3-01, SL3-03, SL3-50, SL3-51, SL3-53, SL3-58) Others supported the proposed action because no permanent repository currently exists. (0014, 0179, 0236, 0259, GR-12, SL1-40, SL2-10)

Several commenters supported the proposed action and expressed support for the use of nuclear power. (0016, 0017, 0020, 0109, 0122, 0143, 0170, 0179, GR-12, GR-19, GR-24, SL1-08, SL1-23, SL1-33, SL1-40, SL2-04, SL2-10, SL3-03, SL3-51, SL3-53, SL3-58)

A few commenters supported the proposed action and stated that the proposed action would provide economic benefits to the Skull Valley Band, the State of Utah, reactor licensees, and consumers. (0016, 0017, 0070, 0179, 0236, 0255, GR-02, GR-10, SL1-03)

#### **Response:**

The general statements of support for the proposed action did not provide new information, request a change in the DEIS, or request any other action on the part of the NRC staff. Therefore, the comments did not warrant any change to the EIS.

## G.3.2 The Proposed Action

### G.3.2.1 Permanence of Facility

#### Comment Summary:

A few commenters stated that the licensing of the proposed ISFSI does not lessen the need for a permanent disposal facility. (0179, GR-12, SL3-58)

Many commenters expressed concern that the proposed ISFSI could become a permanent storage facility. (0005, 0006, 0012, 0015, 0018, 0021, 0039, 0042, 0047, 0053, 0063, 0071, 0077, 0096, 0112, 0118, 0121, 0126, 0127, 0135, 0136, 0139, 0142, 0153, 0157, 0158, 0166, 0180, 0185, 0189, 0194, 0195, 0198, 0198h, 0198i, 0201, 0204, 0210a, 0217, 0236, 0246, 0257, GR-01, GR-04, GR-05, GR-13, GR-14, GR-15, GR-18, SL1-01, SL1-02, SL1-05, SL1-06, SL1-09, SL1-10, SL1-13, SL1-14, SL1-15, SL1-16, SL1-18, SL1-20, SL1-31, SL1-33, SL2-05, SL2-12, SL2-13, SL2-17, SL3-06, SL3-11, SL3-18, SL3-25, SL3-26, SL3-31, SL3-36, SL3-47, SL3-49)

Several other commenters supported the no action alternative because they doubted that the proposed PFSF would be temporary. (0005, 0034, 0053, 0174, 0237, 0246, GR-01, SL1-06, SL1-18, SL2-13, SL2-15, SL3-02)

Commenters expressed concern for the following specific reasons:

- Numerous commenters opposed the creation of the proposed PFSF until a permanent repository is built, fearing that without a permanent high level waste repository the proposed PFSF would become a permanent storage facility. Commenters indicated that there are problems with the proposed Yucca Mountain site, such as technical flaws, opposition by the state and public, and capacity limits, and stated that the DEIS (p. 5-39 and 5-40, lines 41-20) incorrectly assumes that a permanent facility at [the proposed site at] Yucca Mountain will be available. (0015, 0018, 0042, 0096, 0112, 0135, 0136, 0139, 0142, 0157, 0166, 0194, 0195, 0198, 0198h, 0201, 0204, 0246, 0257, GR-01, GR-05, GR-13, SL1-01, SL1-06, SL1-14, SL1-16, SL2-12, SL2-17, SL3-06, SL3-11, SL3-25, SL3-26, SL3-31, SL3-36)
- One commenter stated that in the DEIS for the [proposed] Yucca Mountain Site, DOE projected that 105,000 metric tons will be generated and require storage, and the commenter expressed concern that 40,000 metric tons will remain at the proposed PFSF due to the lack of capacity at Yucca Mountain. (0198)
- The commenter also stated that the DEIS for the proposed PFSF omits discussion on whether a proposed repository at Yucca Mountain would have room to store mixed-oxide SNF or would even accept such SNF stored at the proposed PFSF. (0198) Therefore, the commenter asserted that the proposed PFSF could become a permanent storage facility for mixed-oxide SNF.
- One commenter asked what would happen if, during the term of the “temporary” storage license or permit, the NRC or Congress decides to make the facility permanent. (0096)
- One commenter stated that BIA and BLM need to address temporary versus permanent storage at the proposed PFSF in the event that [the proposed site at] Yucca Mountain is not approved. (0166)
- Another commenter stated that because a permanent repository is scheduled for 2010 and PFS is scheduled for 2003, there is only a seven-year advantage to completing the proposed PFSF. In addition, the commenter asserted that many obstacles could interfere with opening a permanent repository such as the willingness of DOE to recommend the repository to Congress and NRC to

approve, and the possibility that Congress could legislate perpetual above-ground storage of SNF. (SL1-16)

- Several commenters stated that the DEIS should address the possibility of the proposed PFSF becoming a permanent facility at the expiration of the 20-year license. Commenters expressed concern that the proposed PFSF is not designed to be operated as a permanent facility, which would be subject to more stringent requirements. (0012, 0015, 0018, 0039, 0077, 0084, 0096, 0118, 0121, 0127, 0136, 0153, 0158, 0180, 0189, 0195, 0198, 0198h, 0198i, 0204, 0210a, 0236, GR-01, GR-04, GR-13, GR-15, GR-18, SL1-01, SL1-09, SL1-13, SL1-31, SL2-05, SL3-06, SL3-49)
- One commenter stated that the expected life of the PFSF is not defined in the DEIS, and the methods used to avoid radiation leaks for a temporary facility will not be adequate for a facility that exists for several hundred years. (0047)
- One commenter said that the DEIS should evaluate the impacts of very long term (100 years or more) above-ground storage at the proposed site. (0204)
- Another commenter stated that the DEIS should evaluate all potential impacts based on a worst-case scenario where the applicant does not abide by its commitments or permit conditions causing the SNF to remain in the above-ground storage casks indefinitely. (0215)
- Two commenters stated that it would take 20 years to ship 4,000 casks to the proposed PFSF, which coincides with the expiration of a 20-year NRC license for the proposed PFSF. (SL1-33, SL3-47) One commenter asserted the reason for this is because the proposed PFSF would not be a temporary facility. (SL3-47)
- One commenter stated that if the proposed PFSF cannot be demonstrated to be temporary, then the facility would operate beyond the scope of the NRC license and beyond the scope of the EIS, irrespective of the NRC's Waste Confidence Decision. (0198, 0198h)
- Two commenters claimed that the DEIS did not adequately consider that the SNF stored at the proposed PFSF will remain radioactive for thousands of years. (0189, SL1-01)
- Several commenters expressed concern that the proposed PFSF might become permanent because there is no back-up plan in the event that the [proposed] Yucca Mountain facility or another site does not open, asserting that there are no measures in place to ensure that the proposed PFSF will not become permanent. (0012, 0018, 0039, 0077, 0198i, GR-13, SL1-16, SL3-18)
- One commenter said that the citizens of Utah would end up permanently storing the SNF generated by the citizens of other states who do not want to temporarily store the SNF in their own states. (0090)
- One commenter asserted that if the [proposed] Yucca Mountain repository is not approved, the siting process for a permanent repository would continue, leaving the proposed PFSF as a de facto permanent storage site. (0198)
- One commenter stated that the proposed PFSF would become permanent, asserting that Oak Ridge and Hanford storage facilities and other sites in Idaho have existed for years beyond their original permits. (SL1-18)
- A few commenters addressed the duration of the proposed action. One commenter suggested that the NRC should specify a time limit for the proposed action. The commenter added that the difference between the requirements for temporary SNF storage and permanent SNF disposal is

that temporary fuel storage is monitored, whereas with permanent SNF storage, people hope to forget about the material after burial. (0016) One commenter stated that the expected life of the SNF storage site is not defined, and that there are no guarantees that the stored SNF will be moved. The commenter stated that the longer SNF is stored in one location, the higher the potential for unanticipated release of radioactivity. The commenter thought it unrealistic to assume that the methods now used to avoid radiation leaks or contamination will be sufficient for several hundred or several thousand years. (0089)

- A few commenters stated that the proposed PFSF will be a temporary storage facility that will meet interim SNF storage needs until a permanent disposal facility is available. (0014, 0179, GR-12, SL3-58)

**Response:**

As set forth in Section 1.2 of the FEIS, the NRC would license the proposed PFSF under 10 CFR Part 72 to operate as an interim storage facility for SNF for up to 20 years. Before the expiration of an initial license, the applicant may submit an application to the Commission to renew the license. This renewal process would include a separate, thorough safety and environmental review. Ultimately, the SNF at the proposed PFSF would be relocated to a permanent geologic repository, and the existence of the proposed PFSF would not lessen the need for a permanent repository. For detailed information on long-term safety implications of SNF storage, refer to Section 4 of this FEIS titled "Environmental Consequences of Constructing and Operating the Proposed PFSF."

The applicant did not design or propose the PFSF to become a permanent repository, and, should the NRC grant the PFS application, it would not be approving the permanent storage of SNF at the proposed PFSF. Geologic repositories are designated as permanent sites for SNF and high-level radioactive waste. The proposed Yucca Mountain facility would be designed to be a permanent disposal site for such waste; if DOE were to submit a license application for the proposed Yucca Mountain site as a geologic repository, it would need to demonstrate compliance with the applicable regulations. Regarding the correctness of the EIS in its assumption that a geological repository will be made available and the comment that obstacles could interfere with its opening, the Commission, in its Waste Confidence Decision, has determined that there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century. Section 1.2, "The Proposed Action," of the FEIS presents this discussion. Based on current DOE projections, a permanent repository is scheduled to open by 2010. Regardless of the capacity of the proposed permanent geological repository, if the NRC grants the PFS application, all SNF must be removed from the proposed PFSF before completion of decommissioning. In addition, a permanent repository would accept mixed-oxide SNF, in accordance with agreements between DOE and reactor licensees.

Due to the requirement for the creation of a permanent geological repository for ultimate disposal of SNF and the limits placed on the applicant through its lease agreement with the Skull Valley Band, the proposed PFSF cannot be used as a permanent SNF storage facility. As indicated previously, under 10 CFR 72.42, the duration of a license for an ISFSI cannot exceed 20 years from the date of its issuance. Although the proposed lease for the PFSF site could extend to a maximum of 50 years, the initial license for the proposed PFSF is limited to 20 years, with the possibility of license renewal. The maximum license period anticipated for the proposed PFSF is 40 years, as was evaluated in the FEIS. Also, see Sections G.3.4.2.4 and G.3.4.3.1.

With respect to the comments regarding a scenario in which the NRC or Congress makes the PFSF a permanent facility during its licensed period, such a scenario would appear to conflict with current statutory provisions in the Nuclear Waste Policy Act of 1982, as amended (NWPA). The NWPA directs DOE to phase out site-specific activities at all candidate sites for a permanent repository other than the proposed Yucca Mountain site (see 42 USC 10172). Accordingly, such a scenario is not reasonably foreseeable, and need not be evaluated in this FEIS..

The NRC staff acknowledges the comment regarding the existence of the DOE Hanford and Oak Ridge facilities. However, DOE facilities do not necessarily comply with the NRC regulations and, therefore, DOE activities cannot be compared to NRC licensee activities.

### **G.3.2.2 Impacts of Reactor Decommissioning**

#### **Comment Summary:**

Several commenters expressed concern that if a power plant ships SNF to the proposed PFSF and is subsequently decommissioned, there will be no place to return the SNF if a permanent repository is not opened. (0012, 0158, 0198, 0198h, GR-04, SL1-01, SL2-05, SL2-17) One commenter stated that NRC should thoroughly examine the implications of the return of all SNF to the facilities that ship SNF to Utah. (SL2-17)

#### **Response:**

The NRC staff considers the scenario presented by the commenters unlikely and speculative. As stated in the FEIS, the NRC Waste Confidence Decision concludes that there is reasonable assurance that at least one mined geological repository will be available within the first quarter of the twenty-first century. However, if the scenario presented in the comment were to occur, reactor licensees storing SNF at the proposed PFSF will retain ownership of the SNF, and would be required to move SNF from the proposed PFSF to another facility where the fuel can be safely stored. This could be at another existing or new ISFSI at a reactor, or at another location. Section 5.7 of the FEIS considers the impacts of transporting SNF from the proposed PFSF.

### **G.3.2.3 Waste Confidence Decision**

#### **Comment Summary:**

One commenter stated that the DEIS relied on the NRC's Waste Confidence Decision, 10 CFR 51.23 (55 Fed. Reg. 38474; Sept. 18, 1990) to support its incorrect assumption that the proposed PFSF would be temporary (DEIS, p. xxxii), and the DEIS provided no other support or basis for the assumption. The commenter stated that the Waste Confidence Decision should not be applied to the proposed PFSF at all. (0198) The commenter asserted that there is no indication in the Waste Confidence Decision that the Commission considered that waste would be removed off site to an away-from-reactor ISFSI. The commenter stated that the Commission cites the PFS application in further support of its Waste Confidence Decision, (64 Fed. Reg. 68005, Dec. 6, 1999). The commenter stated that other nuclear facilities may have confidence that they will not have to store SNF for extended periods of time, because SNF will be stored at the proposed PFSF. According to the commenter this indicates an expectation on the part of the Commission that the proposed PFSF is not temporary.

#### **Response:**

The NRC's decision on whether to issue a license is based on a facility's ability to comply with 10 CFR Part 72, under which the agency may only approve interim storage, not permanent storage. The NRC would provide a license to operate the proposed PFSF for up to 20 years and PFS could apply to the Commission to renew the license before the expiration of the initial license term. This renewal process would include both a thorough safety and environmental review. The proposed PFSF license would authorize interim storage, and the Commission does not consider a 20-year ISFSI license to be the basis for establishing a permanent storage facility. This is consistent with the NRC's Waste Confidence Decision. As discussed in FEIS Section 1.2, "The Proposed Action," the Commission in its Waste Confidence Decision believes there is reasonable assurance that at least one mined, permanent geologic repository will be available within the first quarter of the twenty-first century.

### G.3.2.4 Management of Proposed PFSF and Effects on States and Other Reactor Licensees

#### Comment Summary:

One commenter expressed a lack of confidence in the ability of the applicant to manage the proposed PFSF. (SL3-02) One commenter stated that the applicant would not proceed with the proposed action if it could not be accomplished safely. (SL3-58) One commenter asked what the long-term implications of prioritization of nuclear waste management are relative to the Federal government's intent on managing irradiated fuel. (0211) Another commenter expressed concern that the facility would be privatized and the public would bear the cost while a private company profits. (SL3-40)

One commenter objected to the "72 to 1" slogan used by the applicant in referring to the removal of waste from 72 sites for placement at one site. The commenter believes this is misleading, since the proposed action allows for continued generation of SNF at these sites. (SL1-37)

#### Response:

The NRC staff acknowledges the comment questioning the applicant's ability to manage the facility and the comment from the applicant stating that the project would not proceed if it could be accomplished safely. The ability of the applicant to manage the proposed PFSF in a safe manner is a consideration in the license application review process conducted by the NRC. Some of the PFS member reactor licensees have experience managing reactor site ISFSIs. The FEIS presents the projected environmental impacts of the proposed action based on the facility design, operating conditions, and the environment in which it would operate. The NRC staff notes that the purpose of the proposed PFSF is to provide an interim storage facility for SNF before it is transferred for final disposal in an underground geologic repository. This is consistent with the NRC's Waste Confidence Decision, 10 CFR 51.23 (55 Fed. Reg. 38474; Sept. 18, 1990), which states that at least one mined geological repository will be available by the end of the first quarter of the twenty-first century.

Regarding the concern that additional power plants around the country may begin to ship to the proposed PFSF, the applicant's slogan "72 to 1," was not used as a basis for the analysis contained in this EIS. The FEIS only indicates that SNF may continue to be generated at reactor sites from which SNF would be removed to the proposed PFSF. See Section 1.3 of the FEIS.

The comments about prioritization of SNF management and privatization of the PFSF are not related to the environmental impacts of the PFSF and therefore no response is required.

### G.3.2.5 The Proposed Cask System

#### G.3.2.5.1 Inadequate Cask Design

#### Comment Summary:

Many commenters asserted that the casks are not properly designed. (0012, 0089, 0096, 0174, 0198, 0211, 0215, 0230, SL1-01, SL1-10, SL1-20, SL1-21, SL1-36, SL1-40) Commenters indicated that the storage and/or transportation cask designs were inadequate for several reasons, including the following:

- Two commenters stated that the casks are not designed for long-term storage, the effects of earthquakes or fires, or a plane crash. (0012, SL1-01, SL1-10)
- One commenter stated that there is no evidence that the casks will remain stable under prolonged exposure to the heat and radiation from the SNF. (0174)

- A few commenters stated that the casks have only been in use for 14 years, but their use would be licensed for over 20 years. (0230, SL1-10, SL1-20)
- A few commenters stated that the proposed casks have not undergone any full-scale testing. (0198, SL1-20, SL2-12)
- One commenter stated that casks are 10 to 15 years old before they are placed into use because of a long curing process. (0096, SL1-21)
- A few commenters stated that some of the casks in use today have problems with hairline fractures that occurred during manufacturing, explosions from chemical reaction during loading, and weld failures. (0198, 0230, SL1-20)
- One commenter stated that there have been welding flaws, defective casks, leakage of helium gas, and problems with dry cask storage at the Palisades Nuclear Plant. (SL1-36)
- One commenter stated that the Holtec cask system that PFSF proposes to use is not approved for storage of mixed oxide fuel. (0198)
- One commenter stated that placing spent fuel rods in a cask that has not cured properly might result in a pressure buildup, cracking, sealing failures, or breakage. (SL1-21)
- One commenter stated that the cask system has not been tested to failure so failure modes are not known and protocols to manage failure scenarios cannot be devised. (0211)
- One commenter stated that the cask fabrication quality assurance and quality control protocol do not exist to ensure that the casks meet specific design criteria. This commenter also stated that an oversight mechanism is needed to ensure that the storage casks are of high integrity. (0211)
- One commenter stated that there is no demonstration that supports the claim that neutron flux levels generated by SNF would be too low to activate the storage casks or pads. (0215)

One commenter stated that both contaminated and defective casks are a real occurrence in the U.S., and that the higher risks associated with these casks are not considered in the DEIS. The commenter indicated that there were 49 incidents of “accidental surface contamination” of casks between 1965 and 1992 according to DOE, with more occurring overseas. In addition, the commenter stated that defects and degradation in dry casks indicate problems with the NRC cask certification process and poor quality assurance and quality control in the cask manufacturing and nuclear power industries. (0194)

**Response:**

The EIS considered the impacts that the proposed PFSF and associated HI-STORM 100 storage cask design would have on the environment. The NRC has evaluated the adequacy of the storage cask and proposed PFSF design to safely store SNF during normal operations and to withstand potential natural phenomena or manmade hazards. The staff evaluation is documented in the SER, as updated. The EIS analyzed these risks to determine the impact to the environment (see FEIS Section 4.7.2) to the extent that the NRC safety evaluation indicated that the storage cask design would affect the environment, such as by releasing radioactive material or emitting direct radiation. Specific responses to similar comments regarding human health impacts from potential accidents are addressed in Section G.3.15.6. Because the comments are directed to a safety issue that is not directly related to the environmental impacts of the proposed PFSF, they are beyond the scope of the FEIS.

Notwithstanding that these issues are beyond the scope of the FEIS, the NRC staff considered these general design issues in its safety evaluation. The NRC staff evaluated the cask design, proposed PFSF design, and SNF contents against established acceptance criteria (see NUREG-1567) that are used to verify that the cask and facility designs satisfy safety standards for SNF storage facilities in 10 CFR Part 72. The NRC staff evaluation considered the thermal, radiological, and material characteristics (such as cladding degradation) for the range of SNF types proposed for storage at PFSF. The NRC staff also noted that several of the DEIS comments regarding cask design were similar in nature to public comments received during the NRC rulemaking process for the generic design approval of the HI-STORM 100 storage cask and were addressed by the staff (see 65 Fed. Reg. 25421). Information on the NRC's cask certification process is available on the NRC Internet site ([www.nrc.gov](http://www.nrc.gov)) and certification standards are set forth in 10 CFR Part 72.

Furthermore, in response to some of the specific issues, the NRC staff noted the following:

- Fabrication of SNF storage casks must be performed under an NRC-approved quality assurance program. This includes vendor oversight to ensure that the casks are produced and loaded in accordance with design specifications and with the specific design criteria included in the SAR for the cask design and the license approved by the NRC. The cask concrete shield must be fabricated (including the curing process) under an NRC approved quality assurance program and must meet the design requirements of the concrete shield described in the cask SAR. The NRC staff found the cask design and PFSF quality assurance program to be acceptable. The NRC staff evaluation is documented in the SER, as updated.
- NRC did not require full-scale destructive testing of a HI-STORM 100 prototype storage cask in order to demonstrate compliance with NRC safety standards. In accordance with NRC regulations, the NRC staff accepted the use of scale models, computer simulations, and other types of analyses, as appropriate, to demonstrate the proposed PFSF and cask design satisfied NRC safety standards. These methods were based on sound scientific principles and have generally been validated by past experience with similar casks and other similar nuclear devices that operate safely.
- Acceptance criteria used by the staff to review the cask design account for recent experience gained from hydrogen generation and burn events, welding flaws, and other operational problems that have occurred with other storage cask designs. None of these past events resulted in a release of radioactive material to the environment or increased direct radiation exposure to the public. The NRC staff also concluded that the overall safety record of other NRC-approved storage cask designs continued to validate these acceptance criteria (see NUREG-1536).
- The NRC determined that specific types of mixed oxide SNF can be safely stored in the HI-STORM 100 storage cask design at the proposed PFSF. Because of the neutron flux levels that would be generated by the SNF, hypothetical activation of storage cask or pad, if any, would not pose a radiological hazard to the environment during operation of the proposed PFSF. The vendor of the HI-STORM 100 cask performed conservative calculations based on high neutron flux levels produced by the SNF over a 40-year period. The calculations indicated that hypothetical activation levels of the storage cask and pad materials would be very low. The applicant indicated in its Decommissioning Plan that there will be no anticipated activation, but conservatively assumed possible activation of the storage cask and partial contamination of the storage pads in its decommissioning cost analysis for low-level radioactive waste disposal.

#### **G.3.2.5.2 Inadequate Analysis of Cask Design in the EIS**

##### **Comment Summary:**

Several commenters indicated the DEIS was inadequate regarding analysis of the cask design for the following reasons:



- One commenter stated that the DEIS did not discuss the risk of cask sliding or tipover resulting from an earthquake. (0198)
- Another commenter stated that the DEIS did not address heat and pressure buildup in a cask that would lead to valve failures and the release of isotopes to the environment. (0096, SL1-21)
- One commenter stated that the DEIS was not complete without information on failure modes and protocols to manage failure scenarios. (0211)
- The same commenter stated that the DEIS should have discussed protocols to manage oversight of cask fabrication and quality control. (0211)
- This commenter also stated that the DEIS should have included a reasonable analysis of waste assembly degradation during storage and management protocol during a failure event. There was no analysis in the DEIS of the potential for SNF degradation and failure (fuel assembly cladding failure due to faulty fabrication, corrosion, metal creep, liquid metal embrittlement, biodegradation, and helium penetration) or discussion on irradiated fuel management protocol in the event of such a failure. (0211)
- This commenter also stated that the DEIS would not be complete until it includes a reasonable analysis of waste assembly degradation during storage, and management protocol during a failure event. (0211)
- One commenter stated that the ER (used as a source of information for the DEIS) failed to consider the risks posed by a blockage of the cooling vents on the storage casks, and added that the concrete storage casks utilize passive, natural convective air movement for cooling. SAR at 5.1-10, 5.4-1. The commenter stated that although the applicant maintained that the ducts will be cleaned, this relies on human intervention, which is subject to error. The commenter asserted that it was reasonable to anticipate that the cleaning of ducts would be delayed or overlooked, or that an evacuation or fire would make it impossible to perform this function. Therefore, the commenter concluded that the applicant was required to assess the consequences of an inadvertent blockage of the cooling ducts by animal or plant infestation or by snow and ice during the winter. (0198a)

**Response:**

The NRC has evaluated the adequacy of the storage cask and proposed PFSF design to safely store SNF during normal operations (including heat generation, cladding degradation, and fabrication issues) and to withstand potential natural phenomena or manmade hazards. Because the comments are directed to a safety issue that is not directly related to the environmental impacts of the proposed PFSF, they are beyond the scope of the FEIS. The NRC concluded that the FEIS described the proposed cask design for use in the proposed action and there is no requirement to further address specific design issues. As discussed in the response to G.3.2.5.1, the EIS considered the impacts that the proposed PFSF and associated HI-STORM 100 storage cask design would have on the environment.

**G.3.2.5.3 Specific Questions Regarding the Cask Design****Comment Summary:**

Several commenters had specific questions about the cask design described for the proposed action. One commenter asserted that there were conflicting reports about the testing of the casks and asked several questions about cask testing and fabrication. The commenter also asserted that there was a weakening of process for the NRC certification of cask designs and industry pressures to make changes. (SL3-04) Two commenters posed the following specific questions:

- Are casks tested to destruction? (SL3-04)
- Do the manufacturers fabricating the casks use generic cask design, or are they reviewed with site specific criteria? (SL3-04)
- What are the factors of any site specific criteria? For instance, what would a cask design be for a Utah site, knowing there was active seismic activity, the possible UTTR misfired missile, or are the casks a generic design? (SL3-04)
- How are checks and balances concerning safety design compliance managed? Are there any conflicts of interest? (SL3-04)
- How does the NRC handle casks design criteria concerning hydrogen build-up and cracking of the fuel cladding and criticality accidents? (SL3-04)
- Is there documentation for the public to review regarding these design questions? (SL3-04)
- What are the quality control procedures for ensuring that the storage casks are of high integrity and there is no threat of release? (0215)
- What is the temperature of casks and the cooling temperature effect on the integrity of the storage casks, particularly if the cooling vents are blocked? (0215)
- Can dust or other materials accumulated near the vents on the casks could become activated by irradiation? (0215)

**Response:**

The NRC has evaluated the adequacy of the storage cask and proposed PFSF design to safely store SNF during normal operations and to withstand potential natural phenomena or manmade hazards. The NRC staff evaluation is documented in the SER, as updated. The NRC staff also noted that documentation such as the SAR and SER is available for public review. As discussed in the response to G.3.2.5.1, the EIS considered the impacts that the proposed PFSF and associated HI-STORM 100 storage cask design would have on the environment. These questions involve safety issues and are beyond the scope of the EIS. The NRC concludes that the EIS adequately describes the basic cask design and its function for use with the proposed action and that there is no requirement to further address specific questions about the cask design or other issues (e.g., checks and balances and conflicts of interest).

**G.3.2.5.4 Adequate Cask Design****Comment Summary:**

A few commenters stated that the design of the casks is sufficient to protect public health. (0014, 0163, SL1-40, SL2-10) Commenters indicated that the cask design is adequate for the following reasons:

- One commenter stated that the casks are designed in a manner similar to black boxes on airplanes that absorb the shock from an accident. (SL2-10)
- Another commenter stated that proven, independently reviewed container technology is used to safely store fuel rods. (0014, SL1-40)
- One commenter indicated that the casks have been certified by the NRC to meet Federal safety standards. (0014)

- Two commenters stated that no releases, injuries, or fatalities have occurred during the last 35 years from shipments of radioactive material. (0014, SL2-10)
- According to one commenter, the DEIS correctly stated that, in order to demonstrate compliance with 10 CFR 72.106(b), the applicant performed a “bounding” calculation, which assumed a canister leak rate of 1 E-4 cm<sup>3</sup>/sec, and then correctly provides the doses calculated by the applicant from this bounding accident. In addition, the commenter stated that the FEIS should note that the doses calculated in SAR Section 8.2.7 for a postulated leaking HI-STORM canister are much lower than those associated with the bounding accident (2.7 mrem TEDE vs. the 76 mrem TEDE mentioned in the DEIS, and 28.4 mrem organ vs. the 824 mrem organ mentioned in the DEIS). (0163)

**Response:**

The NRC staff acknowledges these comments, but they involve safety issues that do not directly affect the environmental impacts of the proposed PFSF, and are beyond the scope of the EIS. The storage cask and proposed PFSF satisfies NRC safety requirements. The NRC staff evaluation is documented in the SER, as updated. Accordingly, the NRC staff did not determine the validity of these specific comments, beyond what was evaluated in the SER and EIS. See the response to G.3.2.5.1.

**G.3.2.5.5 Handling and Use of Proposed Cask System****Comment Summary**

Several EIS commenters addressed the use of the proposed cask system. (0183, 0194, 0198, 0198g, 0198h, 0215, SL1-20, SL1-23, SL1-36, SL3-04)

- One commenter stated that PFS has no track record transporting, handling, or managing a large quantity of SNF in these casks. (SL1-20)
- Another commenter requested documentation on the safety of unloading casks and asked whether such unloading has ever been done in the U.S. The same commenter asked what measures would be used to monitor and assess casks, and whether the emergency response infrastructure will be sufficient to handle any accidents. (SL3-04)
- One commenter stated that the ER fails to consider the safety risks and costs if the applicant fails to provide adequate means for inspecting and repairing the contents of SNF canisters or for detecting and removing contamination on the canisters. The commenter asserted that these include risks posed to workers handling or inspecting casks with contaminated or defective contents during receipt, storage, or in preparation for shipment to a repository, and also include health risks and increased costs during the decommissioning process. (0198a)
- One commenter stated that the explosion at the Point Beach Reactor in Wisconsin is evidence that the handling and storage of nuclear waste must be conducted very carefully. (SL1-36)

**Response:**

If the NRC grants the license, the applicant will be required to meet regulations in 10 CFR Part 72, Subpart I for training, proficiency testing, and certification of personnel. The NRC staff evaluated the applicant's program for training, proficiency testing, and certification of personnel in the license application and found it acceptable as documented in Chapter 10 of the SER. The NRC will also inspect implementation of this program to ensure compliance with NRC regulations. The NRC staff also noted that the NRC evaluates and certifies the design of the shipping casks used to transport spent fuel (HI-STAR 100) and the DOT regulates the vehicles and drivers during transport.

The NRC staff also has found that the proposed storage and transportation cask designs can be loaded and unloaded at the proposed PFSF so as to provide adequate protection of the public health and safety. A number of reactor licensees associated with the applicant have many years of experience of handling SNF, including the handling and management of dry storage casks containing SNF. The NRC acceptance criteria for conduct of operations, including loading and unloading casks, are discussed in Chapters 3 and 10 of NUREG-1567; Chapter 8 of NUREG-1536; and Chapter 7 of NUREG-1617.

The staff also notes that operations at the proposed PFSF would not include handling of un-canistered SNF and the applicant would not be authorized to perform such operations during the licensed life of the proposed PFSF. The SNF would be sealed (the canister is welded-closed) at the originating nuclear power plant prior to shipment to the proposed PFSF. Therefore, the applicant would be limited to handling the canisters which contain the SNF. The NRC staff agrees with the comment that the hydrogen burn event at Point Beach provides evidence that handling and storage of SNF should always be performed in a careful manner and in accordance with NRC regulations. As discussed in G.3.2.5.1, the acceptance criteria used by the NRC staff to review the cask design accounted for experience gained from the hydrogen burn event at Point Beach.

#### **G.3.2.5.6 Design Compatibility with DOE Criteria**

##### **Comment Summary:**

One commenter asked whether the proposed PFSF storage characteristics, cask designs, and transportation issues would be generally compatible with the DOE requirements for permanent storage at the [proposed] Yucca Mountain site. The comments include the following:

- The commenter stated that there is no basis for concluding that the applicant has taken any measures to facilitate the decommissioning of the ISFSI by ensuring compatibility of its storage casks with DOE acceptance criteria. The commenter quotes the SAR as stating that, “when the storage period for any particular canister of spent fuel is completed, the canister shall be transferred into a shipping cask and shipped offsite.” (Commenter references SAR at 3.5-2). The commenter stated that no further details are provided, except a reference to Section 2.4 of the HI-STORM and TranStor applications, and Appendix B of the License Application mentioned above. According to this commenter, Section 2.4 of the TranStor application does not address the issue of compatibility with DOE requirements at all. The commenter stated that Section 2.4 of the HI-STORM application states that the HI-STORM canister is “designed to be completely congruent with the multipurpose canister (MPC) concept, as articulated by The U.S. Department of Energy.” However, the commenter stated that the HI-STORM application provides no information regarding the nature of the “MPC concept,” how it relates to DOE waste acceptance criteria, or how exactly the HI-STORM system is “congruent” with the concept. (0198a)
- The commenter also stated that although the DOE has not yet issued its design criteria, currently available information shows a significant potential for disparities between the waste acceptance criteria and the specifications for the applicant’s storage canisters. For instance, this commenter asserted that the DOE will have requirements on thermal limits per unit area, and limits on the size and weight of shipping containers. According to the commenter, Sierra Nuclear and Holtec storage casks may be incompatible with these acceptance criteria.
- The commenter also stated that the DOE may place limits on the acceptable physical state of irradiated fuel (i.e., by requiring a demonstration that there are no gross cladding defects). The commenter states that it is reasonable to anticipate that in connection with such a requirement, the DOE will require that a representative canister of irradiated fuel be opened to demonstrate that irradiated fuel is acceptable. Although 10 CFR § 72.122(h) requires the proposed PFSF to confine SNF in a way that degradation of fuel during storage will not pose operational safety problems with respect to its removal from storage, the commenter argued that the proposed PFSF

has no means of inspecting the interior of SNF canisters to determine the condition of the fuel for purposes of complying with this requirement. (0198a)

- The commenter stated that it is unreasonable to rely on a facility to transfer individual fuel assemblies at the [proposed] Yucca Mountain repository. According to the commenter, there is no reason to believe that the [proposed] Yucca Mountain repository will be equipped with the necessary equipment to handle inspections and inter-cask transfers for the many cask designs that are now and will be in use when it is opened. The commenter asserted that it is far more reasonable for the DOE to require all potential users of the [proposed] repository to properly package their waste before shipping it to the facility. (0198a)

**Response:**

The NRC acknowledges the concerns raised, but notes that these concerns involve safety issues that do not directly relate to the environmental impacts of the proposed PFSF. Nonetheless, the NRC staff has concluded that the applicant was not required to verify that the storage canister design would be compatible with proposed or future Yucca Mountain repository design criteria. Compatibility of storage and transportation cask designs with the disposal requirements of a geologic repository have been addressed generally in the DOE DEIS for the proposed Yucca Mountain repository. The DOE intends to process and repackage, upon receipt if necessary, all SNF transported to the proposed Yucca Mountain repository. Therefore, there would be no requirements to repackage or process SNF at the proposed PFSF or to transfer individual fuel assemblies to the proposed Yucca Mountain repository. The adequacy of the proposed Yucca Mountain repository to inspect and conduct inter-cask transfers of fuel is beyond the scope of this EIS. The NRC staff noted that the proposed action does not include the use of the TranStor storage cask design.

**G.3.2.5.7 Inadequate Cask and Proposed PFSF Thermal Design**

**Comment Summary:**

One commenter stated that according to the SAR, record high temperatures in Skull Valley range from 105°F to 109°F (SAR, 2.3-5), and this commenter also stated that the applicant has established a site design ambient temperature of 110°F (SAR, 4.2-15). However, according to the commenter, the applicant plans to use HI-STORM and TranStor storage casks, which are designed for lower ambient temperatures. According to the commenter, the applicant recognized that the off-normal cask design temperature of 100°F is below the design ambient temperature of 110°F (SAR, 4.2-15). However, the commenter stated that the applicant argued that the 100°F condition “represents a maximum daily average temperature over a period of several days and nights required for the system to reach thermal equilibrium” (SAR, 4.2-15). According to the commenter, the applicant stated that while daily ambient temperatures could exceed 100°F, the average daily temperature would not exceed 100°F, averaging day and night temperatures (SAR, 4.2-15). In support of this assertion, the commenter stated that the applicant cited the maximum average daily ambient temperature of 93.2°F for cities in Utah nearest the site (SAR, 4.2-15). (0198a) This commenter stated that this analysis is faulty, and gave the following reasons:

- The commenter argued that temperatures in unnamed cities somewhere in Utah do not necessarily correspond to the conditions in Skull Valley. Therefore, the commenter stated that the applicant should provide information on actual temperatures at the Skull Valley site, using measurements taken at the distance from the ground that is comparable to the location of intake vents on the storage casks, where air will be drawn into the casks. (0198a)
- The commenter stated that the applicant’s projection that average daily temperatures will not exceed 100°F fails to take into account the heat stored and radiated by the concrete pad and by the concrete cylinders in which each cask will be stored. According to the commenter, these massive concrete structures will serve as reservoirs that will trap and radiate heat throughout the

day and night, thus having a potentially significant effect on average ambient temperatures. (0198a)

- In projecting ambient temperatures, the commenter stated that the applicant failed to consider the heat generated by the casks themselves. The commenter stated that the TranStor casks would be placed at a center-to-center distance of 15 feet. Since the diameter of each TranStor cask is 11.3 feet, the commenter asserted that the spacing between casks on the pad would be only 3.7 feet (TranStor SAR, Rev. B, 1-17). Additionally, the commenter stated that the Holtec cask is 11 feet in diameter and therefore the spacing between Holtec casks would be 4 feet (Holtec HI-STORM 100 TSAR Rev. 2, 1.2-1). The commenter stated that given the close proximity of the casks, it is likely that additional heat from an adjacent cask would increase the external and internal temperatures of the concrete storage cylinders, and therefore increase the maximum cladding temperature. (0198a)
- The commenter asserted that the applicant has not considered the thermal impact of the temperature differential between the level of the concrete pad and the level of the tops of the storage casks (15 feet above). The commenter stated that because of the heat-retaining nature of the concrete pad, the air temperature near the ground will be higher than the air temperature 15 feet above. According to the commenter, this will affect the ventilation system for the casks, which relies on convection, in which cool air is drawn into the cask inlets and heated by the inner canister, causing the air to rise. The commenter stated that this “chimney effect” depends on a difference in temperature between the incoming and outgoing air. If the temperature of air going into the vents is higher than the temperature of the air 15 feet off the pad, the commenter asserted that the buoyancy and velocity of air through the ducts is reduced. According to the commenter, air moving more slowly through the ducts, and at a higher temperature, will cool the canisters more slowly than cooler air. Thus, the commenter concluded that the design temperature for the casks (and the cladding inside them) could be exceeded because of the reduced effectiveness of convection cooling. (0198a)

The commenter stated that the applicant’s design of the proposed PFSF is inadequate, because it fails to consider these factors in establishing the temperature-related design limits for storage casks, or to establish measures to ensure that the manufacturer’s design limits will not be exceeded during storage. According to the commenter, the NRC should require the applicant to perform the requisite calculations and re-evaluate the temperature-related design limits of the facility. (0198a)

The commenter also expressed concern about the design temperature limits for the concrete storage cylinders. The commenter stated that the NRC policy on temperature limits for the concrete structures in which storage casks are housed recommends a maximum allowable temperature of 150°F for normal operation for bulk concrete (assumed here to be inner concrete), 200°F for local areas, and 350°F for accident or other short-term periods. The commenter argued that the limits prevent degradation and cracking due to unacceptably high heat levels. The commenter stated that information submitted by Sierra Nuclear Corporation and Holtec in support of their applications for Certificates of Compliance shows that projected temperatures for concrete either exceed or are very close to the NRC’s recommended limits, thus compromising the integrity of the concrete. The commenter suggested that these calculations probably underestimate the concrete temperatures, because they do not appear to take into account the heat generated by the casks themselves and the storage pads. (0198a)

This commenter further stated that in a request for information sent to Sierra Nuclear Corporation (SNC) during licensing review, the NRC staff noted that for the TranStor cask, some design temperatures for off-normal conditions either exceeded or came close to NRC-recommended limits. The commenter stated that it appears this licensing issue remains open. (0198a)

The commenter also stated that the Holtec HI-STORM 100 cask design also exceeds NRC-recommended values. (0198a)

Further, this commenter stated that the applicant had not demonstrated that concrete structures for SNF storage were designed to withstand the temperatures that can be expected at the proposed PFSF, or that it has taken measures to ensure protection of the concrete from excessive temperatures. (0198a)

The commenter stated that the application gives inadequate consideration to the potential adverse impacts of on-site SNF storage. The commenter also stated that the ER failed to consider the impacts of overheating of casks due to the facility's inadequate thermal design. (0198a)

**Response:**

The NRC staff acknowledges these comments regarding the thermal design of the cask and PFSF, but they involve safety issues that do not directly affect the environmental impacts of the proposed PFSF, and are beyond the scope of the EIS. As discussed in Section G.3.2.5.1, the EIS considered the impacts that the proposed PFSF and associated HI-STORM 100 storage cask design would have on the environment. The NRC has evaluated the adequacy of the storage cask and proposed PFSF design to safely store SNF during normal operations (including internal heat generation, ambient temperatures, and other thermal issues) and to withstand potential natural phenomena or manmade hazards. The NRC staff evaluation is documented in the SER, as updated. Specific responses to comments regarding human health impacts from potential accidents are addressed in Section G.3.15.6. The staff noted that the proposed action does not include the use of the TranStor storage cask design.

**G.3.2.5.8 Lack of Procedures for Detection of Helium**

**Comment Summary:**

One commenter stated that the applicant has not provided procedures or measures to verify the presence of helium in SNF storage casks. The commenter further stated that the design does not comply with 10 CFR 72.122(f), 72.128(a), and 72.128(a)(1), and does not follow the guidance in Regulatory Guide 3.48, Section 4.7. In addition, the commenter suggested that the applicant lacks adequate control over the process of filling casks with helium and will not be able to open casks to check for the presence of helium. The commenter also stated that the casks should be inspected after transport to the ISFSI to identify any weld cracks that occurred during shipment. (0198a)

**Response:**

These comments involve safety issues that do not directly affect the environmental impacts of the proposed PFSF, and are beyond the scope of the EIS. As discussed in Section G.3.2.5.1, the FEIS considered the impacts that the proposed PFSF and associated HI-STORM 100 storage cask design would have on the environment. The NRC has evaluated the adequacy of the storage cask and proposed PFSF design to safely store SNF during normal operations (including the internal helium environment and generic leak testing requirements) and to withstand potential natural phenomena or manmade hazards. The NRC staff evaluation is documented in the SER, as updated. As discussed in Section G.3.2.5.5, the NRC staff also notes that operations at the proposed PFSF would not include the opening of canisters to check for helium and the applicant would not be authorized to perform such operations during the licensed life of the proposed PFSF. The SNF would be sealed (the canister is welded-closed) at the originating nuclear power plant prior to shipment to PFSF. Therefore, the applicant would only be limited to handling the canisters which contain the SNF. The proposed design evaluated by the NRC staff satisfies all applicable requirements of 10 CFR Part 72.

### **G.3.2.5.9 Use of Improperly Constructed Casks**

#### **Comment Summary:**

One commenter stated that the applicant failed to discuss canister end accidents involving improperly constructed casks. The commenter questioned whether the TranStor cask is subject to the same quality of fabrication as the VSC-24 (SAR, 8.2-34). The commenter stated that the NRC issued a Demand for Information to Sierra Nuclear Corporation on October 7, 1997, as a result of numerous NRC inspection findings indicating that, since 1992, Sierra Nuclear's quality assurance and corrective action programs have failed to identify and correct design control and fabrication deficiencies. The commenter stated that a canister with fabrication deficiencies could fail, and if it contained failed fuel, fission products could be released. (0198a)

#### **Response:**

The NRC staff acknowledges the comments regarding the use of improperly constructed casks, but they involve safety issues that are not directly related to the environmental impacts of the proposed PFSF, and are beyond the scope of the EIS. The NRC staff notes that the proposed action does not include the use of the TranStor cask design. As discussed in Section G.3.2.5.1, the EIS considered the impacts that the proposed PFSF and associated HI-STORM 100 storage cask design would have on the environment. The NRC has evaluated the adequacy of the storage cask and proposed PFSF design to safely store SNF during normal operations and to withstand potential natural phenomena or manmade hazards. The NRC staff evaluation is documented in the SER, as updated. If the proposed PFSF is licensed, the casks would be required to meet design specifications in the applicant's SAR (including proper welds) and would be required to be constructed in accordance with an NRC-approved Quality Assurance Program.

### **G.3.2.6 The Proposed Storage Facility Design**

#### **G.3.2.6.1 DEIS Inadequately Describes the Proposed PFSF**

#### **Comment Summary:**

Several commenters stated that the DEIS is inadequate in describing specific proposed PFSF parameters for the following reasons:

- One commenter stated that the DEIS provides no construction schedule. The commenter stated that on page 2-3, the DEIS indicated that the applicant is planning to start construction after the NEPA and licensing process have been completed, but the ER says that construction will begin in September, 2000. (0198)
- One commenter asserted that the DEIS, on page 1-5, line 43, does not contain a thorough discussion of all construction activities required under NUREG-1555 (page 1.1.-5). The commenter also stated that the DEIS includes details for Phase 1 construction, but omits Phases 2 and 3. According to the commenter, the DEIS should discuss the duration and nature of all phases. (0039, 0077)
- The same commenter stated that the DEIS does not state the number of workers that would be employed for facility or rail line construction or the workers' assignments. The commenter noted that although the DEIS states that 225 workers will be employed for construction and 43 permanent workers for operations, the commenter asked whether the 125 railroad construction workers mentioned on page 5-34, line 5, reflect workers for the rail line construction only, and the 225 workers comprise rail line and other construction. The commenter believed that the DEIS should identify much earlier in the document the breakdown of this proposed small workforce. (0039, 0077)



- This commenter also stated that the DEIS does not contain best management practices (BMPs) for the proposed PFSF construction or facility operations. The commenter indicated that NUREG 1555, page 12, states that BMPs are “construction and maintenance practices that limit adverse impacts,” which also entail operations. According to the commenter, the DEIS interpreted BMPs to apply to construction and not to operations. (0039, 0077)
- Another commenter stated that the DEIS indicates on page 2-10 that the proposed PFSF will have a back-up diesel generator, but it did not provide information regarding the possible consequences of a loss of power if the back-up power systems fail. (0198)
- This commenter also stated that the DEIS indicates that soil stabilization will be easily engineered during the design process to meet the “necessary strength requirements,” but these requirements are not described. (0198)

**Response:**

The construction schedule presented in the applicant's ER of construction beginning in September 2000 is out-of-date. The EIS accurately states that the construction would begin only after the FEIS is issued and only if the necessary licenses and regulatory approvals have been issued to the applicant. Section 2.1.2 of the FEIS was revised to indicate construction would be completed in 18 months and the proposed PFSF would become operational 4 months later.

The EIS presents sufficient detail (such as water use) on Phases 2 and 3 of construction such that an assessment of potential impacts could be developed. Also, while the guidance in NUREG-1555 applies specifically to power reactors and not to the type of storage facility under consideration in this EIS, Section 2.1 of the EIS provides an adequate description of the construction activities associated with the proposed PFSF.

Regarding the request for information on the proposed number of workers, Table 2.1 of the EIS presents this information. In developing the EIS, the specific job descriptions or skills of these workers were not relevant to developing the analyses of environmental impacts (specifically economic impacts) in this EIS.

The BMPs described for the construction of the proposed PFSF would also apply in part during operation. However, it should be noted that many of the practices included in Table 2.7 of the EIS, “Best Management Practices as Proposed by the Applicant During the Construction of the PFSF,” are specific to construction activities.

Regarding the comment about the diesel generator, the NRC addressed back-up power systems in the SER. As discussed in Chapter 3 of the SER, the proposed PFSF design does not require utility systems during SNF cask storage on the pad, and the proposed PFSF design does not require continuous electric power to safely maintain the SNF within the storage or transfer casks. However, a reliable electrical source is needed to maintain the physical protection system for the PFSF. As specified in 10 CFR 73.51(b)(3), “the physical protection system must be designed to protect against loss of control of the facility that could be sufficient to cause a radiation exposure exceeding the dose as described in §72.106.” The NRC reviewed the design of the physical protection system, including the primary and backup power supplies, and determined that it meets the NRC regulations through the commitments and design features described in the Physical Protection Plan. The use of a diesel generator to provide on-site backup power is sufficient to meet the requirements of 10 CFR 73.51.

Regarding the regulatory description of soil stabilization requirements, the NRC notes that soil stabilization is addressed routinely during the engineering design process and is beyond the scope of the EIS. The necessary strength requirements for the soil are design specific issues that are developed as a part of the NRC safety review and the detailed engineering design. These specific

strength requirements are not necessary to assess the environmental impacts of the proposed action. The FEIS describes how the soil will be engineered (i.e., use of soil cement); therefore, soil stabilization requirements were not included in the FEIS.

### **G.3.2.6.2 Design of the Proposed Storage Facility is Inadequate**

#### **Comment Summary:**

Several commenters stated that the proposed PFSF design is inadequate. (0036, 0047, 0090, 0198, GR-23, SL3-02, SL3-16) Commenters provided the following specific comments:

- Several commenters stated that the storage design is not adequate to withstand weather, earthquakes, terrorist attacks, or sabotage, and the technology is not well understood because there is limited history of its use. (0047, GR-23, SL2-08, SL3-02, SL3-16)
- One commenter asserted that the DEIS did not address the adequacy of the design to withstand earthquakes. The commenter stated that the applicant has not constructed such a facility before in an active, seismic region like Skull Valley. (0090)
- Another commenter stated that the long-term impacts of weather, earthquakes, and other factors at the proposed PFSF are not predictable since the SNF will be stored for hundreds of years. (SL3-16)
- One commenter argued that the concrete slab proposed to house the casks will not withstand a seismic event. This commenter proposed that a better design would be to have the supporting part of the assembly be a base-isolated structure that would be minimally affected by the rolling liquefaction characteristics of a seismic event. (0036)
- The same commenter stated that the structure will not withstand friendly fire or terrorist attacks and should use bomb-resistant materials. (0036)
- Another commenter asked how the proposed PFSF will prevent releases from entering the building's ventilation system during the transfer of waste between transportation and storage casks. (0215)

#### **Response:**

The NRC staff acknowledged these comments regarding the design of the proposed PFSF, but they involve safety issues that are not directly related to the environmental impacts of the proposed PFSF and are beyond the scope of the EIS. As discussed in Section G.3.2.5.1, the EIS considered the impacts that the proposed PFSF and associated HI-STORM 100 storage cask design would have on the environment. The NRC has evaluated the adequacy of the storage cask and proposed PFSF design to safely store SNF during normal operations and to withstand potential natural phenomena or manmade hazards. The NRC staff evaluation is documented in the SER, as updated. The EIS analyzed these risks to determine the impact to the environment (see FEIS Section 4.7.2.3) to the extent that the result of the NRC safety evaluation indicated that the storage cask design would affect the environment such as by releasing radioactive material or emitting direct radiation.

However, in response to some of the specific issues, the NRC notes the following:

- The proposed PFSF would be initially licensed by the NRC to operate as a temporary facility for up to 20 years. The license may be renewed by the Commission before the expiration of the license term, upon application by the applicant. This renewal process would include both a thorough safety and environmental review. The applicant has anticipated that it would renew the license for an additional 20 years. Therefore, the NRC staff analyzed many aspects of the

impacts of the proposed PFSF assuming an anticipated 40-year life. As discussed in Section 1.2 of the EIS (“The Proposed Action”), the Commission in its Waste Confidence Decision believes there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century to receive SNF. Specific responses to other similar comments regarding the life of the proposed PFSF are addressed in Section G.3.2.1 through G.3.2.3 of the FEIS.

- The NRC staff evaluated the applicant’s analyses of potential hazards to the proposed PFSF and the consequences of credible accidents. These credible accidents included earthquakes and weather phenomena (e.g., tornadoes) in the surrounding area. Military operations in the surrounding area were determined not to pose an unacceptable hazard to the proposed PFSF. The NRC staff determined that the proposed PFSF was adequately designed such that credible accidents would not result in a release of SNF contents. The NRC staff also evaluated the proposed physical protection plan and determined that it would provide for the common defense and security and adequate protection of the health and safety of the public when fully implemented. The NRC staff evaluations were described in detail in Chapter 15 of the SER, as updated. Specific responses to other similar comments regarding human health impacts from potential accidents are addressed in Section G.3.15.6 of the FEIS.
- Specific responses to comments on the radiological health impacts from normal operations and accidents at the proposed PFSF are addressed in Section G.3.15 of the FEIS.

#### **G.3.2.6.3 Design of the Proposed Storage Facility is Adequate**

##### **Comment Summary:**

Many commenters stated that the proposed PFSF design is adequate. (0014, 0016, 0020, 0090, 0198, 0236, GR-12, GR-17, GR-23, SL1-23, SL1-40, SL3-02, SL3-16) Several commenters stated that the design is adequate and any problems with the storage facility design will be dealt with appropriately. (0014, 0016, 0236, GR-12, GR-17, SL1-23, SL1-40) One commenter stated that the storage technology is well understood and has been demonstrated to be safe at 21 nuclear plants with similar facilities that have operated since the late 1980s. One commenter stated that the proposed PFSF is designed to be passive, environmentally benign, and safe. The commenter indicated that there are no cooling systems, no moving parts, and no fans. (SL1-23) Another commenter stated that SNF storage facilities use proven, independently reviewed container technology and that experience shows that such facilities provide the highest level of protection for public health and safety.

One commenter stated that the heat generated by the waste will be very small, and is not enough to cause evaporation or dispersion of any material. According to this commenter, the heat generated will be less than 0.01 percent of the fission power generated by electricity production and is less than one millionth of the power in the “excursion” that blew apart the Chernobyl reactor. The commenter also stated that the radioactive material in the fuel rods is solid. (0016) Another commenter stated that many of the design features include proven performance characteristics and the site is superior to the typically constrained reactor site where the SNF is currently stored. (0236)

##### **Response:**

The NRC staff acknowledges these comments regarding the adequacy of the proposed design, but they involve safety issues that are not directly related to the environmental impacts of the proposed PFSF and are beyond the scope of the EIS. The NRC staff agrees that the storage cask and proposed PFSF design would provide adequate protection of the public health and safety, as documented in the SER and analyzed in the EIS. The NRC staff did not determine the validity of these specific comments, beyond that evaluated in the SER, as updated. The NRC concludes that the EIS adequately describes the proposed cask design for use in the proposed action and that there is no requirement to further address specific design issues. Responses to similar comments on the

health impacts from normal operations and accidents at the proposed PFSF are addressed in Section G.3.15 of the EIS.

#### G.3.2.6.4 Facility Storage Capacity

##### Comment Summary:

One commenter expressed concern about the unprecedented capacity of the proposed PFSF. (SL1-02) A few commenters indicated that the planned capacity of 4,000 casks or 40,000 metric tons is ten times the amount currently stored in dry casks in the entire United States. (0012, 0198, SL1-01, SL1-02) One commenter stated that currently there are only 436 storage units or casks for commercial spent fuel in the entire U.S., which is one-tenth the number of storage casks proposed for the proposed PFSF. The commenter also stated that 12 of the 15 U.S. storage sites are within 0.75 mile of a nuclear power plant. (0198)

Several commenters expressed concern that the applicant would accept waste from non-member reactor licensees at the proposed PFSF and stated that this would increase the storage capacity at the proposed PFSF. The commenters expressed concern about provisions for non-members to assume liability for non-member waste stored at the proposed PFSF. The commenters requested that the DEIS address this issue. (0052, 0053, 0077, 0112, 0156) One commenter stated that the DEIS did not specify which non-member reactor licensees could store their spent fuel at the proposed PFSF, and the DEIS did not consider the impacts of construction and operation of Phases 2 and 3 of the proposed PFSF. (0156)

One commenter stated that the DEIS represents that “on average, the proposed PFSF would receive one to two trains each week carrying three or four loaded shipping casks per train” (page 2-19, lines 3-4). According to the commenter, this would account for 52 shipments per year of up to 312 casks (up to six loaded casks can be accommodated by each “single-purpose” train) and this would involve up to 12,480 casks during the next 40 years. However, this commenter asserted that recent legislation supported by the nuclear industry would enable an unprecedented increase in yearly shipments and the total number of casks that could conceivably be shipped in 40 years, as is indicated in the following table:

**Table G.3.2.1. Estimated cask shipments**

Year	Shipments/Yr.	Casks	Subtotal
2001-06	52	312	1,560
2007-08	1,200	77,200	14,400
2009	2,600	15,600	15,600
2010	4,200	25,200	25,200
2011	6,200	12,066	12,066
2012-14	6,600	39,600	118,800
2015-30	6,800	40,800	612,000
2031-41	7,900	46,900	790,000
			1,579,626 total casks

The commenter stated that notwithstanding the likelihood that the nuclear power industry could probably not produce such incredible amounts of SNF, the nuclear industry has nevertheless been successful in supporting legislation for such an increase. The commenter asked, given the predictable increase in SNF, what additional rationale could have caused the industry and Congress to allow for such an unprecedented increase in shipments of nuclear wastes and what other types of nuclear waste are enabled for shipment to Skull Valley? (0112)

**Response:**

The NRC's regulations for the licensing of SNF storage facilities at 10 CFR Part 72 do not set limits on the size of an ISFSI, but instead set standards that all such facilities must meet regardless of size. The applicant proposed the size of the facility in its license application and associated documents. If a license is granted by NRC, the capacity of the proposed PFSF would be limited by that license to 40,000 MTU or 4,000 casks.

The EIS presents the NRC's evaluation of the environmental impacts of the proposed PFSF based on a proposed maximum capacity of 4,000 casks, or 40,000 MTU (see Section 1.2). The environmental effects of the proposed PFSF do not depend on the relative sizes of other similar facilities. No regulatory requirements specify the location of a storage facility in relation to a reactor site. As shown in the FEIS, the NRC expects the environmental impacts of the proposed PFSF to be small. The NRC also evaluated the safety of the proposed PFSF. The NRC staff's position is that the proposed PFSF would meet all applicable regulatory requirements. The NRC staff evaluation is documented in the SER, as updated.

The proposed PFSF would be able to accept SNF from reactor licensees that are not PFS members. As part of its analysis, the NRC staff analyzed shipment of a maximum 40,000 MTU of SNF to the proposed PFSF, regardless of ownership. (The PFS member reactor licensees do not own this much SNF.) All SNF shipped to the proposed PFSF would remain under the ownership of the originating reactor licensee, until such time as the Department of Energy takes title to this SNF to relocate the waste to a permanent repository. The liability associated with such SNF would also remain with the originating reactor licensee.

Chapter 4 of this EIS addresses the effects of Phases 2 and 3 of construction, as well as operation of the proposed PFSF. The types of impacts addressed include water use, socioeconomic impacts, and worker health and safety.

The comment about the nuclear industry projection on the number of SNF shipments is speculative and is not what has been proposed by the applicant and, therefore, is beyond the scope of the EIS. Further, the types of SNF that are expected to be shipped to the proposed PFSF are discussed in the SAR.

**G.3.2.6.5 Storage of Greater-than-Class C Waste****Comment Summary:**

Three commenters expressed concern about other types of nuclear-related waste that would be stored at the proposed PFSF. (0112, 0198, GR-04) Other commenters expressed concern regarding the possibility that greater-than-Class C radioactive waste could be stored at the proposed PFSF. Two commenters stated that the DEIS should evaluate the impact of the facility becoming a permanent storage facility for greater-than-Class C waste. (0198, GR-04)

**Response:**

As discussed in Section G.3.2.1, the proposed PFSF would be a temporary facility, and not permanent. The proposed PFSF would be authorized to store only SNF, and not greater-than-Class C waste. The HI-STORM 100 is not approved to store greater-than-Class C waste, and the applicant could not do so at the proposed PFSF without requesting an amendment (see below), if licensed. The NRC would evaluate such a license amendment request, which would include a safety evaluation review and environmental review.

The NRC staff notes that changes to the regulations that would allow ISFSIs to store greater-than-Class C waste have been proposed. However, the applicant has applied for a license to store only SNF, but not separated greater-than-Class C waste (PFS/RA11 1999).

#### **G.3.2.6.6 Need for Additional Research**

##### **Comment Summary:**

One commenter stated that funding should be provided for research and demonstration of: an integrated transport, storage, monitoring, and retrieval system for casks containing SNF; a dry-pool canister transport, storage, monitoring, and retrieval system; a crane load drop cushion, critical material fall protection, and varying height under load support for a monitoring, storage, and retrieval system; and a proven storage pad design for easy decommissioning. (0020)

##### **Response:**

The NRC staff considered the ability of the PFSF design to satisfy NRC safety regulations using existing techniques for safety assessments. The NRC determined the design of the proposed PFSF was acceptable as discussed in the SER, as updated. Additional research on the topic identified by the commenter is not directly related to the environmental impacts of the proposed PFSF and is beyond the scope of the EIS.

#### **G.3.2.6.7 Inadequate Quality Assurance Program Description**

##### **Comment Summary:**

One commenter stated that the applicant's quality assurance program as described is inadequate for the following reasons.

- The commenter asserted that the applicant's program is a general summary and is a conceptual description which lacks sufficient detail to show how the program will meet regulatory requirements including those in 10 CFR Part 72, Sections 72.24(n), 72.140(c), 72.146, 72.144, 72.154, 72.156, 72.159, and 72.166. (0198a)
- According to the commenter the PFS quality assurance program description in the SAR is inconsistent with the description of that program in QA Docket 71-0829. (0198a)
- The commenter also argued that the SAR fails to describe the interrelationships between the Architect/Engineer group and the Quality Assurance Committee and how the relationship enhances quality assurance. In addition, the commenter states that the SAR fails to identify who is responsible for pre-licensing "day to day activities, costs, or schedules," and how the organizational structure ensures quality assurance in quality- and safety-related activities. (0198a)
- Finally, this commenter stated that the SAR briefly describes broad quality assurance responsibilities for the Board of Managers and Lead Quality Assurance Technician, though it fails to provide any meaningful description of the licensing and construction, operational functional responsibilities interrelationships, and various authority for performing quality- and safety-related activities. (0198a)

##### **Response:**

The NRC staff evaluated the applicant's Quality Assurance Program and found it acceptable if fully implemented, as documented in Chapter 12 of the SER. As stated in Section 11.1.2 of the SAR, "QA Program," the applicant's Quality Assurance Program is composed of the QAPD and Quality

Assurance Procedures. The QAPD presents the applicant's commitments to establish and execute a Quality Assurance Program that meets the requirements of 10 CFR Part 72, Subpart G, and defines the framework for conducting those activities affecting quality and safety. The NRC does not expect the QAPD to include the detailed procedures that implement the QAPD. As discussed in Section 12.1 of NUREG 1567, "Standard Review Plan for Spent Fuel Storage Facilities," the Quality Assurance Program for the development, licensing, construction, and operation of an ISFSI provides a high level (i.e., general) description of the control of activities affecting quality. The scope of the NRC staff review of an applicant's Quality Assurance Program during the licensing process does not include a review of the detailed procedures that will be used to implement the program.

The applicant must develop and implement the Quality Assurance procedures that address the QAPD commitments before any quality- and safety-related activities are performed. The NRC staff will verify the effectiveness of the applicant's Quality Assurance Program implementation through inspection activities following the issuance of a license. The NRC staff will use these inspections to determine whether the procedures support the implementation of an effective Quality Assurance Program and whether the procedures have been implemented adequately. Pursuant to 10 CFR 72.172, licensees are required to take timely corrective action to resolve any conditions adverse to quality that the NRC staff identifies during its inspections. The NRC uses this approach because it evaluates the effectiveness of a Quality Assurance Program according to licensee performance.

Based on its review, the NRC staff determined that the applicant's QAPD is acceptable. The QAPD adequately addresses all of the elements required in 10 CFR Part 72, Subpart G, and the guidance presented in NUREG 1567. Because the comments involve safety issues that are not directly related to the environmental impacts of the proposed PFSF, they are beyond the scope of the EIS.

#### **G.3.2.6.8 Need for Hot Cell at the Proposed PFSF**

##### **Comment Summary:**

A few commenters stated that the proposed PFSF should have a hot cell. (0198, 0198a, 0198h, 0211, GR-05, SL3-04) The comments included the following:

- One commenter stated that in order for the proposed PFSF to transfer fuel to casks that are compatible with DOE requirements, a hot cell is needed. This commenter asserted that the proposed PFSF design makes no provision for a hot cell. Instead, the commenter claimed that the applicant apparently expects that these operations will take place at the originating reactor or at the [proposed] Yucca Mountain repository. (0198a)
- Many commenters expressed concern that canisters would leak and there would not be a hot cell available to test the canisters. Their concern is related to the statement in the DEIS that a damaged or contaminated canister would be returned to the sender (and would be transported across the country) without first addressing the problem or storing the damaged canister on site. The commenters concerns are that this would create significant risks during transport if radioactive material were to leak out of the casks. (0198, 0198h, 0211, GR-05, SL3-04)
- One commenter stated that the applicant does not meet the requirements of 10 CFR 72.122(f) and 72.128(a) because it would not provide a hot cell at another facility for opening casks to inspect fuel conditions. The commenter further stated that not having a hot cell is inconsistent with NUREG 1092, "Environmental Assessment of 10 CFR Part 72, Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste (1984)," in that the applicant would not be able to verify the material integrity of the spent fuel during its storage lifetime without a hot cell. The commenter stated that a hot cell would also reduce risk to public health and safety. The commenter also mentioned that although the applicant stated that fuel shipped to the proposed PFSF would be in good condition, this may not always be the case. The

commenter claimed that materials problems associated with misloading fuel have occurred recently. (0198a)

- The same commenter stated that it is possible to damage the canister so that it no longer fits within a storage or transport cask. In this case, the commenter argued that the proposed PFSF would have no means for inspecting or repairing a damaged canister or of transferring its contents to another canister. (0198a)
- The commenter also asserted that if cladding degraded, a hot cell would be needed to verify the condition of the canister. Without a hot cell, the commenter argued that it is impossible to take smear samples of the whole canister because it would be too radioactive for workers to approach. Moreover, even assuming the canister is “clean” during the initial packaging at the reactor, according to the commenter, it is likely that vibrations on the rail or highway could shake loose radioactive contamination from metal pores. Finally, the commenter stated that the levels of smearable contamination on the outside of a canister could rise after transit from a process called “weeping.” (0198a)
- One commenter said that the PFSF, contrary to the requirements of 10 CFR 72.130, was not designed to facilitate decommissioning because the facility does not have the capability to repackage canisters by transferring individual fuel assemblies. (0198a)
- Three commenters stated that the EIS should examine the alternative of providing a hot cell or pool where damaged SNF can be retrieved, to avoid the risk from shipping the SNF back to the original power plant. (0198h, 0211, SL3-04)

#### **Response:**

The NRC staff acknowledges the comments regarding the need for a hot cell, but as noted by one commenter, the proposed PFSF design does not require a hot cell. The issue raised by the commenters is related to the technical adequacy of the PFSF design and is not directly related to the environmental review and, therefore, is beyond the scope of this EIS. The NRC staff reviewed and approved the proposed PFSF design. The NRC staff evaluation is documented in the SER, as updated. The commenters should note that operations at the proposed PFSF will not include handling of un-canistered SNF, and the applicant will not be authorized to perform such operations during the licensed life of the proposed PFSF. The SNF will be sealed (the canister is welded-closed) at the originating nuclear power plant prior to shipment to the proposed PFSF. The proposed PFSF would handle the canisters that contain the SNF with the use of the transfer cask. The NRC staff reviewed the design of the HI-STORM 100 cask and determined that a “leaking” cask is not a credible event during normal, off-normal, and accident conditions. See Section G.3.15.6.3 of the EIS for similar comments regarding “leaking” casks. Because such an event is not reasonably foreseeable, modification of the analysis is not warranted.

#### **G.3.2.7 Location of the Proposed PFSF**

##### **Comment Summary:**

Three commenters expressed concern about locating the proposed PFSF near populated areas, important resources and activities, families in a developing community, precious and sensitive ecosystems, and Department of Defense facilities. (GR-23, SL2-08, SL3-40) One commenter was specifically concerned about populations downwind of the selected location. (0002)

One commenter stated that the authors of the DEIS must comply with NUREG-1555, Volume 2, page 1.1-2, which states that the proposed action must describe the site location with respect to nearby towns and natural features. The commenter recommended that Figure 1.2, “The Proposed Project



Area in Skull Valley, Utah,” be revised to show the nearest residents (e.g., residents in Low, the Skull Valley Band’s village), and to reflect the local population. (0039, 0077)

One commenter expressed support for the location of the proposed PFSF on the Reservation of the Skull Valley Band as one of many scientifically acceptable locations. (0016, SL1-19) Another commenter stated that the proposed location provides both an ideal climate for safe storage and close proximity to a reprocessing center in Idaho. (SL3-50)

**Response:**

The NRC staff reviewed the number and location of people in the vicinity of the proposed PFSF. Reservation and non-Reservation residents number about 150 people for all of Skull Valley. Nearby communities in the Tooele and Rush Valleys (as well as nearby Department of Defense installations) are separated from the proposed site by mountains reaching elevations of over 1,950 meters (6,400 feet) above the proposed site. Thus, the site appears to be relatively isolated.

The nearest environmentally sensitive area of concern to the proposed PFSF would be Horseshoe Springs, which is approximately 23 kilometers (14 miles) from the site. As described in detail in Chapters 4, and 5 of this FEIS, there would be no impacts to this area.

The proposed PFSF would emit no airborne pollutants during normal operations, therefore, the concern about populations downwind from the proposed PFSF appears to be related to an accidental release of radioactive materials. The NRC staff has considered such accident scenarios in its safety review and determined there would not be a release of SNF after a credible accident. The NRC staff evaluation is documented in Chapter 15 of the SER, as updated. See the responses to G.3.15.6 of the EIS for similar comments regarding the impacts of accidents at the proposed PFSF. Because the events postulated by the commenter are not reasonably foreseeable, modification of the analysis is not warranted.

### **G.3.2.8 Railroad Lines**

#### **G.3.2.8.1 Design of the Proposed New Rail Line**

**Comment Summary:**

One commenter stated that the applicant is working closely with the American Association of Railroads and will petition the Technology Center of Pueblo, Colorado to incorporate technology improvements in shipping spent nuclear fuel. (SL2-10)

One commenter indicated an inconsistency between the ER (Section 5.2.1.1, page 5-6, line 8) and the DEIS (page 2-14, line 35) regarding the number of culverts (10 per the ER and 32 per the DEIS) that would be installed for the proposed rail line. This commenter stated that a sufficient number of culverts need to be built to maintain drainage and allow the proposed rail line to pass through the 100-year floodplain. (0163)

Another commenter stated that the DEIS (Section 3.2.1.5) lacks design and performance specifications regarding the rail alternative/rail spur, specifically: whether the rail meets Class 2 track rating established by AAR Circular OT-55 for hazardous materials; the switching needs at interline connections and facilities; signaling capabilities; and travel grades. The commenter also asserted that, in contrast to the DEIS (Section 2.1.1.3 page 2-14), active warning devices will be needed, because the rail line will cross many unpaved public roads between Low and the Reservation, creating hazards. The commenter added that the Utah Department of Transportation (UDOT) would determine whether warning devices are necessary, and the builders of the track must provide UDOT with all the necessary information regarding road crossings. (0198, 0198i)

In addition, two commenters addressed the design of the proposed new rail line. (0163, 0198, 0198i)

**Response:**

The EIS contains current information regarding facility design and indicates a variety of local, state, and Federal permits and agency coordination that would take place as part of the construction and operation of the proposed PFSF. The Army Corps of Engineers (ACE) requires the applicants to obtain applicable permits for culvert construction. As part of their enforcement of the Clean Water Act (CWA), the ACE requires that all culverts be designed to accommodate the 100-year floodplain. In response to the comment on warning devices, the Cooperating Agencies reviewed the proposed use of passive warning devices and determined that they were adequate for public safety, due to the low level of both rail and vehicle traffic.

The applicant must receive approvals from both the BLM and the STB to construct the proposed rail line. The applicant has submitted information to BLM for the approval of a right-of-way including detailed design and “plan of development.” The description of the proposed rail line in Section 2.1.1.3, “New Rail Line,” of this EIS reflects the detailed designs, which include discussion of applicable Federal Rail Administration standards, and is sufficient to determine environmental impacts for this EIS. Furthermore, the applicant has committed to construct and operate the proposed rail line in accordance with AAR standards, “Performance Standards for Spent Nuclear Fuel Trains.” Both the DEIS and the FEIS reflect the total number of culverts that would be required.

**G.3.2.8.2 Design of the Proposed ITF**

**Comment Summary:**

One commenter asserted that the DEIS is missing crucial design and construction information for the proposed ITF that is relevant to the spent fuel transfer and transportation and required by 49 CFR 1105.7(e)(11)(i), (ii), and (iii). Specifically, the commenter requested information regarding the size, location, and capacity of the crane, building dimensions, locations and operation of any siding switches, fence/barrier locations, and the size and location of any storage docks. Furthermore, the commenter stated that because the proposed ITF is part of the transportation section of the proposed PFSF operations, it should be evaluated by the DOT. (0198g)

**Response:**

The NRC staff reviewed the level of design detail included in the DEIS for the proposed ITF and determined that the description is sufficient for evaluation of any environmental impacts from the transportation and transfer operation. Section 5.7.2 of the EIS provides the radiological impacts of SNF transport to the proposed PFSF, including the use of the proposed ITF.

As described in the DEIS, the DOT and the NRC regulate the transport of SNF in the United States. If the use of the proposed ITF is approved, the facility would be constructed and operated in accordance with relevant Federal regulations, including DOT regulations. The STB is reviewing the construction and operation of the proposed rail line, consistent with its regulatory responsibilities; however, the STB does not have jurisdiction over construction and operation of intermodal transfer facilities. Similarly, the NRC does not approve ITF designs.

**G.3.2.8.3 Feasibility of Rail Spur Construction**

**Comment Summary:**

One commenter stated that the applicant has not shown that it will be feasible to construct a rail spur from the Union Pacific mainline to the proposed ISFSI. (0198a)

**Response:**

The applicant submitted a right-of-way (ROW) application to the BLM and a request to construct and operate the rail line to STB. These applications included a detailed engineering design, including information regarding construction activities, alignment, area of disturbance, culvert locations, at-grade crossings, and other related information. The BLM and the STB have reviewed the applications, conducted site visits along the rail corridor, and reviewed relevant information to evaluate the potential impacts of the construction and operation of the proposed rail line. This analysis was presented in the EIS, and the BLM and the STB concluded that with appropriate mitigation, construction and operation of the rail line are feasible.

**G.3.2.8.4 Location of the Proposed Skunk Ridge Rail Corridor****Comment Summary:**

One commenter stated that the DEIS discussion of the proposed rail spur ignores the BLM Resource Management Plan (RMP), which states, "Public lands will not be made available for inappropriate uses, such as storage or use of hazardous materials." (SL3-33)

**Response:**

The BLM reviewed the RMP regarding the issue of hazardous materials. The sentence quoted in the comment was taken out of context from a decision regarding National Guard permits on public lands. The RMP decision on Hazardous Waste Management states, "BLM will not authorize placement or processing of hazardous wastes on public lands." The proposed PFSF is not located on public lands. The BLM is considering a ROW application for the proposed rail line that would cross public land. The RMP decision does not preclude the transportation of hazardous wastes across public lands. Therefore, the proposed right-of-way would not conflict with the RMP.

**G.3.2.8.5 Rowley Junction ITF****Comment Summary:**

One commenter expressed concern that rail shipments of up to 200 casks of nuclear waste would be arriving at Rowley Junction ITF annually, and the applicant has not provided proof of its legal entitlement to build a transfer facility at Rowley Junction or whether the facility can handle the expected number of casks. In addition, the commenter stated that the applicant has not identified the number of casks expected on each shipment or explained the effects of rail congestion at Rowley Junction. Furthermore, according to this commenter, the applicant has not shown that Union Pacific Railroad is capable or willing to handle the shipments coming into Rowley Junction. Finally, the commenter stated the applicant has not demonstrated that it has the right to use a terminal at Rowley Junction. (0198a)

**Response:**

The NRC staff acknowledges the comment. The issue of whether the applicant is legally entitled to build an ITF at Rowley Junction (Timpie) is not directly related to the environmental review and, therefore, beyond the scope of the EIS. However, the NRC and the Cooperating Agencies have not identified a legal reason that would prohibit the applicant from building an ITF, assuming the applicant obtains all applicable permits and approvals. The other issues in this comment are addressed in Section G.3.16 of this FEIS.

### **G.3.3 Permits and Regulations**

#### **G.3.3.1 Federal Regulations and Executive Orders**

##### **Comment Summary:**

One commenter asserted that the ER does not list all Federal permits, licenses, approvals, and other entitlements that must be obtained in connection with the license application, nor does it describe the status of compliance with these requirements. The commenter asserted that under NEPA, the NRC must fully assess any other permit, license, approval, or other entitlement the applicant is required to obtain in connection with this license application, and address applicable environmental quality standards and requirements. Because the applicant has not addressed all of these requirements, the commenter added, the NRC cannot assess the requirements adequately, nor can the petitioners and general public assess the scope and effect of granting the license sought by the applicant. (0198a, 0198h)

##### **Response:**

The NRC staff reviewed the DEIS and concluded that the analysis complies with 10 CFR 51.45(d) "Status of Compliance." In Section 1.6.2, "Required Permits and Approvals," this FEIS lists the known Federal permits, licenses, approvals and other entitlements which the applicant must obtain in connection with the proposed action.

#### **G.3.3.1.1 Nuclear Waste Policy Act Requirements**

##### **Comment Summary:**

One commenter stated that the NWPA provides that persons owning or operating civilian nuclear power reactors have the primary responsibility for providing interim storage of their SNF. The commenter stated that this responsibility must not be shifted. (SL1)

One commenter stated that the approval of the proposed PFSF is illegal and contradictory to DOE policy pertaining to temporary storage of SNF. (0090)

##### **Response:**

The NRC's regulations in 10 CFR Part 72 do not prohibit away-from-reactor storage of SNF. No responsibility for storage of the SNF has been shifted by the proposal. The individual reactor licensees will maintain ownership and responsibility for the safe storage of the SNF while it is located at the proposed PFSF. The storage of SNF in an away from reactor ISFSI by private reactor licensees is legal pursuant to 10 CFR Part 72 and does not contradict the NWPA or any Federal policies.

#### **G.3.3.1.2 International Atomic Energy Agency Regulations**

##### **Comment Summary:**

One commenter asserted that the proposed PFSF is an installation subject to international safeguards as described in the IAEA Safeguards Agreement, and that under the Agreement the NRC must designate the proposed PFSF as subject to IAEA safeguards and require the applicant to establish, maintain, and follow written material accounting and control procedures. (The commenter referenced 10 CFR 75.21, and 75.41). The commenter added that 10 CFR Part 75 must be addressed as part of the 10 CFR Part 72 license application, and the applicant must supplement its submittal with relevant 10 CFR Part 75 information. (0198a)

**Response:**

This comment discusses an issue outside of the scope of the EIS because safeguards issues are addressed in the NRC staff's safety evaluation. However, the NRC staff notes that U.S. safeguards requirements have been found to meet or exceed IAEA requirements. The NRC's regulations in 10 CFR Part 75 include a procedure through which the IAEA may select designated facilities in the United States for inspection for compliance with IAEA safeguards requirements. Therefore, an ISFSI could be subject to IAEA inspection. If that were to occur, the licensee would need to provide to the IAEA material accounting and control information prior to the inspection. The NRC has found that the proposed PFSF application has met all applicable requirements of 10 CFR Part 72 as documented in the SER. Unless the IAEA selects the proposed PFSF for the application of IAEA safeguards, there is no basis for having the applicant address 10 CFR Part 75 requirements.

**G.3.3.1.3 Regulations Regarding Transfer of Waste to Sovereign Nations****Comment Summary:**

One commenter stated that there are international policies that prohibit the United States or its representatives from dumping hazardous or toxic waste in sovereign nations that do not meet, at a minimum, U.S. environmental standards. The commenter stated that the SNF is the property of the United States or its representatives, and the Skull Valley Band is a sovereign nation that does not currently have the available resources to meet U.S. environmental protection standards. The commenter also questioned the legality of shipping hazardous or radioactive waste to sovereign nations that do not have the ability to protect their environmental and human health to U.S. standards. (0096)

**Response:**

It is assumed that the commenter is referring to the Basel Convention, an international treaty on hazardous wastes that controls the trans-boundary movement of such wastes. As one of the ratifiers of the Convention, the United States is banned from exporting hazardous wastes to other parties of the Convention. Since the Reservation is a sovereign nation within the borders of the United States, the Basel Convention does not apply. However, the Reservation is subject to Federal environmental regulations, including the requirements of RCRA, which regulates hazardous waste, the CAA (42 USC 7401, *et seq.* [see, e.g., 40 CFR Parts 49 and 50]), the CWA (33 USC 1251, *et seq.*), and the SDWA (42 USC 300f, *et seq.* [see, e.g., 40 CFR Parts 121, 122, 141, 145, and 147]). The applicant will be responsible for meeting these standards for the proposed PFSF. Accordingly, storage of SNF on the Reservation will meet U.S. environmental protection standards. Therefore, the comment does not warrant changing the analysis or conclusions in the EIS.

**G.3.3.1.4 Transport Regulations are Adequate****Comment Summary:**

One commenter cited specific NRC and DOT regulations that govern the shipment of SNF and other radioactive material. The commenter stated that these regulations are sufficient to ensure that the chance of radioactive release in transport is minimal. (0014)

**Response:**

The NRC staff acknowledges the comment on the adequacy of the transportation regulations. No response is required.

### G.3.3.1.5 NRC Safety Regulations

#### Comment Summary:

One commenter stated that training and certification of the proposed PFSF personnel fail to satisfy Subpart I of 10 CFR Part 72, and therefore will not ensure that the proposed PFSF is operated in a safe manner. The commenter added that under 10 CFR 72.192, the applicant must establish a program for training, proficiency testing, and certification of personnel. The program must then be submitted to the NRC for approval with the license application. Finally, under 10 CFR 72.194, the physical condition of the operators must be monitored to ensure that their physical condition will not cause operational errors. The commenter stated that the SAR did not satisfy the minimum NRC requirements for a pre-operational testing program (Section 9.2), testing program (Section 9.3), and responsibilities and qualifications (Section 9.1); does not satisfy the minimal NRC requirements; and does not provide assurance that the proposed PFSF will be operated in a same manner. The commenter also stated that the applicant has not submitted a training and certification program with the license application, nor has the applicant submitted a listing of physical conditions that would bar a person from employment in specific positions. (0198a)

The commenter stated that the applicant has not complied with the NRC's emergency planning regulations in 10 CFR 70.22, nor has it followed Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities," or NUREG-1567, "Standard Review Plan for Spent Fuel Dry Storage Facilities." (0198a)

#### Response:

The comments regarding the NRC safety requirements and the material provided in the SAR are directly related to the NRC safety evaluation which was prepared as part of the licensing process. The details of this safety evaluation are published in the SER. The publicly available SER includes the NRC's review of technical issues such as the adequacy of the facility design to withstand external events; radiological safety of facility operation, including doses from normal operations and accidents; emergency response plans; physical security of the facility; fire protection; maintenance and operating procedures; and decommissioning. These comments do not require changes to the text of the EIS since the issues raised are addressed in the SER.

### G.3.3.1.6 Hazardous Waste Regulations

#### Comment Summary:

One commenter noted that the applicant projected that it would not generate sufficient quantities of RCRA regulated hazardous waste to require classification as a Small Quantity Generator. However, to manage and track off-site disposal of its *de minimus* quantities of generated RCRA wastes, the applicant represents that it may still file for a RCRA identification number. The state is the delegated authority to administer the complete RCRA program and administration of the rules would depend on state and EPA determination of jurisdiction. Lead, dye, penetrant materials, fluorine, ultrasonic inspection solutions, and hydraulic and miscellaneous lubricants are substances of concern. (0198)

#### Response:

The NRC staff acknowledges the information offered in the comment. The applicant has stated that it will not generate sufficient quantities of the identified wastes to require registration as a Small Quantity Generator under the RCRA program. As discussed in Section 1.6.2 of the FEIS, "Required Permits and Approvals," if the applicant elects to file for a RCRA identification number, the EPA is the governing agency for the Reservation. The State does not have authority for enforcing RCRA on the Reservation of a Federally-recognized Indian Tribe. Filing for a RCRA identification number is a simple procedural activity and this requirement does not warrant any changes to the FEIS.

### G.3.3.1.7 Community Right-to-Know and Emergency Planning Regulations

#### Comment Summary:

One commenter stated that the aboveground storage tanks referred to in the DEIS on page 4-12, lines 41-43, will also have to comply with the provisions of EPCRA (42 USC Sections 11001 to 11050). (0096)

#### Response:

EPCRA stipulates that if a facility has an extremely hazardous substance in an amount greater than the appropriate threshold planning quantity, then the facility must designate a facility Emergency Coordinator to participate in the local planning process. The proposed PFSF would not have any extremely hazardous substances present in amounts equal to or greater than the threshold planning quantities specified in 40 CFR Part 355 Appendix A, "The List of Extremely Hazardous Substances and Their Threshold Planning Quantities."

The applicant's emergency plan lists quantities, location, use, and storage of all hazardous materials used at the proposed PFSF and describes procedures that would be implemented in the event of a spill or release. The NRC staff evaluation of the emergency plan is documented in the SER. PFS has committed to developing a Best Management Plan to deal with spills on site or along the rail line. See Section 9.4.2 of this FEIS.

### G.3.3.1.8 Fuel Tanks and Spill Prevention Regulations

#### Comment Summary:

One commenter stated that if tanks for storage of petroleum products are underground (see p. 4-12 of the DEIS, which refers to on-site vehicle fuel tanks), they are subject to Utah State law (UCA 19-6-401 *et seq.* and implementing regulations, Utah Administrative Code 311-200 *et seq.*), or Federal law if the state does not have jurisdiction. (0198)

The commenter also stated that the applicant is subject to the diesel fuel spill prevention requirements of 40 CFR 112.3(b). (0198)

#### Response:

No underground storage tanks are being proposed for this project. Section 2.1.1.2 of this FEIS states that the fuel storage tanks will be above-ground. PFS has committed to developing a Best Management Practices Plan that would include a spill response procedure for appropriately responding to a spill of oil or fuel at the proposed PFSF or related transportation facilities. This procedure would address spills on site, at the rail siding, or along the rail line. To ensure that construction and operational activities will not lead to contamination of groundwater, the Cooperating Agencies have proposed that PFS be required to implement this BMP, and be required to be responsible for clean-up of spills or accidents on the facility, at the rail siding, and along the right-of-way for the rail line site in conformance with applicable standards. See Section 9.4.2 of this FEIS.

### G.3.3.1.9 Air Quality Regulations

#### Comment Summary:

One commenter stated that the proposed PFSF would be subject to regulation under Section 111 of the CAA. The commenter stated that the applicant failed to adequately analyze whether the proposed PFSF will be in compliance with health-based NAAQS. The commenter added that the proposed PFSF may require a PSD permit and construction will entail an on-site asphalt batch plant used for the

construction of storage pads, cask shielding, and concrete building(s). The asphalt batch plant would be subject to Section 111 of the CAA, and to 40 CFR 60, Subpart I, "New Source Performance Standards for Hot Mix Asphalt Facilities." The proposed PFSF would be considered a major stationary source of air pollution required to obtain a PSD permit. Lastly, the commenter stated that if the proposed PFSF is required to obtain a PSD permit, it would also be required to obtain a Title V permit. (0198, 0198a)

**Response:**

The proposed PFSF would not be a "major stationary source" of air emission as defined in 40 CFR 52.21(b) or a significant air emission source under 40 CFR 51.166(b)(23)(i). Whether a permit is required for such small sources of air emissions would be decided by the appropriate regulatory agency. The EPA, not the State of Utah, is the responsible agency for air emissions on the Reservation of the Skull Valley Band. The NRC staff acknowledges the regulatory information on Title V of the CAA offered in the comment.

Descriptions of planned emissions sources are included in Chapter 9, "Environmental Approvals and Consultation," of the applicant's ER. As described in the FEIS Section 4.3, "Air Quality," facility operations would not result in air emissions of sufficient magnitude to qualify as major stationary source or warrant analysis for PSD or New Source Performance Standards permits under the CAA.

Sections 4.3.2 and 5.3 of the FEIS discuss the proposed PFSF compliance with NAAQS.

**G.3.3.1.10 Water Quality Regulations**

**Comment Summary:**

One commenter stated, regarding Section 404 Permits, Stream Alteration Permits, and State Certification under the CWA:

- A Section 404 permit is required from the ACE for discharge of dredged or fill materials into waters of the United States, 33 USC 1344. State certification of 404 permits is required under Section 401 of the CWA, 33 USC 1341. The State must certify that the permit will not cause an exceedance of State water quality standards or otherwise be in violation of a State requirement. State certification is not discussed in the DEIS. (0198)
- There has been no official delineation of wetlands by the ACE in the area of the rail corridor, proposed PFSF or proposed ITF. To adequately assess wetland impacts, such delineation must formally occur. (0198)
- As currently proposed, the PFSF will disturb wetlands in the transportation corridor, and the EIS must address how the applicant will comply with Section 404 dredge and fill permit requirements. (0198h)
- The applicant's analysis of other required water permits lacks specificity and does not satisfy the requirements of 10 CFR 51.45. In Sections 9.1-3 and 9.2 of the ER, the applicant merely states that it "might" need a CWA Section 404 dredge and fill permit for wetlands along the Skull Valley transportation corridor, and that it will be required to consult with the State concerning the effects of the proposed ITF on the neighboring Timpie Springs Wildlife Management Area. The fact that an American Indian Tribe may be treated as a State under the CWA is irrelevant to the permits because the Skull Valley Band has not applied for delegation of any CWA programs. (The commenter referenced information in the ER.) The commenter stated that the applicant must specifically describe the wetlands affected by its operation, the point source discharges, and the activities that may require control under a stormwater permit. (0198a)



- The commenter noted that the DEIS indicates that the rail route will cross 32 streams with ephemeral flows (page xxxiv of the Executive Summary of the DEIS). Any stream relocation, alteration, or change of the beds and/or banks of any natural stream must receive written approval of the State Engineer in accordance with UCA 73-3-29. The DEIS incorrectly identifies the Utah Department of Environmental Quality (UDEQ) as the State agency having jurisdiction over stream alteration permits (page 1-23 of DEIS). (0198)

**Response:**

For construction activities on the Reservation, the ACE and the EPA are the responsible agencies for Section 404 and stormwater permits, respectively. As described in Section 1.6.2.1 of the FEIS, the applicant would obtain the necessary permits from these agencies prior to construction.

The commenter is correct that the Skull Valley Band has not sought delegation of these jurisdictions to it. Therefore, the ACE and the EPA remain the responsible agencies for CWA programs. As described in Section 4.4.1.3 of the FEIS, the proposed PFSF would not affect any wetlands and would not have any point source discharges.

For the construction of the proposed rail line, the applicant completed a survey in October 2000 to determine if the rail line would cross jurisdictional streams or wetlands, which would require a Section 404 permit from the ACE. The initial conclusions of the survey confirmed that the proposed rail line would not cross perennial or seasonal streams, playa wetlands, or other isolated wetlands. However, two channels along the proposed rail corridor that could be considered as ephemeral are still under evaluation. If either the ACE or the State of Utah determines that these channels are ephemeral, they may be considered jurisdictional, which would therefore require a permit from the agency claiming jurisdiction. Sections 1.6.2.1 and 1.6.2.3 of this FEIS have been revised to correct appropriate information including the roles of the State agencies. Section 1.6.2.3 of this FEIS also describes that the applicant would file a NOI under the State of Utah's General Stormwater Permit to manage stormwater impacts during construction.

**G.3.3.1.11 National Defense Authorization Act Requirements****Comment Summary:**

One commenter referred to Section 2815, Section 202, and Part A of the 1999 National Defense Authorization Act (NDAA), which directed that a study be conducted to evaluate how any proposed changes in land management for certain lands in Utah might affect the UTTR. The same commenter referred to an assessment that the BLM must conduct regarding any such change, and said that the law specifically provides that the project cannot move forward until the study is complete. The commenter recommended that the BLM and the BIA look at this statute in detail. (GR-01)

**Response:**

The BLM reviewed the issue of Section 2815 of the NDAA for FY 2000 (Pub. L. 106-65, October 5, 1999) and concluded that the BLM is not precluded from environmental studies on proposed projects. Paragraph (c) of Section 2815 states: "The Secretary of Defense shall conduct the study in cooperation with the Secretary of the Air Force and the Secretary of the Army." The DOI was not directed by the NDAA to be a partner in the study. The prohibition in paragraph (d) of Section 2815 states that "the Secretary of the Interior may not proceed with the amendment of any individual resource management plan for Utah national defense lands, or any statewide environmental impact." While the statute does not refer specifically to this proposal, the BLM does not intend to finalize the amendment to the RMP until the study has been completed.

The NEPA implementing regulation, 40 CFR 1502.4(a), states: "proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in

a single impact statement.” Section 2815 of Pub. L. 106-65, October 5, 1999, does not preclude the BLM from meeting the requirements of NEPA. The BLM is not precluded by any provision of the NDAA from evaluating environmental impacts on proposals presented to it.

The commenter also suggested that the NDAA statutory provision referenced in the comment applies to the BIA’s decision to approve or disapprove the proposed lease. Although the legislation refers broadly to the Secretary of the Interior, as noted above, it specifically prohibits amendments to RMPs. The BIA does not prepare RMPs or amendments to such plans, and the proposed lease is not an RMP. The BIA is not precluded from approving lease agreements by any provision of the NDAA.

#### **G.3.3.1.12 BLM Resource Management Plan Requirements**

##### **Comment Summary:**

One commenter indicated that existing restrictions in the BLM RMP regarding hazardous waste transport are not addressed in the DEIS. (0012, SL1-01)

##### **Response:**

The BLM reviewed the issue of transport of hazardous wastes across public lands and concluded that the commenter has misinterpreted the land use plan decision. The RMP Decision on Hazardous Waste Management states, “BLM will not authorize placement or processing of hazardous waste on public lands.” This does not preclude the transportation of hazardous waste across public lands. The proposed ROW, therefore, is not in conflict with the RMP. The BLM is not precluded by any existing restrictions from evaluating environmental impacts of proposals presented to it.

#### **G.3.3.1.13 BIA Regulations**

##### **Comment Summary:**

One commenter referred to a legal investigation that will examine the BIA’s compliance with Federal law and the BIA and DOI regulations. (GR-01)

Another commenter stated that it is not appropriate for the BIA to use the Waste Confidence Decision to avoid doing an analysis of the permanence of this proposed PFSF. The commenter said that those analyses need to be made in light of the BIA’s statutory and regulatory mandates and obligations to evaluate the effects on the environment from the use of leased lands, citing 25 USC 415(a). This reflects a trustee’s obligation to ensure that the trustor’s land will not be saddled with problems at the end of the lease. The commenter added that the BIA must perform its own analysis to ensure that is the case. (0198)

##### **Response:**

Regarding the comment about a legal investigation, the BIA’s reviews, conclusions, and actions are in compliance with relevant laws and regulations. If any such investigation on its practices is initiated, the DOI and the BIA would cooperate fully.

The BIA is not using the Waste Confidence Decision to “avoid” conducting any analysis. The scope of the BIA’s NEPA review of the proposed lease is limited to the terms of the proposed lease. The lease requires, by its terms, that all radioactive material be removed from the Reservation within its 50-year term. The analysis required under 25 USC 415 of the impacts of the lease and the decommissioning of the proposed PFSF with respect to environmental issues is contained in this EIS.

### G.3.3.1.14 EPA Regulations

#### Comment Summary:

One commenter stated the following regarding the EPA's jurisdiction and review process:

- The commenter stated that the EPA's jurisdiction over the proposed project is limited to several specific requirements which include: 1) stormwater controls under CWA, 2) an SPCC plan for above-ground diesel fuel tanks under the EPA's Oil Pollution Prevention Regulations under the CWA, 3) ensuring that the drinking water wells are safe for human consumption under the SDWA, 4) notification to the EPA that the septic leach field is a Class V injection well under the SDWA, and 5) qualification as small quantity generator of hazardous waste under RCRA. These are routine environmental compliance controls for industrial facilities and the EPA will process these applications as appropriate. The commenter said that the DEIS adequately describes these components of the EPA's jurisdiction. (0240)
- The commenter also stated that the EPA does not usually specifically notify the lead agency or other parties of circumstances where the EPA lacks authority, but it may be important for all parties to understand that the EPA has no authority regarding radiation control, release, or design over the proposed PFSF. This is in contrast to the EPA's role, as required by Congress in the Energy Policy Act of 1992, to develop site-specific radiation protection standards for the permanent geologic repository, including SNF, at Yucca Mountain, Nevada. At the proposed geologic repository near Yucca Mountain, the EPA is obligated to define standards to protect public health and the environment from harmful exposure to the radioactive waste that would be stored and disposed of in that facility in perpetuity. Implementing the standards developed by the EPA for Yucca Mountain is the responsibility of the NRC. However, for any facility that provides interim, above-ground storage of SNF, including this proposed PFSF and all other at-reactor or near-reactor ISFSIs, the NRC is the sole agency responsible for site-specific radiation protection standards for SNF, including implementation of these criteria at this proposed PFSF. (0240)

#### Response:

The NRC acknowledges the commenter's statements. No response is required because this EIS reflects the NRC and the Cooperating Agencies' review of the proposed action in accordance with NEPA requirements. It should be noted that the EPA has jurisdiction over tribal lands and also reviewed the DEIS.

### G.3.3.2 State Jurisdiction and Requirements

#### G.3.3.2.1 NRC Coordination with the State

#### Comment Summary:

One commenter provided comments regarding expectations of NRC cooperation:

- The commenter stated that the NRC has the obligation to write an EIS that addresses the effects of the proposed PFSF, including construction, operation, transportation, and long-term effects on the State of Utah's overall environmental plans and regulatory/legal requirements. (0198h)
- The commenter also said that the State of Utah expects cooperation and coordination from the NRC and its contractors by showing them that they are willing to openly discuss with appropriate State officials the full extent of the State of Utah's legal and regulatory authority involving the proposed action. (0198h)

**Response:**

The NRC acknowledges the comments on the scope and content of the EIS. This comment was submitted during scoping and resubmitted in response to the issuance of the DEIS. Regarding comments on the cooperation between the NRC and the State of Utah, the NRC staff has consulted with the State of Utah. To the extent that the State has requested consultation, the NRC has conferred with the State to discuss issues relevant to the environmental review. The NRC staff has also reviewed and considered all of the State of Utah's EIS scoping comments and any contentions admitted to the licensing proceeding that are relevant to the environmental analysis. This comment does not address any specific aspect of the DEIS, and, therefore, does not warrant changing the analysis or conclusions in the FEIS. The relevance of specific Utah regulations provided in comments from the State of Utah is addressed in other comments and responses in this section.

**G.3.3.2.2 General Comments on State Requirements****Comment Summary:**

One commenter noted that the EIS does not include some State permits and approvals for activities that will not take place on the Reservation. There are State requirements that apply to activities on the Reservation that are not listed in the EIS because the Skull Valley Band has no environmental regulations. The commenter added that the Federal government, in many of the listed circumstances, does not have regulations which govern the applicant's proposed activities. The NRC and this FEIS are primarily concerned with radiological pollution. Because of this void in regulatory oversight, the commenter added that the State's interests are potentially directly affected; therefore, State approvals must be obtained and State requirements must be met to protect State interests. This is particularly true for sources of pollution or resources not regulated by the EPA (e.g., septic tanks and groundwater). (0198, 0198h)

The commenter indicated that the State of Utah has requirements in place for management of the State's air resources (UCA 19-2-104), radioactive waste (UCA 19-3-107), solid waste (UCA 19-6-104), and comprehensive emergency planning and response (UCA 53-2-104). Also, Utah is a member of the North West Interstate Compact on Low-Level Radioactive Waste. Low-level waste generated in the State may be disposed of at the Compact site. However, the commenter stated that it is unclear whether waste generated on an Indian reservation would be eligible for disposal. The commenter added that the EIS should evaluate all of the previous requirements, and determine how to ensure that those requirements would be met, what the impacts of not meeting those requirements would be, and what impacts could not be mitigated. (0198h)

**Response:**

The NRC staff acknowledges the regulatory information offered in the comment. As discussed in Section G.3.3.2.3 of this FEIS, "State Jurisdiction on Skull Valley Reservation," State of Utah regulations do not apply to activities or facilities on the Reservation. The commenter identified particular licenses, permits, and approvals that commenter believed the applicant needed to obtain. The NRC staff has responded to those specific comments in Section G.3.3.1.6, "Hazardous Waste Regulations," through G.3.3.1.10, "Water Quality Regulations." The above comment provides only one general observation in addition to the commenter's specific remarks, as follows which is that the ER does not describe the status of compliance with these requirements. However, the applicable regulations and permits, and their status, are described in Section 1.6.2 of the FEIS. The DEIS did not identify any non-regulated environmental pollutants as asserted by the commenter. Low-level waste generated at the proposed PFSF is the responsibility of the applicant. As stated in Section 6.1 of the SAR, the applicant intends to ship low-level radioactive waste to an off-site commercial disposal facility.

### G.3.3.2.3 State Jurisdiction on Skull Valley Reservation

#### Comment Summary:

One commenter stated the following regarding the State of Utah's jurisdiction over the Reservation:

- According to the commenter, the applicant has challenged the State's authority to enforce State regulations because the proposed PFSF would be located on the Reservation. The applicant has asserted that State law has no application to activities on Indian lands. The commenter stated that this is a misleading statement of the pertinent law, which recognizes State civil-regulatory authority in the case of some on-Reservation activities, particularly where those activities have off-Reservation effects. (0198)
- The commenter indicated that State civil regulatory authority over Tribes and Tribal members has been recognized in a variety of circumstances. (0198)
- According to the commenter, Federal preemption will only be found where there is express statutory language signaling an intent to preempt and the courts infer such intent when Congress has legislated comprehensively to occupy an entire field of regulation, leaving no room for the States to supplement Federal law, or where the State law at issue conflicts with Federal law, either because it is impossible to comply with both or because the State law stands as an obstacle to the accomplishment and execution of Congressional objectives. (0198)
- In making the necessary preemption analysis, the commenter stated that the following points should be considered:
  - (1) Even though comprehensive Federal pollution control statutes have been enacted, the legislation gives States the right to adopt programs that parallel or exceed Federal pollution standards. These provisions constitute a clear recognition by Congress that State authority in the area is not excluded.
  - (2) Tribes have the right to seek authority to administer some Federal pollution control programs, to adopt pollution standards, and to organize a regulatory capability of their own. However, the Skull Valley Band has taken none of these steps, and thus its interest in preserving self-government will not be a factor.
  - (3) State interests are substantial - the potential sources of pollution are located very close to important off-Reservation resources and the State has a direct interest in consistent, comprehensive regulation of resources within the State. The effectiveness of State programs could be undermined if less stringent Federal standards are applied to Tribal lands, and especially if potentially pollution-emitting sources are located within Indian Reservations as a way of evading State regulations. The argument that pertinent State air quality and groundwater regulations have no application because the proposed PFSF is located on an Indian Reservation is incorrect. (0198)
- Where a variety of State, Federal and Tribal interests are involved, the Supreme Court has held that, "there is no rigid rule by which to resolve the question whether a particular state law may be applied to an Indian Reservation or to Tribal members" (White Mountain Apache Tribe v. Bracker, 448 US 136, 142, 65 L.Ed.2d 665, 100 S.Ct. 2578 (1980)) and that what is needed is a "particularized inquiry into the nature of the State, Federal and Tribal interests at stake, an inquiry designed to determine whether in the specific context, the exercise of state authority would violate federal law." (*Id.* at 145) In connection with such a preemption analysis, "any applicable regulatory interest of the State must be given weight." (*Id.* at 144) (0198)

- In connection with the balancing of Federal, Tribal and State interests required to determine whether State civil-regulatory authority can be enforced on an Indian Reservation, the courts have held that an important consideration is whether the on-Reservation activity in question has potentially serious off-Reservation effects. “A state’s regulatory interest will be particularly substantial if the state can point to off-Reservation effects that necessitate state intervention.” (New Mexico v. Mescalero Apache Tribe, 462 U.S. 324, 336, 76 L.Ed.2d 611, 103 S.Ct. 2378 (1983); accord Rice v. Rehner, 463 U.S. 713, 724, 77 L.Ed.2d 961, 103 S.Ct. 329 (1983).) (0198)
- State interest may also be greater where a third party locates a pollution source on Tribal trust lands primarily to avoid State regulation. The courts recognized that State claims to jurisdiction are stronger where the Tribe is primarily marketing an exemption from State laws. (0198)

**Response:**

The NRC staff and the BIA acknowledge the regulatory information offered in the comment; however, State of Utah regulations do not apply on the Reservation.

The exercise of State authority over an Indian Reservation is limited by two barriers: (1) it may be preempted by Federal law or (2) it may infringe on the right of reservation Indians to make their own laws and be ruled by them. (White Mountain Apache Tribe v. Bracker, 448 U.S. 136, 142 (1980)) While the commenter is correct that there is no rigid rule for this analysis, in two of the cases the commenter cites, the Supreme Court found that there was no State jurisdiction over the Tribe’s administration of its own natural resources on its reservation. See, White Mountain Apache, *supra*, and New Mexico v. Mescalero Apache Tribe, 462 U.S. 324 (1983). (The third case cited by the commenter, Rice v. Rehner, 463 U.S. 713 (1983) involved regulation of liquor sales on a reservation, and has been limited to that situation by the Supreme Court in California v. Cabazon Band of Mission Indians, 480 U.S. 202 (1987) (*Cabazon*).)

In the case of State environmental law (which Utah seeks to apply to the Reservation) the Federal role, as noted in Section G.3.3.1.14 of this FEIS, is so pervasive that it preempts the State. New Mexico, *supra*, and Washington Department of Ecology v. United States Environmental Protection Agency, 752 F.2d 1465 (9<sup>th</sup> Cir. 1985) (state law pre-empted in view of Federal agency’s reasonable interpretation of act in question). The State is also preempted by the Utah Enabling Act, 28 Stat. 107 (1894), which provides that “Indian lands [within the State] shall remain under the absolute jurisdiction and control of the Congress of the United States.” If the State wishes to exert jurisdiction over the Skull Valley Band, it may only do so with the consent of the Skull Valley Band under UCA 9-9-202 (1994). The Skull Valley Band has not consented to such jurisdiction. Such jurisdiction would still not include civil regulatory jurisdiction of the type asserted by the State (Bryan v. Itasca County, 426 U.S. 373 (1976)).

The commenter also claims that, because the Skull Valley Band has not yet applied to administer Federal environmental programs, State jurisdiction would not infringe on their right to self-governance. The right of self-governance, however, necessarily includes the right not to legislate at all in a particular area or to simply adopt Federal standards. It should be noted that the EPA also has jurisdiction over tribal lands. Furthermore, the PFSF was not sited on the Reservation solely to avoid State law. The Skull Valley Band is engaging in an economic development project to generate funds from its land and water resources. The contribution of the land of the Skull Valley Band for 50 years is not a small or insignificant contribution. (New Mexico, *supra*, and Cabazon, *supra*)

#### G.3.3.2.4 State Approval for PFSF

##### Comment Summary:

One commenter stated the following regarding State of Utah jurisdiction for the proposed PFSF:

- The State of Utah enacted new legislation in the 1998 General Legislative Session, the High Level Nuclear Waste Disposal Act, S.B. 196, *inter alia*, which places certain restrictions on the placement of high level nuclear waste and greater than class C radioactive waste in the State of Utah, establishes siting criteria, and requires certain findings and approvals be made by the UDEQ. The commenter stated that there is no mention in the DEIS of the construction and operating license from the UDEQ with approval from the Legislature and the Governor that is required for a high level nuclear waste transfer, storage, decay in storage, treatment, or disposal facility. UCA 19-3-304, UCA 19-3-305, UCA 19-3-307. (0198) Application requirements and annual fees are listed in UCA 19-3-308. (0198)

##### Response:

The NRC staff has amended the list of State permits in Section 1.6.2.3 in this FEIS, “State of Utah Permits and Approvals for Activities Off the Reservation,” to include the information offered in the comment. The NRC and the BIA acknowledge the regulatory information offered in the comment. However, as described in G.3.3.2.3, State of Utah regulations do not apply on the Reservation. The State legislation referred to by the commenter is also being challenged by the Skull Valley Band and PFS. (Skull Valley Band of Goshute Indians and Private Fuel Storage v. Leavitt, Civil No. 2:01CV00270C (D. Utah, filed April 19, 2001))

#### G.3.3.2.5 State Approvals Related to Waste Transport

##### Comment Summary:

Two commenters indicated that the State of Utah must give approval for SNF transport:

- One commenter indicated that the State of Utah has jurisdiction and control over the applicant’s proposed transportation route from a Rowley Junction ITF to the proposed PFSF. UDOT UCA 72-7-102 requires that no person dig or excavate within a ROW of any State highway without approval from the State, and may require a security bond or other security. The commenter requested that the FEIS show whether it is feasible for the applicant to undertake any road widening or rail spur construction activities involving the road and public ROW along Skull Valley Road. (0198h) Additionally, as is noted in the DEIS (page xxxviii of the Executive Summary and in Section 2.2.4.2, special permits would be required from the State of Utah because of the size and weight of heavy-haul vehicles. (0198)
- The commenter stated the applicant has not shown that it is entitled to use or control the off-loading site and the proposed ITF at Rowley Junction (or wherever else the applicant intends to locate its ITF). (0198h)
- The commenter stated that any road improvements must be performed in cooperation with the State of Utah and must meet State requirements, including stormwater permits for construction. Prior to making any road improvements, impacts to stream/drainage crossings, rare and endangered species, and cultural and historic resources need to be addressed. (0198, 0198b)
- The commenter stated that once the applicant has informed the NRC, the State, and the public of its final and detailed plan for transporting and routing the casks to the proposed PFSF, the route will need to be examined to determine if approvals from the State, the county or the Federal government (e.g., U.S. military departments, the BLM, U.S. Forest Service) are required. The

route chosen, if it involves these entities, may trigger a “major Federal action” and the need for an additional independent EIS. (0198h)

- The commenter stated that the applicant’s statement, under Item 9 in the BLM application, is incorrect when it says that no State government approval is required. The applicant needs to obtain permission from UDOT and UDEQ regarding a number of design, construction, and operational requirements for its transportation proposal and approvals where vehicles exceed State size and weight restrictions. The FEIS should address these issues. (0198i)
- The commenter stated that heavy-haul vehicles would require oversize/overweight permits for each trip. A separate permit for hauling the SNF would be required. The hauling and permitting are governed by provisions of the UCA and Utah Administrative Code. (0198)
- The commenter stated that no railroad track may be constructed across a public road, highway, or street at grade without the permission of UDOT. (UCA 54-4-15) The requirements in UAC R930-5 must be met. The DEIS does not state whether the rail line would cross any State roadways. (0198)
- In its scoping comments, the commenter noted that State lands are located throughout the proposed area. If any State lands are to be used or impacted, such as through easements or rights-of-way, such uses of State lands would be regulated by the Division of Forestry, Fire and State Lands. (UCA 65A-I-I *et seq.*) (0198)
- Another commenter pointed out that while the State can prohibit the transport of SNF on Skull Valley Road, it cannot prohibit the transport of SNF on interstate highways. (GR-08)

**Response:**

The applicant’s current proposal for transporting SNF to the proposed PFSF is to construct a rail line from the Union Pacific mainline at Skunk Ridge, near Low, Utah. The EIS evaluates heavy-haul transport of SNF along Skull Valley Road from a proposed ITF as an alternative route. If heavy-haul vehicles were used to transport SNF casks on Skull Valley Road, the applicant would have to obtain an appropriate road-use permit from UDOT due to the size and the weight of the vehicles that would be used on that road as stated in the comment and in Section 1.6.2.3 of this FEIS. The applicant has indicated that if the proposed ITF were constructed and operated, specially designed heavy-haul vehicles with multiple axles to appropriately distribute the weight of the vehicle and its load would be used on the Skull Valley Road. The applicant indicated that the use of these special vehicles would not require any modifications to the Skull Valley Road. Any requirement by the State of Utah for the applicant to obtain permits for heavy-haul vehicles is a matter of State regulation and does not affect the conclusions of the EIS. The proposed BIA lease does not address the proposed ITF at Rowley Junction. If the proposed ITF is approved as the transportation method, the applicant would lease the land from the BLM, subject to the BLM’s approval.

The NRC staff acknowledges the regulatory information offered in the comment. However, the proposed rail line from Skunk Ridge to the proposed PFSF would not cross any public roads or highways; hence, this FEIS does not discuss the requirements of UCA R930-5 or of the UDOT approval. Neither the proposed PFSF nor the proposed new rail line from Skunk Ridge would use State lands, including easements or rights-of-way.



### G.3.3.2.6 Regulations Regarding Water Resources

#### Comment Summary:

One commenter identified a number of issues related to regulations regarding water rights, surface water, stormwater, groundwater, drinking water, and septic tanks. Specific comments in each of these topical areas are presented below and are immediately followed by the respective responses.

#### *Water Rights:*

#### Comment Summary:

- One commenter stated that the State of Utah has jurisdiction over the water within the State, including water on or under the Reservation of the Skull Valley Band, contrary to the statement in the DEIS page 1-23. (0198)
- The commenter also stated that the reserved rights of the Reservation have not been determined either in quantity or priority through a State general adjudication proceeding. It is clear that all water, both surface water and groundwater, on and within the Reservation is held in trust by the State of Utah, UCA 73-1-1. (0198)

#### Response:

The information offered in the comment about water rights is acknowledged. In response to the comment, text has been added to Section 3.2.3 in this FEIS to discuss water rights. The revised text describes the origin of the water rights for the Reservation. The BIA concludes that the Reservation holds sufficient water rights to support the proposed action. As described in Section 4.2 of this FEIS, the water used during construction will come primarily from off-site wells with sufficient capacity. The section also describes that the water use from wells on the Reservation would not result in significant impacts to water use on or off the Reservation. The legal aspects of obtaining, assigning, transferring or exercising water rights are beyond the scope of this FEIS.

#### *Surface Water:*

#### Comment Summary:

- One commenter stated that under UAC R317-2-13.14, unclassified waters are presumptively Class 213, 3D with water quality standards and numeric criteria. (0198)

#### Response:

The comment is noted; however, no surface water in Skull Valley would be used for the proposed PFSF. In addition, this FEIS concludes that the proposed PFSF would not impact the quality of surface waters in Skull Valley. The process and details of classifying surface waters in the state of Utah is beyond the scope of this EIS.

#### *Stormwater:*

#### Comment Summary:

- One commenter stated that in the applicant's ER, page 4.2-8, the applicant indicates no possibility of discharge to waters of the United States because the stormwater flows into an on-site retention pond. The commenter stated that the DEIS, page 4-10, describes the proposed PFSF incorrectly as a zero release facility. The commenter further stated that the proposed PFSF will be

discharging to water of the State of Utah because the stormwater detention basin will be seeping into the ground and water under the Reservation is water of the State. (0198)

- The same commenter stated that the DEIS, page 4-12, indicates that the applicant would sample and analyze standing water in the basin to determine if radiological contaminants are present. The commenter also stated that the applicant does not plan to sample for non-radiological contaminants. (0198)
- The same commenter stated that a permit is required to construct, install, modify, or operate any water treatment works, if the operation would result in a discharge. The commenter stated that an NPDES permit is required under UAC R317-8-2.1(1)(a) if there will be a stormwater discharge. The commenter also stated that treatment works include disposal fields and lagoons under UCA 19-5-102(15). (0198)
- The commenter stated that UAC R317-8-3.8(6)(d)10 requires a State UPDES permit for stormwater discharges where construction activities will disturb five acres or more. The commenter also asserted that construction activities for the Low rail corridor, the proposed ITF, and the proposed PFSF involve more than 5 acres each. (0198)
- The same commenter stated that UAC R317-3 contains design requirements for retention ponds. The commenter also stated that the applicant describes the proposed retention pond as being free-draining and sized to accommodate a 100-year storm event. The commenter asserted that because water dissipates by evaporation and percolation into the subsoils, this would not meet the State design requirements unless the stormwater is known to be uncontaminated. (0198)
- The commenter stated that UAC R317-8-3.1(2) requires facilities proposing new discharges of stormwater associated with industrial activity submit applications 180 days before a facility commences activity. (0198)
- The commenter stated that the DEIS, page 2-10, indicates that water in the detention basin will be pumped out if it accumulates. The commenter further stated that there is no indication in the DEIS where the water will be discharged after pumping. (0198)

#### **Response:**

Regarding the comment about a "zero release" facility, the referenced text from the DEIS regarding a "zero release" facility has been changed in Section 4.2.2.1 of this FEIS. The term "zero release" refers only to the proposed PFSF's ability to retain all radioactive materials (i.e., SNF) without their release. The term does not apply to effluent (such as stormwater) that would be discharged from the proposed PFSF. This FEIS has been revised to avoid any inferences about the lack of gaseous and/or liquid discharges (which would, in fact, accompany the proposed PFSF; see Section 2.1.5 of the FEIS).

The commenter has correctly summarized the information in the applicant's ER regarding the plan to sample water in the detention basin. That is, the applicant would sample and analyze water from the basin when freestanding water is present to determine if radiological contaminants are present. In response to the comment, Section 4.2.2.4 of this FEIS has been revised to more clearly state the applicant's plans for sampling stormwater.

As described in Section 1.6.2.1 of this EIS, an NPDES permit from EPA would be required for the proposed PFSF. However, as discussed in Section G.3.3.2.3, State of Utah regulations do not apply on the Reservation. For the proposed rail line and the alternate Proposed ITF, Section 1.6.2.3 of this EIS describes the specifics of a UPDES permit from the state of Utah that would be required for all construction activities off the Reservation.

The commenter is correct in noting that in the event freestanding water collects in the detention basin, the applicant proposes to pump it out. After freestanding water in the basin is surveyed, the water would be pumped to the north of the proposed storage pads. This would allow the water to flow in a generally northward direction, away from the proposed PFSF and along the same pathways that would exist if the proposed PFSF or detention basin were never constructed.

**Groundwater:**

**Comment Summary:**

- One commenter stated that the DEIS indicates in Section 3.2.2 that groundwater is approximately 125 ft below the surface. The commenter stated that the applicant also indicated in the ER that the volume of water in the cask storage area produced by a typical rainstorm will probably settle into the one foot thick compacted gravel surface surrounding the storage pads and would not drain to the retention pond, raising additional permit and groundwater protection issues. (0198)
- The same commenter stated that UAC R317-6-6 requires a groundwater permit for a new facility discharging pollutants directly or indirectly into groundwater, including ponds and lagoons, whether lined or not. The commenter further stated that the Executive Secretary of the Utah Water Quality Board called for an application from the applicant under UAC R317-6-6.2(c) as an exception to any permit by rule which may be applicable. The commenter stated that the applicant must use the best available technology to minimize the discharge of any pollutant, and there must be no impairment of present and future beneficial uses of the groundwater UAC R317-6-6.4(A). (0198)
- The commenter stated that the DEIS did not address the requirement to obtain a Utah Groundwater Discharge Permit in accordance with UCA 19-5-107 and UAC R317-6. According to the commenter, an American Indian Tribe may have an implied reservation of water under the Winters doctrine, however, an implied right to the use of water under certain conditions does not restrict state jurisdiction over groundwater quality nor does NRC's authority under the Atomic Energy Act preempt state regulation of groundwater. (The commenter referenced 42 USC Section 2021(k) State Regulation of Activities for Certain Purposes; Pacific Gas & Electric v. Energy Resources Commission, 461 U.S. 190 (1983); Kerr-McGee v. City of West Chicago, 914 F.2d. 820 (7<sup>th</sup> Cir. 1990).) Furthermore, the commenter stated, off-reservation effects caused by a non-Tribal member lends added support to the state's jurisdiction and control of groundwater quality. (0198a)
- The same commenter stated that UCA 73-3-1 et seq. requires an application and certificate to appropriate any waters of the state, including groundwater on the Reservation. (0198)
- The commenter also stated that UCA 73-3-3 requires an application for any changes of place of diversion or use or change of purpose for which the water was originally appropriated. (0198)

**Response:**

Because the facility is a "zero release" facility (see the response on stormwater, above), there would be no expected radioactive contaminants in any rainwater or snowmelt that collected in the storage pad area. Furthermore, the proposed site receives only about 26 cm (10 in) of rainfall annually, and the depth to groundwater below the proposed PFSF is approximately 125 ft. The concern about potential impacts to groundwater beneath the storage pads appears to be unwarranted. See the comment response above regarding the potential impacts from water that collects in the detention basin.

The list of relevant state permits and approvals is included in Section 1.6.2.3 of this FEIS. The regulatory information provided in the comment is acknowledged. However, as discussed in Section G.3.3.2.3, State of Utah regulations do not apply on the Reservation.

### **Drinking Water:**

#### **Comment Summary:**

- One commenter stated that UCA 19-4-104(1)(b), requires the submission of plans and specifications for approval prior to construction of any public water system. The commenter stated that the applicant has indicated it will employ more than the 25 person threshold of the requirement. The commenter further stated that the applicant will be providing water for human consumption and other domestic uses that meet state requirements. The commenter asserted that neither the Skull Valley Band nor the EPA have comparable construction standards and approval processes. (0198)
- The commenter stated that even if the applicant is determined not to be subject to state requirements, the proposed PFSF potable water system would qualify as a public drinking water system under the Federal Safe Drinking Water Act, 41 USC 300g *et seq.* (0198)
- The commenter also stated that the DEIS (page xxxv and page 2-11) indicates that the “large quantities” of water needed for dust control, soil compaction, and concrete case manufacturing may require new on-site wells and that UCS 73-3-25 requires a permit for drilling wells. (0198)

#### **Response:**

The SDWA, as described in the comment, is included in Section 1.6.2.1 of this EIS, which lists the Federal permits and approvals that would be required for the proposed PFSF. The necessary registrations under the SDWA would be secured from EPA Region VIII.

In regard to the need for a permit to drill wells on the Reservation, see Section G.3.3.2.3 for a discussion of how the State of Utah regulations do not apply on the Reservation.

### **Septic Tanks:**

#### **Comment Summary:**

- One commenter stated that regarding construction permits for septic tank systems, if the domestic wastewater discharges exceed 5,000 gpd, then the requirements of UAC R317-5 must be met and a construction permit must be issued by the state. UAC R317-5-1.3. The commenter also stated that if the discharges are less than 5,000 gpd, the requirements of UAC R317-4 *et seq.* must be met and approval of plans and specifications must be given by the local health department having jurisdiction. UAC R317-4-3. The commenter stated that both state and local approvals require construction inspections to ensure compliance with state requirements. (0198)
- The same commenter stated that the DEIS at page 4-12 indicates that drains from process systems are kept separate from septic systems, and that no indication is given as to where drains from the process system are discharged. The commenter stated that discharges would require state and Federal permitting. (0198)
- The commenter stated that UAC R317-7-1 *et seq.* regulates underground injections. The commenter stated that under state jurisdiction, the septic tank/leach fields are Class V wells under UAC R317-7-3.5(l) because they are used to inject the waste or effluent from a multiple dwelling, business establishment, community, or regional business establishment septic tank. The commenter stated that the systems are not exempted by UAC R317-1-3.5(i) because they have

the capacity to serve more than 20 persons per day or there is the potential they would not be used solely for the disposal of sanitary waste. The commenter asserted that while new Class V injection wells are authorized by rule and are not required to obtain a UIC permit under UAC R317-7-6, the Executive Secretary of the Utah Water Quality Board may require the owner or operator of a Class V well to apply for and obtain an individual permit for specific circumstances to include, where appropriate, protection of Underground Sources of Drinking Water (USDW). The commenter further asserted that the groundwater in the area of the Skull Valley Reservation is a USDW by definition. UAC R317-7-2.47. (0198)

- The same commenter stated that the EPA requirement for the applicant septic tank/leach fields which serve 20 or more people, 40 CFR 144.26(a), is simply registration. The commenter also stated that the state would request that the EPA call for a UIC permit if the EPA asserts jurisdiction. (0198)

**Response:**

The regulatory information offered regarding septic tanks in the comment is acknowledged. However, as discussed in Section G.3.3.2.3, State of Utah regulations do not apply on the Reservation.

Section 2.1.1.2 of the FEIS describes how a sanitary drainage system, using underground pipes, would be installed to serve the proposed PFSF and to transmit liquid wastes to the underground septic system. In response to the comment, additional text has been added to Sections 2.1.1.2 and 2.1.3 of this FEIS to describe the design for the process area drains. That is, drain sumps would be provided in the cask load/unload bay of the Canister Transfer Building. These sumps would catch and collect any water that drips from the shipping casks (e.g., from rainfall or melting snow) onto the floor. Water collected in these drain sumps would be sampled and analyzed to verify it is not radioactively contaminated prior to its release. In the event contaminated water is detected, it would be collected in a suitable container, solidified by the addition of an agent (such as cement) so that it qualifies as solid waste, staged in a low-level waste holding cell while awaiting shipment offsite, and transported to a licensed low-level waste disposal facility.

Section 2.1.1.2 of the FEIS describes two septic systems, each with a capacity less than 5,000 gpd. Because of the size of these systems, they would be classified as Class V injection wells. As stated in Section 1.6.2.1 of the EIS, an Underground Injection Control inventory form would have to be filed with the EPA before the systems are placed into service. The filing of such a form would subject the proposed PFSF septic systems to review by the EPA for minimum requirements to prevent underground injection that endangers drinking water sources.

**G.3.3.2.7 State Approval for Air Pollutant Permits (& Title V Permit)**

**Comment Summary:**

- One commenter stated that any person intending to construct, modify, or relocate a new installation which would or might reasonably be expected to become a source or an indirect source of air pollution or any person intending to install a control apparatus or other equipment intended to control emission of air contaminants is required to submit to the Executive Secretary a notice of intent and receive an approval order prior to initiation of construction, installation, modification or relocation. (UCA 19-2-108 and UAC R307-401-1) The commenter further stated that the applicant has indicated that it would use a concrete batch plant, diesel generator, and space heating furnaces, all of which would require an approval order from the State Division of Air Quality. (0198)

The same commenter stated that even if a PSD permit is not required, a state air quality approval order issued under UCA 19-2-108 would most likely be required. The commenter asserted that the concrete batch plant, asphalt batch plant, and other air emission sources, even if located on

the Reservation, because of the limited size of the Reservation, would have a significant impact on state air resources. Consequently, the commenter stated that a state approval order would be required. (0198, 0198a)

- The same commenter stated that it is unclear from the DEIS (pages 4-13 to 4-16) the time and extent of operation of the concrete batch plant during construction and operation of the facilities. The commenter also stated that a state PSD permit may be required if emission thresholds are exceeded. (UAC R307-405-6) (0198)
- The commenter stated that the concrete batch plant (p. 2-5 of DEIS) is potentially regulated by Federal New Source Performance Standards, and, therefore, a 40 CFR Part 70 Source. (UAC R307-415-4(l)(b) and R307-415- 5a(3)(c), 40 CFR 71.3(a)(2) and 71.4(b) (Tribal area)) The commenter further stated that to the extent the State of Utah has jurisdiction, the applicant would be required to apply for and obtain a Title V Permit. (40 CFR 70.3(a)(2)) (0198)
- The commenter stated that use of a diesel generator, depending on the amount of nitrogen oxides emissions, may trigger a requirement for a Title V permit. (UAC R307-415-4) The commenter also stated that 40 CFR Part 116 may be applicable to diesel tanks and would need to be documented in a Title V permit application. (0198)

#### **Response:**

The NRC staff acknowledges the regulatory information about the State of Utah's requirements for air emission sources, as offered in the comment. However, as described in Section G.3.3.2.3, the state does not have jurisdiction over activities on the Reservation. Therefore, a state air quality approval order under UCA 19-2-108 is not required for the proposed PFSF. Even if the state had jurisdiction, however, as set forth below, an order would not be required.

UCA 19-2-108 implements the Federal CAA with respect to the Prevention of Significant Deterioration of Air Quality (40 CFR Part 52). No permit would be required under 40 CFR Part 52 unless the proposed PFSF were a "major stationary source" of air emissions as defined in 40 CFR 52.21(b). The proposed PFSF would not be a major stationary source; therefore, no permit would be required.

The commenter asserted that the proposed PFSF would have a "significant" impact on state air resources. As described in Section 4.3 of this FEIS, "Air Quality," the effect of the proposed PFSF on air quality would not be "significant," as that term is defined in 40 CFR 52.21(b)(23). The anticipated proposed PFSF emissions rates of the pollutants listed in 40 CFR 52.21(b)(23)(i) would not exceed the threshold "significant" emissions rates listed there, and the commenter did not suggest that the proposed PFSF would release some other regulated air pollutant in significant quantities. Accordingly, the proposed PFSF's effect on air quality would not be significant, and the applicant would not be required to obtain an approval order or permit under UCA 19-2-108.

The duration of concrete batch plant operations would be for the life of the proposed PFSF, due to the need for concrete used to manufacture the on-site storage pads and casks. To the extent that the concrete batch plant would be operating during the lifetime of the proposed PFSF, its expected PM-10 (particulate matter) emissions would be about 3.2 tons per year. Neither the concrete batch plant nor the proposed PFSF as a whole would be classified as a major stationary source under 40 CFR 52.21 or a significant emission source under 40 CFR 51.166.

The expected emissions of criteria pollutants (pollutants regulated by NAAQS) and hazardous air pollutants are not of sufficient magnitude to require a Title V permit. The applicant has stated its intention to purchase asphalt locally. There are no plans to construct or operate an on-site asphalt plant. As discussed in Section 2.1.1.2 of this FEIS, asphalt would be one of the materials imported and used in the construction of the proposed PFSF (see Table 2.2).

### G.3.3.2.8 Other State Requirements

#### Comment Summary:

One commenter stated that the applicant would have to comply with additional state requirements, provisions, and implementing rules of UCA 53-7-301 regarding Liquefied Petroleum Gas, UCA 53-7-201 regarding Fire Prevention, and (depending on the nature of activities) UCA 40-8-1 requiring permits from the Utah Division of Oil, Gas and Mining. (0198)

Another commenter asserted that there are laws in Utah governing ultra-hazardous activities, prohibiting conduct of activities on private property that can harm other property or people. (SL2-13)

One commenter stated that the proposed PFSF will leave the Utah government with no power to regulate the storage of SNF for at least 20 years. (SL3-11)

#### Response:

The DEIS identified the applicable regulations, permits, licenses, and approvals required for construction and operation of the proposed PFSF. The list of known permits, licenses, and approvals is included in Section 1.6.2 of the FEIS. The NRC staff acknowledges the regulatory information offered in the comment. However, as discussed in Section G.3.3.2.3, State of Utah regulations do not apply on the Reservation.

Regarding ultra-hazardous activities, the NRC staff assumes the commenter is referring to UCA 19-3.302 addressing the siting and operation of SNF storage in Utah, also cited above, which does not apply to the Reservation. It is the position of the NRC staff that the AEA (as amended) and the NWPA (as amended) and other relevant Federal statutes and regulations are the governing statutes for this proposal.

### G.3.3.2.9 Land Use Requirements

#### Comment Summary:

One commenter stated that the applicant has failed to show that it is entitled to use the land for the proposed PFSF, and if it does have such a right whether there are any legal constraints imposed on the use and control of the land. (0198a)

#### Response:

The applicant has entered into a 25-year lease agreement (with an irrevocable option for a second 25 years) with the Skull Valley Band to use the Reservation land to construct and operate the proposed PFSF. The entitlement to use the land for the expressed purpose of storage of SNF involves the regulatory approval by the NRC, the BIA, and the BLM. Each of these regulatory bodies has or will issue official documentation of their evaluation on the suitability of the site and the safety of the proposed PFSF design. See discussion in Sections G.3.6.2, G.3.6.3, and G.3.6.4.

## **G.3.4 Decommissioning and Closure**

### **G.3.4.1 Proposed Period of Operations**

#### **G.3.4.1.1 Duration of NRC License Period**

##### **Comment Summary:**

Several commenters requested an evaluation of consequences if there is not a permanent repository at the time of expiration of the applicant's 20-year license. (0018, SL1-15, SL2-05, SL3-47)

One commenter stated that it is not sufficient for the EIS to simply indicate a possible 20-year license renewal period. (0018) Another commenter expressed concern that by waiting until five years before the license expires to submit plans for the removal of SNF, as suggested by the DEIS, the license could be extended based on unforeseen circumstances. The commenter asked how much further beyond 40 years the license can be extended. (GR-14) Other commenters stated that there is no guarantee the SNF would ever be moved and that the full 20 years would be needed to place the SNF at the proposed PFSF. (SL1-05, SL1-15, SL1-33, SL3-46)

##### **Response:**

For the reasons set forth below, the NRC staff concludes that the DEIS adequately addressed the issue of the availability of a permanent repository. As discussed in Section 1.2, "The Proposed Action," the Commission, in its Waste Confidence Decision, 10 CFR 51.23 (55 Fed. Reg. 38474, Sept. 18, 1990) found that there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century. Based on current DOE projections, a permanent repository is scheduled to open by 2010, which would be within the initial 20-year license term proposed for the PFSF. Therefore, the NRC staff concludes that an evaluation of the potential consequences suggested by the commenter is beyond the scope of the EIS. If approved, the proposed PFSF would be licensed to operate for up to 20 years. If the applicant is unable to renew the license or chooses not to renew the license, then service agreements (i.e., contracts) between the applicant and the licensees storing SNF at the proposed PFSF will require that the owner of the SNF (the licensees) remove all of the SNF from the proposed PFSF upon expiration or revocation of the NRC license. The DEIS acknowledges the fact that a license for an ISFSI can be renewed by the Commission before the expiration of the license term upon a timely request from the licensee. The regulations in 10 CFR 72.54 define a renewal application as timely if it is filed not less than 24 months before expiration of the existing license. The NRC regulation does not specify the maximum number of times a license can be renewed. However, the applicant would have to demonstrate that the SNF can be safely stored for each renewal period requested. The NRC decision on whether to renew the license, if requested, would be based on the results of the NRC staff's safety and environmental reviews. The NRC staff is uncertain as to what unforeseen circumstances could affect future NRC staff reviews. The NRC staff believes the time periods for submitting a request to renew a license or request to decommission the proposed PFSF are adequate to perform the necessary technical and environmental reviews. As discussed in Section 4.9 of the FEIS, if a licensee does not submit a timely application to renew its license, the licensee must submit a Decommissioning Plan at least one year prior to license expiration. (The DEIS erroneously stated that the Decommissioning Plan would be due five years before expiration.) This plan must describe how the licensee will decommission the site, including removal of the SNF. This Decommissioning Plan as per 10 CFR Part 72 is subject to an NRC safety and environmental review.

The NRC staff disagrees with any conclusions that the proposed PFSF would become a permanent above-ground repository. Also, see Sections G.3.2.1 through G.3.2.3.



### G.3.4.1.2 Timing of SNF Removal

#### Comment Summary:

Several commenters expressed concern regarding the possibility that the facility will not be decommissioned. Specifically:

- One commenter stated that it is likely that the proposed PFSF will become a permanent facility. The commenter also stated that it is most likely that it will take longer than 20 years to identify sites for relocation of the SNF from the proposed PFSF. (0112) One commenter stated that once the SNF casks are stored at the proposed PFSF, they would remain there beyond the expected license term because there are no off-site shipment options. The commenter said that fuel shipments to Morris, Illinois, and West Valley, New York, offer two examples of the plausibility of this occurrence. (0198a)
- One commenter said that the DEIS is silent on risks associated with removing waste from the proposed PFSF, and since the plans for removal of SNF are not required until five years before license expiration, the site most likely would become permanent. (GR-14, SL3-47)
- One commenter stated that because the extent of decommissioning is left to the discretion of the Skull Valley Band, the DEIS cannot make any representation other than the worst case scenario that the proposed PFSF would become a permanent above-ground repository for radioactive waste. (0215)
- One commenter said that use of the phrase “SNF is expected to be shipped off-site” in the DEIS is an indefinite statement and suggests that the proposed PFSF would be permanent. Further, the commenter said that the DEIS does not adequately address or recognize the importance of decommissioning. (0112, SL1-11)
- One commenter said that it is most likely that the decommissioning of the proposed PFSF would be delayed because the applicant has not provided sufficient data about the design of the storage casks to ensure compatibility with the DOE’s high level waste repository specifications and the applicant has no ability to repackage SNF. According to the commenter, if the fuel cannot be removed from the site because the DOE specifications are not met, decommissioning would be delayed. The commenter also said that the FEIS should analyze the impacts on trust lands, including economic impacts, associated with decommissioning delays. (0198h)

#### Response:

If the NRC grants a license, the proposed PFSF would operate for up to 20 years. The applicant may submit an application to the NRC to renew its license before the expiration of the license term. This renewal process would include both a thorough safety and environmental review. As discussed in Section 1.2 of this FEIS, the Commission in its Waste Confidence Decision, 10 CFR 51.23 (55 Fed. Reg. 38474, Sept. 18, 1990) believes there is a reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century to receive the stored SNF. The NRC staff disagrees with the comment that the proposed PFSF would become a permanent above-ground repository. As discussed in this FEIS, the SNF would have to be removed from the proposed PFSF upon expiration of its license. Also, see Section G.3.2.1.

The specific activities associated with decommissioning are discussed in Section 2.1.6, “Facility Closure and Decommissioning,” of the DEIS, and the potential impacts from decommissioning are discussed in Section 4.9. The extent of radiological decommissioning will not be independently determined by the applicant or the Skull Valley Band. The applicant would independently address only the specific details for dismantling buildings and structures. Removal of all SNF and radiologically contaminated materials would be controlled by an NRC-approved facility

Decommissioning Plan and NRC's regulations for decommissioning the proposed PFSF, as discussed in Section 2.1.6 of the FEIS. The types of detailed information requested in the comment are more appropriate for that final Decommissioning Plan. The NRC staff concluded that the analysis of decommissioning has been adequately addressed in Section 4.9 of this FEIS.

The NRC staff also notes that the DOE will be responsible for unloading and repackaging casks for permanent disposal at its geologic repository. The applicant would not be required to repackage casks in order to ship SNF to a permanent repository.

#### **G.3.4.1.3 Cask Shipment Rates**

##### **Comment Summary:**

One commenter asserted that the proposed 20-year period of operations is insufficient for the scope of the project. The commenter stated that SNF cannot be shipped to, stored at, and removed from the proposed PFSF in the 20-year time period considered in the DEIS. The commenter stated that a smaller amount of SNF would need to be stored in order to complete the project within the license period. (0018)

Commenters noted that the proposed cask delivery and removal rates would require the facility to be in operation for 40 years, which would require that the NRC renew the license. (GR-14, SL1-13, SL3-46) One of the commenters also stated that the DEIS does not document what would happen to the SNF stored at the proposed PFSF if the NRC grants the initial license application and an application for renewal. (GR-14)

One commenter questioned the estimate of the time necessary to remove SNF from the proposed PFSF. (SL1-33)

##### **Response:**

The 40,000-MTU (and 4,000-cask) capacity for the proposed PFSF is the maximum capacity proposed by the applicant for licensing. As described in Section 2.1.1.2 of this FEIS, the proposed PFSF would be constructed in phases; hence, the full capacity may or may not be constructed or utilized. The NRC staff evaluated several scenarios involving the receipt and shipment of some smaller quantity of SNF within a 20-year license period. The receipt of 4,000 casks over a 20-year shipping campaign, however, would result in the greatest environmental impacts that could arise from operation of the proposed PFSF. Accordingly, as documented in Section 5.7 of this FEIS, the NRC staff evaluated that scenario. The NRC staff also evaluated in Section 5.7 the removal of these SNF casks. In that section, the NRC indicates that the licensee could remove all stored SNF within 10 years. Section 5.7 also states that, assuming 10 years of on-site storage after the 20-year shipping campaign with no incoming or outgoing shipments, it can be inferred that the proposed PFSF would be operational for a total of 40 years. The NRC staff agrees that with this scenario the applicant would need to request a license renewal. The analysis documented in Section 5.7 bounds the impacts associated with any lesser capacity of the facility because it assumes a maximum number of stored casks and a maximum-duration shipping campaign.

#### **G.3.4.2 Decommissioning Plan**

##### **G.3.4.2.1 Adequacy of Preliminary Decommissioning Plan**

##### **Comment Summary:**

One commenter stated that the information in the applicant's Preliminary Decommissioning Plan did not provide reasonable assurance that the decontamination or decommissioning of the proposed

PFSF at the end of its useful life would provide adequate protection to the health and safety of the public, as required by 10 CFR 72.30(a).

The commenter also said that the applicant failed to identify the types of wastes that would be generated at the proposed PFSF, and failed to propose decontamination and disposal practices for the waste. (0198a)

**Response:**

The adequacy of the applicant's Preliminary Decommissioning Plan with respect to satisfying 10 CFR 72.30 regulations does not directly affect the environmental impacts of the proposed PFSF and is beyond the scope of the EIS. Instead, the NRC evaluated the Preliminary Decommissioning Plan during its safety review and found it to be acceptable, as documented in Chapters 13 and 17 of the SER. The NRC staff also determined that the EIS adequately addresses the environmental impacts of decommissioning, based on information provided in the Preliminary Decommissioning Plan. The analysis of the impacts of decommissioning is discussed in Section 2.1.6 and Section 4.9 of this FEIS.

Section 2.1.3 of the FEIS discusses effluents and solid wastes that could be generated at the proposed PFSF and general methods of disposal. Also see FEIS Section 4.2.2.4. In addition, PFSF stated in Chapter 6 of its preliminary decommissioning plan that minimal non-radioactive hazardous materials may be used or stored at the PFSF, and any that are needed to support PFSF operations will be identified and controlled in accordance with procedures.

**G.3.4.2.2 Execution of Decommissioning**

**Comment Summary:**

One commenter stated that the applicant's measures for facilitating decommissioning under 10 CFR 72.130 and Reg. Guide 3.48 "Standard Format and Content for the Safety Analysis Report for an Independent Spent Fuel Storage Installation and Monitored Retrieval Storage Installation" are inadequate. The commenter stated that the applicant cannot properly execute decommissioning for the following reasons:

- The applicant did not ensure that the cask design was compatible with the DOE's disposal requirements with respect to failed fuel, thermal design, size, weight, and capacity.
- The applicant did not ensure that the SNF would meet the DOE's acceptance criteria because the facility design does not include an on-site hot cell facility. Therefore, SNF can not be inspected nor failed fuel encapsulated. Lack of such a facility, the commenter stated, is inconsistent with NRC-approved designs and poses a shipping risk. (0198a1)

**Response:**

The adequacy of the applicant's Preliminary Decommissioning Plan with respect to satisfying specific regulations does not directly affect the environmental impacts of the proposed PFSF and is beyond the scope of the EIS. However, the NRC found that the applicant adequately addressed these issues in the application. The NRC staff has evaluated the Preliminary Decommissioning Plan and found it to be acceptable, as documented in Chapters 13 and 17 of the SER. The NRC staff also concluded that these issues have been adequately considered and addressed in the FEIS, as appropriate. Sections 2.1.6 and 4.9 of the FEIS address the specific activities and environmental effects associated with decommissioning the proposed PFSF. There is no regulatory requirement to have an on-site hot cell. The responses to G.3.2, "The Proposed Action," also provide additional information regarding facility design issues. In addition, design issues related to compatibility with the DOE disposal requirements are beyond the scope of the EIS. See Sections G.3.2.5.6 and G.3.2.6.8.

### G.3.4.2.3 Available Technology for Decommissioning and Closure

#### Comment Summary:

Two commenters indicated that there is no adequate technology to clean up the site after operations cease. These commenters referred to a report from the National Research Council, "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites," August 2000, which states that contaminated facilities across the country cannot be adequately cleaned up for future public use. (SL3-06, SL3-47)

#### Response:

The NRC staff has extensive experience in reviewing and approving Decommissioning Plans for other commercial nuclear facilities. The NRC staff notes that the National Research Council study addresses the clean up of facilities that had been part of the DOE weapons programs, but the study is not relevant to a temporary SNF storage facility such as the proposed PFSF. These DOE facilities are of a different nature, and were not licensed by the NRC or required to meet associated NRC regulations. The NRC staff concludes that the technology is currently available and will be available to safely and fully decommission (which includes all necessary radiological decontamination) the proposed PFSF for unrestricted use.

A hot cell is a facility (such as a shielded room) that is used to physically examine, test, and/or work with nuclear fuel or other radioactive materials. A hot cell includes shielding, an isolated air handling system, and other protective measures that would enable workers to perform their tasks with minimum exposure to radiation.

### G.3.4.2.4 Time Required for Decommissioning and Removal of SNF

#### Comment Summary:

Two commenters indicated that the removal of all SNF canisters within 90 days of the lease expiration was discussed in the DEIS. (0163, SL1-33) One commenter suggested that consideration should be given to the number of canisters that can be removed in 90 days, because this would limit the number of canisters that can be stored on-site at the time the lease expires. (SL1-33)

One of the commenters indicated that radiological decommissioning must be completed prior to lease termination, as stated in Section 4.C of the lease, but not within 90 days of the lease expiration as stated in Section 2.1.6, "Facility Closure and Decommissioning," of the DEIS. The commenter stated that in addition to the principal activities listed in Section 2.1.6 of the DEIS, the storage casks must be removed from the site. (0163)

#### Response:

The NRC staff agrees and has revised Section 2.1.6 of the DEIS to clarify that the deadline for completing decommissioning activities is not within 90 days of expiration of the lease. The licensee must complete decommissioning prior to termination of the license. Under NRC regulations, decommissioning is not tied to lease expiration or termination. Rather, the timing of decommissioning depends on when an NRC license expires (as explained below, NRC license termination has a particular meaning, and is different from license expiration). SNF may be received at the proposed PFSF until the NRC license expires and the SNF need not be removed from the proposed PFSF until after the license expires. In the absence of a timely application to renew its license, a licensee of an ISFSI must submit a decommissioning plan to the NRC at least one year before the license expires. The regulations require completion of decommissioning, under most circumstances, within 24 months of NRC approval of the final decommissioning plan. The licensee would decommission the facility after license expiration, and this would include removal of all SNF from the site. Only when

decommissioning is complete and the site is suitable for release would the NRC terminate the license. Under normal circumstances, the NRC's action to terminate the license ends the NRC's authority over the licensee with respect to the activities authorized by the license.

#### **G.3.4.2.5 Reclamation of Rail Spur**

##### **Comment Summary:**

One commenter stated that the DEIS failed to commit the applicant to decommissioning or reclaiming the proposed rail line. The commenter also stated that if the proposed PFSF is not temporary, the proposed rail line and ITF also cannot be temporary. (0198)

##### **Response:**

Decommissioning of the proposed rail line was discussed in Section 2.1.6.3 of the DEIS. Abandonment or decommissioning of the proposed rail line would require STB review and approval, including an environmental review. Section 2.1.6.3 of this FEIS states that the BLM would require the removal and reclamation of the rail line upon the expiration of the right-of-way grant. Also, the NRC staff notes that if the NRC grants a license to the applicant, the NRC would only authorize the proposed PFSF as a temporary facility.

#### **G.3.4.2.6 Decommissioning in the Environmental Report**

##### **Comment Summary:**

One commenter asserted that the ER failed to consider the health and safety risk and costs associated with the decommissioning process. (0198a)

##### **Response:**

The comment is based on the applicant's ER. The NRC staff concluded that this comment is adequately addressed in FEIS Sections 2.1.6 and 4.9 and in Chapter 17 of the NRC SER. The FEIS adequately evaluates the environmental impact, including health impacts, from decommissioning the proposed PFSF. The SER addresses decommissioning costs.

#### **G.3.4.3 Decommissioning Costs**

##### **G.3.4.3.1 Availability of Permanent Repository and Contingent Costs**

##### **Comment Summary:**

One commenter stated that the Federal government has not provided a disposal facility to which SNF could be sent after the proposed PFSF is decommissioned, and simply assumes it will be available. The commenter stated that the applicant has failed to identify contingent costs in the realistic event that the proposed PFSF cannot be decommissioned at the end of the license term.

The commenter also said that the license application states that decommissioning would be preceded by off-site shipment of the canisters containing the SNF. The commenter stated that the applicant contradicts this possibility in its discussion in the "Need for the Facility" in the ER. The commenter said that shipment of the SNF back to owner reactors from the proposed PFSF would not be possible, because the owners' reactors would have already been decommissioned. (0198a)

**Response:**

As set forth below, the NRC staff concludes that the environmental impacts of decommissioning have been adequately addressed in this FEIS. Sections 2.1.6 and 4.9 of this FEIS address the specific activities and environmental effects associated with decommissioning the proposed PFSF. The applicant requested the NRC to license the proposed PFSF to receive and store SNF at the proposed PFSF for an interim (temporary) storage period of 20 years. If the NRC grants the license, the applicant may request that the license be renewed in the future in accordance with 10 CFR 72.42(a).

Because the NRC staff considers the adequacy of financial assurance for decommissioning in its safety review of the application, the financial assurance is not part of the environmental review. The NRC staff evaluation is documented in Chapter 17 of the SER. The NRC staff found that the applicant has proposed adequate financial assurance for decommissioning. Therefore, the NRC did not address this issue for the FEIS.

As discussed in Section 1.2 of this FEIS, the Commission determined in the Waste Confidence Decision, 10 CFR 51.23 (55 Fed. Reg. 38474, Sept. 18, 1990) that there is reasonable assurance that at least one geologic high level waste repository will be available within the first quarter of the twenty-first century. Therefore, the NRC staff analysis assumes a repository will be available to receive SNF from the proposed PFSF after its 40-year life (if the NRC grants a license for 20 years and renews it for an additional 20 years).

Although the NRC staff assumes in its analysis that a permanent repository will be available, the licensees of the power facilities storing SNF at the proposed PFSF would continue to retain ownership and responsibility for the SNF if licensed operations were to cease (e.g., due to expiration or the NRC's revocation of the initial 20-year license) before a repository is available. Based on current DOE projections, a permanent repository is scheduled to open by 2010, which would be within the initial 20-year license term proposed for the PFSF. In addition, because the requirements in 10 CFR 72.54 would require the applicant to decommission the proposed PFSF, the owners of the SNF would be responsible for maintaining the SNF in a safe condition and would bear the cost for its continued safe storage at a different location. The NRC staff notes that a new storage facility, other than the original reactor site, would require the NRC's approval (including an environmental review) to store the SNF.

**G.3.4.3.2 Adequacy of Decommissioning Funding Plan and Cost Estimates****Comment Summary:**

One commenter stated that the FEIS should present the NRC's license conditions, specific terms, minimum specifications for the "decommissioning fund," and permit conditions in the case of a business dissolution. (0215)

One commenter said that the decommissioning funding discussion did not contain sufficient information to provide reasonable assurance that the necessary funds would be available to decommission the proposed PFSF, as required by 10 CFR 72.30(b). (0198a) The commenter asserted that the applicant's discussions of decommissioning and funding for decommissioning were deficient in the following respects:

- The commenter stated that the applicant has failed to provide reasonable assurance, as required by 10 CFR 72.30(b), that funds would be available to decommission the proposed PFSF. The commenter said that the applicant intends to obtain a letter of credit for \$1,631,000 to cover the estimated costs of decommissioning the proposed PFSF and site. However, the commenter stated that the applicant offers no reasonable assurance that it would be qualified to obtain such a letter of credit.

- The commenter also said that the financial assurance regulations for decommissioning allow for use of an external sinking fund coupled with a surety method or insurance. The commenter said that the applicant specified that a surety would be in the form of a letter of credit but did not provide the wording for the letter or state that it would be irrevocable. The commenter said that this does not comply with the guidance in Regulatory Guide 3.66, “Standard Format and Content of Financial Assurance Mechanisms,” required for decommissioning under 10 CFR Parts 30, 40, 70, and 72.
- The commenter said that the applicant failed to justify the basis and provide sufficient detail for all decommissioning cost estimates in its Preliminary Decommissioning Funding Plan. The commenter stated that estimates of \$17,000 per cask and \$1,631,000 total should be broken down in some detail and in accordance with NUREG-1567, should be tied to a base year to address inflation.
- The commenter said that the applicant omitted a level of detail for funding cost estimates for decommissioning, using the excuse that these costs cannot be currently quantified.
- The commenter said that a number of the estimates are inconsistent, including the costs for decontamination of the Canister Transfer Building, the costs to decontaminate the cask surfaces, the costs for disposal, and the incremental cost for decontamination of casks.
- The commenter said that the license application lacks consideration of the direct and indirect decommissioning costs. In addition, the commenter said that the plan was not compared with present funds to identify any projected shortfalls, and the applicant did not conservatively estimate the total costs for decommissioning.
- The commenter stated that the decommissioning cost estimate totally ignored the potential for large accidents and resulting releases and contamination at the site.
- The commenter said that the Preliminary Decommissioning Plan should provide procedures and cost estimates that reflect realistic consideration of the potential need for the decommissioning of a facility with significant contamination from canister releases.
- The commenter stated that the Preliminary Decommissioning Plan and cost estimate did not adequately consider the decontamination of casks and cask liners and ignored the need to dismantle casks.
- The commenter said that the applicant failed to describe the type of site survey (estimated to cost \$250,000) and sampling protocol that would be used. The commenter also said that the generic description of the survey did not meet the requirements of 10 CFR 72.30(a).
- The commenter stated that the applicant failed to provide decommissioning procedures and costs for the ITF and failed to provide significant details about the planned structures and operations at that facility. (0198a)

**Response:**

These issues regarding decommissioning funding and cost estimates are beyond the scope of the EIS because this type of information is not required to analyze the environmental impact of performing decommissioning activities at the proposed PFSF. The applicant provided decommissioning funding and cost estimate information in its application. The NRC staff evaluated this information during its safety review and found it acceptable, as documented in Chapter 17 of the SER. The NRC staff concluded that the applicant adequately considered decontamination and facility design issues with respect to determining decommissioning costs. Furthermore, the Commission directed that a license condition be established to provide reasonable assurance that adequate funds would be available to

decommission the proposed PFSF. The response to G.3.4.1 provides additional information regarding decommissioning and removal of SNF from the proposed PFSF.

#### **G.3.4.3.3 Displacement of Cost**

##### **Comment Summary:**

One commenter requested that the displacement of cost for decommissioning of a temporary site be assessed. (0096)

##### **Response:**

The NRC has determined that the applicant provided reasonable assurance that adequate funds will be available for decommissioning as reflected in Chapter 17 of the SER. This comment involves a safety issue that does not directly affect the environmental impacts of the proposed PFSF, and is beyond the scope of the EIS. Therefore, no further response to this comment is required.

#### **G.3.4.4 Impacts of Decommissioning**

##### **G.3.4.4.1 Impacts from Decommissioning**

##### **Comment:**

One commenter stated that potential impacts from decommissioning need to be incorporated into the EIS in order to provide details on the methods for dismantling the contaminated parts from the storage casks and transfer building. The commenter stated the FEIS should specify how storage casks are decommissioned and the level of radioactivity considered safe for unrestricted use/disposal of decontaminated materials. (0215)

##### **Response:**

Sections 2.1.6 and 4.9 of this FEIS address the specific activities and environmental impacts associated with decommissioning the proposed PFSF. This information is based on the Preliminary Decommissioning Plan provided by the applicant and accepted by the NRC. As described in Section 2.1.6 of this FEIS, the applicant would have to prepare and submit a final Decommissioning Plan to the NRC. This plan would contain additional details of the decontamination activities and updated techniques that would be required to safely decommission the proposed PFSF. Radiological criteria for license termination are specified in Subpart E of 10 CFR Part 20. A site is considered suitable for unrestricted use if the residual radioactivity, which is distinguishable from background radiation, results in a whole body dose to an average member of the public that does not exceed 25 mrem (0.25mSv) per year. The proposed PFSF must meet this regulation. Accordingly, the NRC staff concludes it has adequately addressed these issues and the environmental impacts of decommissioning in the FEIS.

##### **G.3.4.4.2 Impacts from Improper Decommissioning and Closure**

##### **Comment Summary:**

Two commenters indicated that the FEIS should discuss the impacts resulting from improperly decommissioning the proposed PFSF. (0158, 0215)

##### **Response:**

The comment is not clear on what specific activities or consequences would constitute "improper" decommissioning. Therefore, the NRC staff cannot provide a specific response. As set forth in



Sections 2.1.6 and 4.9 of the FEIS, the NRC staff concludes that technology would be available to safely and completely decommission the proposed PFSF.

#### **G.3.4.4.3 Limited Liability Issues Regarding Decommissioning and Closure**

##### **Comment Summary:**

One commenter suggested an analysis of the impacts of limited liability on decommissioning, because the applicant is a limited liability company. (0096)

##### **Response:**

Sections 2.1.6 and 4.9 of the FEIS address the NRC staff's analysis of the specific activities and environmental effects associated with decommissioning the proposed PFSF. Adequacy of decommissioning funding and limited liability issues are addressed in Section G.3.4. The fact that the applicant is a limited liability company has no impact on the requirement that the applicant have adequate financial assurance for decommissioning. The NRC staff has reviewed the applicants' proposed Decommissioning Funding Plan and the staff's analysis is reported in the SER. Accordingly, the NRC staff concludes that the environmental impacts of decommissioning have been adequately addressed in the FEIS.

#### **G.3.4.4.4 Impacts on Future Generations**

##### **Comment Summary:**

One commenter expressed concern that future generations will not be aware of the location of these nuclear waste dumps. (0024)

##### **Response:**

The proposed PFSF would be an above-ground, temporary facility and would not be authorized as a permanent disposal facility. The proposed PFSF would be decommissioned in accordance with the NRC's regulations and a final Decommissioning Plan, which would be approved by the NRC. All SNF and radioactive waste would be removed from the proposed PFSF and the proposed site would be released for unrestricted use at the end of the decommissioning process. Furthermore, all future NRC regulatory actions for the proposed PFSF would be documented and be available to the public to review during the proposed PFSF's lifetime.

## G.3.5 Alternatives

### G.3.5.1 The Range of Alternatives Covered in the DEIS

#### G.3.5.1.1 Range of Alternatives in DEIS is Inadequate

##### Comment Summary:

Several commenters stated that the NRC has not comprehensively considered, explored, or evaluated an adequate range of alternatives. (0005, 0039, 0096, 0113, 0166, 0198, 0198h, 0198i, 0212, 0215, GR-14, SL1-04, SL1-06, SL1-28, SL3-32, SL1-39, SL3-46, SL3-50) Specific comments include:

- Two commenters stated that the NRC has not provided a reasonable range of alternatives as required by NEPA and 40 CFR 1502.14, or enough detailed information on each alternative for reviewers to consider their merits adequately. (SL1-04, SL1-28) Two commenters stated that the applicant's funds should be used to explore several other alternatives, including either storing the SNF or finding other sources of energy. (SL1-39, SL3-32) Another commenter expressed dissatisfaction with the NRC's consideration of alternatives, stating that if the NRC had seriously considered other proposed interim storage sites it would have conducted safety evaluations of other sites (such as Wyoming). (GR-14) Another commenter rejected the NRC's analysis and urged the NRC to find a better solution than the proposed project. (0005) One commenter expressed concern that only two alternatives were considered in the DEIS, when the project affects the entire country. (SL3-50) One commenter suggested that another range of alternatives be proposed that considers the views of the residents of Utah. (SL1-04)
- Other commenters stated that safe, alternative energy sources must be examined and developed. (0034, 0242, SL1-29, SL1-34, SL1-35, SL3-36, SL3-46) One commenter stated that if the Federal government gave more money to energy-related problems, it would need to give less money to public health-related problems. (0165)
- One commenter stated that a discussion of the range of alternatives is considered the "heart" of an EIS, (40 CFR 1502.14), and its purpose is to sharply define the issues and provide a clear basis for choice among options by the decision-maker and the public. Yet, the commenter asserted that the applicant presents only one option: a centralized national storage facility on the Skull Valley Reservation. (0198h, 0198i)
- One commenter stated that the EIS must present the environmental and other impacts of the proposed action, and all reasonable alternatives, including the no action alternative, in a comparative format. (0198i)
- One commenter stated that the purpose of the alternatives discussion is to address the feasibility of alternatives different from the proposed action, and to consider the issues, such as economic, social, health, and environmental justice issues associated with each alternative. However, the commenter states that the DEIS ignored all other alternatives, including the feasibility of on-site storage of SNF rods, which the DEIS includes, but negates as an alternative. The commenter stated that this is because nuclear industries do not want their stockholders to lose profits. (0096)
- One commenter stated that the DEIS failed to openly and honestly evaluate all of the legitimate alternatives. The commenter specifically stated that the DEIS presented data showing that the no action alternative is the safest, cheapest, most technically feasible, and most logical choice; yet the DEIS presented the preferred alternative, which is documented to have the most adverse impact with the least evenly distributed economic impact for Utah. The commenter stated that Utah does not use or generate nuclear waste, and it should not be expected to store it. The commenter added that the DEIS's preferred alternative is the highest risk alternative and that it is irrational because it proposes: the transport of a never-tested, unprecedented volume of highly

radioactive SNF cross country for at least 20-40 years; and the storage of this SNF beneath restricted airspace for active military testing. The commenter concluded that these proposed actions would be performed by a limited liability corporation with no assets to assist in significant cleanup activities if an accident occurs. (0166)

- One commenter stated that the NRC should consider reasonable alternatives even if they are not within the jurisdiction of the NRC, according to CEQ regulations in 40 CFR 1502.14(c) and NRC regulations in 10 CFR Part 51, Subpart A, Appendix A, Section 5 [incorporated through 10 CFR 51.70(b)]. (0198-183) Another commenter stated that 40 CFR 1502.14 requires that a reasonable range of alternatives be considered. The commenter also stated that the NRC's own guidance specifies that an applicant submit a slate of alternatives, but that the DEIS does not present and analyze a reasonable range of alternatives as the law requires. The commenter said that the only other alternative site that the NRC evaluated is in Wyoming, but that the analysis did not "devote a substantial treatment" to this alternative. The commenter also stated that the DEIS did not present a detailed analysis of the no action alternative, and the range of alternatives did not address the stated purpose and need for the project. (0113)
- One commenter urged the NRC to take time to explore all of the issues, and then to create an official policy regarding how to handle SNF. (0224)
- One commenter asserted that the ER failed to comply with NEPA because it did not adequately evaluate the range of reasonable alternatives to the proposed PFSF. The commenter stated that "NEPA requires consideration of all reasonable alternatives (40 CFR 1502.14), and it is well established that alternatives are at the heart of an EIS (*Calvert Cliffs' Coordinating Committee, Inc. v. Atomic Energy Commission*, 449 F.2d 1109, DC Cir. 1971)." (0198a)

#### **Response:**

One of the purposes of the FEIS is to evaluate the proposed PFSF. The applicant identified a purpose and need for this proposed PFSF, which the NRC describes in Section 1.3 of this FEIS, "Need for the Proposed Action." The reasonable range of alternatives includes alternate methods to satisfy the need for the proposed action. For a more detailed discussion on the purpose and need, see Section G.3.1 of this FEIS.

Chapter 2 of the DEIS, "Alternatives Including the Proposed Action," discussed many different alternatives and explained why the NRC did or did not consider them further in the DEIS. Although the commenters asserted that the range of alternatives was not complete, most commenters did not identify other alternatives for the NRC staff to consider. Without suggested alternatives, the NRC staff and the Cooperating Agencies were unable to perform further analysis.

While some commenters did identify alternatives, many of these alternatives would not satisfy the stated purpose and need for the proposed PFSF. The purpose and need is for an interim facility that would provide a safe, efficient, and economical alternative to continued SNF storage at reactor sites. Many of the alternatives in the comments presented issues that involve national energy policy (e.g., finding other sources of energy). Alternatives that propose changes in national energy policy would not satisfy the need for the proposed action, as there would still be a need to store the SNF already generated. Therefore, such alternatives are beyond the scope of the EIS.

One commenter requested that the NRC consider the views of the residents of Utah. The NRC and the Cooperating Agencies held public meetings in Utah for the proposed PFSF, received the residents' and others' comments, and considered the comments seriously. In accordance with NEPA and the NRC environmental regulations, this FEIS includes a summary of public comments and the Cooperating Agencies' responses to them.

A detailed comparison of the environmental impacts of the alternatives considered is included in Chapter 9 of this FEIS. As stated in the FEIS, the NRC staff and the Cooperating Agencies conclude that the environmental impacts associated with the proposed action would not result in any adverse impact that could not be mitigated. For the proposed action, the NRC and the Cooperating Agencies are either regulatory or permitting agencies. As such, the agencies can either grant the applicant's request, deny the request, or approve the request with conditions. Therefore, from an environmental standpoint, the agencies did not identify any reason to recommend denying the application. Commenters stated that the DEIS presents only one alternative (the proposed action), and ignores, negates, or inadequately treats the no action alternative. Section 6.7 of the DEIS discusses the environmental impacts of the no action alternative and Table 9.1 of the DEIS sets forth a comparison of the environmental effects of the proposed action and alternatives, including the no action alternative. Notwithstanding the discussion in the DEIS, the NRC and the Cooperating Agencies have revised the text of Chapter 9 of the FEIS to (1) specifically explain the differences between the proposed action and the no action alternative, and (2) discuss why the no action alternative was not selected as the preferred alternative. The NRC and the Cooperating Agencies have included this discussion in Section 9.3 of this FEIS. That section documents the environmental impacts of the no action alternative, as compared to the proposed action.

One commenter requested that the NRC conduct a safety evaluation for all of the reasonable alternatives, such as the Wyoming site. The NRC only conducts safety evaluations when it receives an application for a proposed project. In such cases, the NRC evaluates the proposed facility design and operation to ensure that they would meet all standards and requirements of the NRC safety regulations. These standards and requirements do not vary according to the geographic location of the facility. Therefore, the proposed PFSF must adhere to the same NRC safety regulations as an ISFSI located anywhere else in the United States. The NRC considered alternative sites to determine whether the applicant's site selection process was reasonable, and whether one of the applicant's alternate sites was obviously superior to the proposed site. The purpose of this review was to determine whether the proposed site is environmentally acceptable and to determine whether any alternative sites that the applicant considered are substantially preferable from an environmental standpoint. The NRC staff concluded that the Wyoming site was not substantially preferable from an environmental standpoint and, therefore, not obviously superior to the proposed site.

#### **G.3.5.1.2 Specific Technological Alternatives Analysis is Inadequate**

##### **Comment Summary:**

Several commenters stated that the technological alternatives analysis is inadequate. (0002, 0020, 0024, 0045, 0096, 0112, 0122, 0170, SL2-03, SL2-14, SL2-19, SL3-36, SL3-50, SL3-57) Specific comments include:

- Several commenters supported an alternative of reprocessed or neutralized SNF. (0020, 0112, 0122, 0170, SL2-19, SL3-36, SL3-50) One commenter suggested that the construction of reprocessing/recycling facilities close to the generating reactor licensees be considered as an alternative, and the commenter suggested using the \$60 billion from the reactor licensees' escrow for construction. (SL3-57) One commenter supported reprocessing SNF in Utah and stated that such an opportunity should serve as a well thought-out SNF reprocessing and recycling plan for the country. (SL2-03) The same commenter stated that reprocessing would offer several benefits: a) provide a great amount of energy for the future, b) drastically reduce the amount of waste that must be stored, c) reduce the required storage time from 10,000 years to only 600 years, and d) provide the best way to get rid of plutonium from old weapons by burning it in reactors for energy. (0020)
- One commenter stated that the NRC should address the other current dry storage system design described in Section 2, "Alternatives Including the Proposed Action," of the DEIS (page 2-33, lines 4-5) under NEPA's alternative requirement criteria. (0096)

- One commenter urged the NRC to consider the reduction of SNF waste in the future, and to create a better industrial vision for the United States and the world. (0002) Another commenter encouraged states to retrofit and repair their infrastructures to conserve water and electricity. (SL2-14)
- One commenter stated that the money nuclear facilities put in an escrow account for the disposal of SNF should actually be spent to reprocess the material. (SL3-57)

**Response:**

The NRC staff reviewed the technological alternatives analysis in the DEIS and concluded that it is adequate. A detailed comparison of the environmental impacts of each alternative evaluated in the EIS is included in Chapter 9 of the FEIS.

Commenters suggested that the NRC further explore the SNF reprocessing alternative, but SNF reprocessing is contrary to the existing national energy policy. The United States did not develop a policy to reprocess SNF because natural uranium is relatively abundant; also, there are concerns that plutonium from reprocessed civilian SNF potentially could be used for nuclear weapons production. On April 7, 1977, President Carter announced that the United States would defer indefinitely the reprocessing of SNF from commercial nuclear power reactors and discourage reprocessing of SNF abroad. President Clinton reiterated the United States' position on reprocessing in a statement on Nonproliferation and Export Control Policy saying that, "the United States does not encourage the civil[ian] use of plutonium and, accordingly, does not itself engage in plutonium reprocessing for either nuclear power or nuclear explosive purposes." (White House, Office of the Press Secretary's Fact Sheet: Nonproliferation and Export Control Policy, September 29, 1993) Since the consideration of a reprocessing alternative would require a change in U.S. nonproliferation policy and could introduce foreign policy and national security concerns, the NRC staff did not consider reprocessing to be a reasonable alternative and, therefore, did not discuss it in the FEIS.

The NRC staff considered the comment that the EIS should consider other dry storage technologies, and refers to Section 2.2.2.1 of the DEIS, "Dry Storage Systems." In that section, the NRC staff indicated that other dry storage systems would be constructed of materials similar to those used for the proposed system, and stated that the environmental impacts of other dry storage technologies would not be substantially different from those associated with the proposed system. As a result, the NRC determined that additional analyses of dry storage technologies was not necessary in this EIS.

A few commenters stated that the NRC should explore waste minimization as an alternative to the proposed PFSF. While the NRC staff agrees that all licensees should explore methods to decrease SNF production, a reduction in SNF generation is unlikely at this time. Using current, known technologies, reactors must use fuel to operate; the fuel remains radioactive after use and must be stored. However, in recent years, improvements in fuel design have led to longer fuel cycles, which reduce the amount of SNF generated over a finite period of time. Private industry and the DOE perform nuclear reactor design. However, neither industry nor government waste minimization initiatives would affect the existing SNF inventory. Therefore, an alternative that explores waste reduction would not satisfy the purpose and need for the proposed action. For facilities which generate SNF, the proposed PFSF would provide an alternative to on-site storage of SNF until a permanent repository is opened. Based on current DOE projections, a permanent repository is scheduled to open by 2010.

**G.3.5.1.3 Specific Storage Site Alternatives Analysis is Inadequate****Comment Summary:**

Several commenters stated that the specific storage site alternatives analysis is inadequate. (0036, 0096, 0112, 0156, 0163, 0168, 0198, 0198h, 0236, SL1-07, SL1-11, SL1-21, SL2-09)

Two commenters asserted that alternatives 2 through 4 (p. xxiii, lines 1-13) are not really alternatives, but variations of options that lead to the disposal of high-level radioactive waste at the same location within the same region. (0112, 0156) One commenter stated that the EIS must analyze the option of alternative site locations, whether presently feasible or infeasible in the future. (0198h) Commenters stated that Site A and the alternative location on the Reservation (Site B) cannot be real alternatives (as the DEIS states on p. 4-1, lines 42-44) if there is only a half-mile distance between them. (0096, 0198, SL1-07, SL1-21) One commenter urged the NRC to allocate a share of the SNF to each state. (0036) One commenter suggested that the SNF should be stored at a site in a remote area closer to its generation. The commenter stated that it should be placed in the middle of the country, where it would be easier to protect. (SL2-09) Another commenter stated that the EIS must explore the development of private regional ISFSIs as an alternative, because the transportation distances and volume of fuel consumed would be less. (0198h)

### **Box Elder Fuel Storage Alternative**

One commenter identified the potential for an alternative ISFSI in Box Elder County, Utah (Box Elder Fuel Storage), and stated that the NRC failed to consider it. The commenter indicated that the Pigeon Spur site proposed in the Box Elder Fuel Storage initiative is more practical than the proposed Skull Valley site and provided several reasons to support this position. (0168)

### **Owl Creek Alternative**

One commenter identified an alternative ISFSI proposed for Owl Creek, Wyoming, and stated that although the Owl Creek project is in a preliminary planning stage, it is likely that both Skull Valley and Owl Creek will be needed. (0236) Another commenter stated that Owl Creek is offered up as a non-alternative, and it undermines the credibility of the entire process and reinforces the perception that the NRC is acting as an advocate for the applicant. (0156, SL1-07)

Another commenter stated that the DEIS (Pg 2-31, section 2.2.1.1, line 37) indicates that no other commercially owned away-from-reactor dry cask storage system ISFSIs "have been proposed," and omits the Owl Creek Project in Wyoming and the Pigeon Spur Fuel Storage Facility in Box Elder County, Utah. The commenter stated that although technical papers and presentations have addressed the Owl Creek project, the NRC has not yet received an application. Therefore, the project would require state legislative action to proceed. Given this status, the commenter asserted that the Owl Creek Project is not a probable alternative to the proposed PFSF. Similarly, the Pigeon Spur Fuel Storage Facility is not a probable alternative to the proposed PFSF, because it is subject to State of Utah jurisdiction and the Utah Governor is opposed to such facilities. (0163)

### **Response:**

The NRC staff acknowledges the comments regarding the potential Owl Creek (the site referred to as the Wyoming Alternative) and Box Elder (Pigeon Spur) sites. The NRC's alternative analysis identifies a reasonable range of alternatives based on the purpose and need for the proposed action. Neither Owl Creek nor Pigeon Spur has either an operating ISFSI or an application before the NRC. Therefore, these potential ISFSIs are not considered practicable or feasible alternatives to the proposed PFSF. See Section 7 of this FEIS for a discussion of the Alternative Site Analysis. Furthermore, regarding the Pigeon Spur site, the NRC staff informed the sponsor for the Pigeon Spur Storage Facility, by letter dated January 8, 1999, that its application, submitted October 19, 1998, was insufficient for review in accordance with 10 CFR Part 72. As a result, the NRC staff rejected the application.

Although another commenter indicated that the NRC should have considered private regional SNF storage, no private entity has proposed facilities of this kind, and any attempt by the NRC staff to determine where "regional" SNF storage facilities should be located would be speculative. The NRC acknowledges the comment that shorter transportation distances to the facility would reduce the

amount of fuel consumed during SNF transport to the SNF storage facility so that regional ISFSIs have fewer environmental impacts. However, the NRC staff disagrees, because it determined that the environmental impacts from transportation of SNF from reactor sites to the proposed PFSF are small. In addition, the total distance and number of shipments of SNF would depend upon where the regional facilities are located. When considering the environmental impacts in the aggregate, the NRC staff determined that the impacts would not differ appreciably. The NRC staff also concluded that the construction of regional facilities would disturb several geographically different areas. Depending upon the location and design, the construction of regional facilities could lead to more significant environmental impacts than the proposed action.

The NRC staff conducted an analysis of potential environmental consequences of constructing the proposed PFSF at the Skull Valley site. Chapter 9 of the FEIS, "Comparison of Alternatives," identifies nearby activities and the potential impacts from these activities.

The NRC staff acknowledges the comments that the breadth of alternatives was inadequate, but it disagrees. The DEIS identified the process that the applicant followed to eliminate alternate sites from further consideration. While the NRC staff recognizes that Site A and Site B are very similar, the NRC staff evaluated Site B in the DEIS to present the BIA decision-makers with a full discussion of the environmental impacts of the proposed action.

#### **G.3.5.1.4 At-Reactor Storage Evaluation is Inadequate**

##### **Comment Summary:**

Many commenters stated that the NRC staff evaluation of at-reactor storage is inadequate. (0007, 0089, 0090, 0096, 0112, 0113, 0142, GR-01, GR-14, SL1-28, SL2-13) One commenter asserted that more examination must be conducted for the no action alternative. (0113) Several commenters expressed concern that the DEIS does not include an evaluation of alternatives that would continue or expand storage capacity at existing reactor sites or storage facilities. (0007, GR-01, GR-14, SL1-28)

One commenter stated that the NRC staff should further investigate a permanent storage site and temporary storage sites that are closer to the points of origin. (SL2-13) Some commenters stated that the NRC staff should more fully provide the reasons why at-reactor storage of SNF is not practical, in order to provide the entire range of alternatives to the decision-makers and the public. (0089, 0096) One commenter argued that the proposed PFSF could be built at one of the reactor sites in the eastern United States to save costs and to transport the SNF a shorter distance. (0090) Two commenters indicated that the FEIS should include the option of utility companies shipping their SNF to other reactor sites in this group with sufficient additional storage. According to the commenters, this would reduce potential transportation, environmental, and human health impacts. (0090, 0142) Another commenter stated that the FEIS should consider the option of constructing an interim facility near the alternatives for permanent storage to mitigate transportation risks. (0112)

One commenter stated that reactor licensees could ship SNF from sites reaching capacity limits to those with available capacity. The commenter acknowledged that this would require that both plants agree to the move, which might be possible if they were both owned by the same utility. The commenter indicated that about half of the reactor sites will have run out of on-site storage for their own fuel by the time the proposed PFSF is opened in 2004, and by 2010, about 80 percent will have run out of capacity. The commenter stated that this is not a practical alternative to the extent that it does not reduce the need for interim storage away from reactor sites. (0236)

##### **Response:**

The NRC staff analyzed the at-reactor storage alternative as part of its analysis of the no action alternative. Based on this analysis, the NRC staff concluded that continued or expanded at-reactor storage is possible at many power reactor sites. However, continued storage at some sites could

become difficult and some reactors might shut down prior to the end of their licensed lives if there is not sufficient on-site storage capacity available. Based on its analysis of the no action alternative, the NRC staff concluded that SNF could continue to be stored at reactor sites without significant environmental impact.

Contrary to the point implied by the commenter, the proposed PFSF could be approved regardless of whether the no action alternative is feasible. NEPA requires that an agency consider the environmental impacts of a proposed action and reasonable alternatives be considered so that an informed decision can be made. NEPA does not prohibit a proposed action simply because the no action alternative is feasible. The NRC staff addressed the no action alternative in Chapters 2, 6, and 9 of the FEIS, and the environmental impacts of constructing additional at-reactor ISFSIs were discussed in Section 6.7 of the DEIS, "Proposed Impacts of the No Action Alternative." The NRC staff concluded that the environmental impacts are small as defined in Chapter 4 of the DEIS, "Environmental Consequences of Constructing and Operating the Proposed PFSF."

Section 2.2.1.2 of the DEIS, "Shipment of SNF Between Reactor Sites," did consider shipment of SNF between reactor sites. The NRC staff concluded that the alternative of shipping SNF between reactor sites would not likely satisfy the interim SNF storage needs for the applicant and the environmental impacts would be similar to the no action alternative with the exception of some transportation impacts. The FEIS also states that the transportation impacts would be bounded by the analysis in Section 5.7.2. Regarding the comment that the NRC should further investigate a temporary storage site closer to the points of origin, no such site has been proposed and the NRC staff does not select such sites. In this light, and because the NRC considers alternative sites to determine whether an applicant's site selection process is reasonable and whether one of an applicant's alternative sites is obviously superior to the proposed site, consideration of a temporary storage site closer to the point of SNF origination is not necessary. As for a permanent repository closer to the point of SNF origin, pursuant to the NWPA, site selection for a permanent repository is the responsibility of DOE. DOE has been directed by Congress to study only the proposed Yucca Mountain site. Based on current DOE projections, a permanent repository is scheduled to open by 2010. See Sections G.3.5.1.5, G.3.5.2.2.

### **G.3.5.1.5 Consideration of Yucca Mountain as an Alternative**

#### **Comment Summary:**

Two commenters stated that the NRC should consider [the proposed] Yucca Mountain site as a temporary alternative for a storage site. (0156, 0198h) Another commenter stated that an SNF storage facility should be at least 1 mile below ground at [the proposed] Yucca Mountain or some similar alternative, not above ground. (0013)

One commenter stated that the EIS must explore how the proposed PFSF fits into the overall Federal plan for disposing of high-level nuclear waste. The commenter stated that recent proposed legislation to site an MRS indicates that this alternative is within the range of reasonable alternatives that the EIS must consider. Thus, the NRC staff must evaluate the environmental effects, including transportation risks of the applicant's proposed PFSF against those same risks associated with an MRS. The commenter stated that the FEIS must also address the effect of the applicant's proposal on a comprehensive national plan to deal with the disposal of high-level nuclear waste. (0198h)

#### **Response:**

The NRC staff acknowledges the comments, but clarifies that it is a regulatory agency and does not pursue, site, construct, or manage facilities such as those suggested by the comments to be used for specific purposes. The NRC staff cannot request that private or government entities submit license applications for specific sites for temporary storage, including the Yucca Mountain site proposed for a permanent repository.



The Nuclear Waste Policy Act (NWPA) requirements for MRSs do not apply to privately owned and operated facilities. Pursuant to NWPA, the DOE cannot select a site for an MRS until the DOE recommends to the President approval of a site for the development of a permanent repository. Based on current DOE projections, a permanent repository is scheduled to open by 2010. Congress has not passed new Federal legislation for MRSs and previous regulations for this type of facility have expired. Therefore, an MRS is not a reasonable alternative at this point in time, and no change to the EIS is necessary.

The NRC staff acknowledges the comment regarding a comprehensive national plan for SNF storage. However, the comment does not apply to the environmental review for the proposed PFSF and the acceptability of that proposal.

#### **G.3.5.1.6 Inadequate Consideration of Transportation Alternatives**

##### **Comment Summary:**

One commenter stated that the DEIS failed to consider the difficulty of rail access to [the proposed] Yucca Mountain site using a proposed ITF and heavy-haul truck transport, although it correctly acknowledged that heavy-haul truck transport "is not considered a viable option for cross-country transportation to the proposed PFSF and is not analyzed in detail" (page 2-34). Likewise, heavy-haul truck transport of dual-purpose canisters from the proposed PFSF to a potential repository at Yucca Mountain would not be viable because of the number of shipments, the shipment distance (more than 400 miles), and likely route characteristics (mountainous terrain and highly populated areas). (0204)

The same commenter stated that the DEIS incorrectly ignored the difficulty of moving large rail casks from an ITF in Nevada to the proposed PFSF. The commenter said that the DOE identified three potential ITF sites in Nevada and potential heavy-haul truck routes ranging in length from 114 to 330 miles. The commenter stated that the United States has no experience with such long-distance heavy-haul truck transportation of SNF or high-level waste, and only limited experience with moving smaller rail casks (70 tons loaded weight) short distances by truck. The commenter added that Europe has only limited experience with short heavy-haul truck movements of large rail casks. The commenter stated that moving SNF hundreds of miles by heavy-haul truck through mountainous terrain and/or highly populated areas, such as the Las Vegas Valley, has never been performed. The commenter also added that, according to the NDOT, Nevada has permitted only two comparable heavy-haul truck movements of any cargo during the past three years, both large mining autoclaves. (0204)

The commenter stated that, based on this information, the DEIS should not assume that loaded dual-purpose canisters could be shipped from the proposed PFSF to [the proposed] Yucca Mountain site, either entirely by heavy-haul truck or via rail to an ITF followed by heavy-haul truck transport. The commenter concluded that the DEIS should consider an alternative mode of transportation to a repository, such as legal weight trucks, and that absent this analysis, the DEIS is deficient. (0204)

One commenter stated that until the applicant can provide documented evidence that it will have the technical, legal, and financial capability to construct a rail line, the NRC staff should assume that the applicant will offload shipments at the ITF at Rowley Junction and transfer the shipments from rail to truck (see SAR Fig. 4.5-1). (0198a)

One commenter noted that if a direct rail line to the proposed PFSF could be built in both an economically feasible and environmentally safe manner, it would make more sense than the proposed ITF alternative. DEIS Chapter 5, "Transportation Impacts of the Proposed Action," indicated that the proposed rail line does not exceed the STB-established environmental effects thresholds. (0236)

**Response:**

FEIS Section 5.7.2, "Radiological Impacts," presents the NRC staff's assessment of the impacts of eventual rail transportation of SNF away from the proposed PFSF. The NRC staff's analysis of transportation impacts utilized a conservative population and route from the proposed PFSF to the Utah border. As the NRC staff states in the FEIS, the plans for transportation of SNF beyond the Utah border are subject to decisions that have not yet been made and, therefore, are outside the scope of the FEIS. However, the NRC staff considers it reasonable to assume that SNF could be transported by rail directly to a proposed permanent repository at Yucca Mountain; or else, transported first to an ITF, and then to the proposed repository via heavy-haul vehicles. The NRC staff finds this to be reasonable based on the DOE's analysis contained in the Yucca Mountain DEIS, in which the DOE considered a mostly rail scenario and discussed several intermodal transfer points. For a more detailed response see Section G.3.16 of this FEIS.

The NRC and the Cooperating Agencies completed a thorough evaluation of the applicant's proposed action, which included transportation from the proposed rail line from Low, Utah to the proposed PFSF. The agencies also evaluated the ITF as a transportation alternative in the DEIS. The NRC, the BLM, and the STB all considered the applicant's capability to construct the proposed rail line as part of their respective decisions on the license application and lease proposal.

**G.3.5.1.7 Inadequate Evaluation of Economic Development Alternatives for the Skull Valley Band****Comment Summary:**

Many commenters stated that the DEIS inadequately evaluates economic development alternatives for the Skull Valley Band. (0029, 0050, 0112, 0113, 0114, 0158, 0203, GR-15, GR-16, SL1-02, SL1-05, SL1-10, SL1-28, SL1-30, SL2-06, SL2-09, SL2-13, SL2-18, SL3-26, SL3-22, SL3-35)

Several commenters suggested that new alternatives should be developed to assist the Skull Valley Band to obtain financial independence. (0029, 0050, GR-16, SL1-05, SL1-10, SL1-28, SL2-06, SL2-09, SL2-13, SL2-18, SL3-26, SL3-22, SL3-35) Commenters expressed concern that if the purpose and need of the DEIS is to provide economic development for the Skull Valley Band, then the range of alternatives should address other economic development and land use alternatives. (0112, 0113, SL1-28) One commenter suggested an alternative that involves the development of a reclamation company and consulting firm that would hire Skull Valley Band members as employees. The commenter suggested that the land be used as a technological testbed for learning techniques to restore the soil and clean up the land. (SL2-06) Several commenters stated that a gambling casino would be a more desirable source of revenue than a nuclear waste disposal facility. (0114, GR-15, SL2-09) One commenter suggested that the Goshute Indian Reservation should establish a plant nursery or a Polynesian cultural center along with an American Indian festival to generate revenues. (SL2-09) One commenter suggested that the State of Utah provide financial compensation to the Skull Valley Band not to put the proposed PFSF on their Reservation. (0114) Another commenter stated that the State of Utah has a budget surplus of approximately \$114 million, and if the State offered the Skull Valley Band a portion of the surplus, the Skull Valley Band would accept the money and cease negotiations with the NRC and the applicant. (0212) Another commenter supported the creation of a tax to help the Skull Valley Band learn to work in technological or scientific fields. (GR-15) Another commenter suggested that money should be invested in training, education, jobs, and businesses for the Skull Valley Band rather than the proposed PFSF. (SL3-26)

Some commenters stated that the Skull Valley Band had determined that some alternative proposals for economic development were not feasible because of other facilities near the Reservation. Notwithstanding this determination, the commenters concluded that the Skull Valley Band's decision to enter into the lease is not justified given the long-lasting negative human health and environmental impacts of hazardous material storage facilities. (0203, SL1-05, SL2-09)

One commenter stated that the Skull Valley Band would end negotiations with the applicant in exchange for the State's budget surplus. (SL1-02) Another commenter stated that the DEIS did not evaluate economic development alternatives for the Skull Valley Band, other than giving them the State's budget surplus. If this were the chosen alternative, the commenter questioned how long the State would give the Skull Valley Band the budget surplus. (SL1-30) Another commenter stated that the DEIS does not adequately consider substantial trust funds that exist to promote agricultural development on the Reservation. This commenter stated that the DEIS should analyze the potential impacts associated with the construction, operation, and decommissioning of the proposed PFSF on the ability of the Skull Valley Band members to use or access these development funds. (0158)

One commenter suggested that since the reactor licensees are apparently offering many millions of dollars in bribes to the Skull Valley Band to lease 820 acres of the Reservation of the Skull Valley Band, these funds should be invested to secure a safe house, a safe job, and a safe alternative community - away from the toxic air, land, and water of Tooele County - for each of these long-abused Native Americans. (0203)

One commenter stated that when this project gets defeated, the people of the Reservation should be helped with their economic development, including housing and safe jobs. (GR-16, SL1-36)

**Response:**

Many comments expressed concern about the Skull Valley Band's decision to lease part of their Reservation to the applicant for the construction and installation of an SNF storage facility. The FEIS addresses the question of how and where to store SNF and, from the BIA's perspective, how to assist the Skull Valley Band's economic development. Any such assistance must occur within the context of the government-to-government relationship between the United States and the Skull Valley Band, and the trust responsibility of the United States to the Skull Valley Band. The government-to-government relationship requires that the alternatives be limited to those that the government of the Skull Valley Band has presented to the Secretary of the Interior for approval. The evaluation of other economic activities is beyond the scope of this EIS. One of the ways in which the NRC and the Cooperating Agencies exercise the trust responsibility of the United States is by analyzing in this FEIS the positive and negative impacts of the proposed PFSF on the quality of the human environment.

The Skull Valley Band must decide whether to allow construction of the proposed PFSF on the Reservation to generate revenue. If the State of Utah or other organizations are willing to work with the Skull Valley Band to find another viable economic solution, the BIA would be available to provide the Tribe with technical assistance to evaluate other economic development opportunities and conduct NEPA reviews.

**G.3.5.2 Alternatives Dismissed from Detailed Evaluation**

**G.3.5.2.1 Process for Dismissing Alternatives**

**Comment Summary:**

Two commenters questioned the process used to eliminate alternatives from further evaluation. One commenter stated that the elimination of Alternative 3 based on the additional radiation doses that workers would incur during SNF transfers contradicts previous statements that the radiation is "within acceptable levels." The commenter critiqued the process by assigning values to each impact and adding up the scores, and then concluded that the no action alternative is the best option, followed by the Wyoming alternative, and then the preferred alternative. The commenter asserted that Alternative 1 was the only alternative considered, and alleged that the reason was money. (SL3-46) Another commenter stated that the DEIS was based on false information when it referred to seismicity concerns as being "reason for rejection" of the site on the Mescalero Reservation in New Mexico. The commenter stated that this was reason for rejection at a different site. (SL3-52)

**Response:**

The discussion in the Executive Summary refers to Alternative 3 as less desirable than Alternative 1 (the proposed action), but the FEIS fully evaluates the impacts from Alternative 3 in both Chapters 4, “Environmental Consequences of Constructing and Operating the Proposed PFSF,” and 5, “Transportation Impacts of the Proposed Action.” The additional worker dose associated with Alternative 3 would come from an extra step in the handling process that is not part of the activities under Alternative 1. Under Alternative 3, the use of an ITF would require the transportation casks to be transferred from rail cars onto trucks, which would expose workers to an additional dose from this handling step. Under Alternative 1, this handling step is eliminated because the transportation cask would move by rail all the way to the proposed PFSF. Under either Alternative 1 or 3, the transportation cask would be unloaded from the transport vehicle once it arrived at the proposed PFSF.

As discussed in Section G.3.15.4.2, NRC regulations require worker doses to be within specified limits and require that doses be maintained as low as reasonably achievable (ALARA). Also, as discussed in Section 4.7.4 of this FEIS, the occupational doses to workers could be mitigated and maintained ALARA by means of active programs that involve administrative controls, engineering controls, measurements, and worker training.

The NRC staff acknowledges and appreciates the commenter’s efforts to assign a score to each alternative. However, the NRC staff does not agree that each potential environmental impact should be evaluated equally to develop a single numerical value for each alternative. An agency must evaluate each environmental impact to determine its potential to cause immediate or future harm to people or the environment. Some environmental impacts are temporary, while others are long term or permanent. The extent of harm or damage associated with different impacts also varies. Furthermore, NEPA does not require that the alternative with the least impact be selected.

The comment about the Mescalero Reservation referred to Appendix F of the DEIS, “Site Selection/ Evaluation Forms,” which displays data sheets used by the applicant in its site selection process. The NRC staff neither developed this information/data nor relied upon it in this FEIS. The applicant eliminated the Mescalero Reservation site from further evaluation because of seismicity and because the applicant could not reach agreement with the controlling entity (see Section 7.1, “Site Selection Process”).

**G.3.5.2.2 The DOE Alternative****Comment Summary:**

Several commenters stated that the NRC should consider an alternative in which the DOE would take title and possession of the utility companies’ SNF at the reactor sites until a permanent repository is approved. (0089, 0090, 0096, 0171, 0198, 0198i, 0212) The commenters provided several reasons for exploring this option:

- Two commenters disagreed with the NRC staff’s decision not to evaluate the DOE’s proposal because it is speculative and because “critical issues” have not been considered. (0171, 0212) One commenter stated that DOE policy currently prohibits the approval of a temporary site prior to selection and approval of a final repository, thereby making this option more viable than the proposed site. (0090) One commenter argued that the DOE proposal should be analyzed as an alternative because the other aspects of the nuclear waste transportation and disposal program are just as speculative. (0171)
- One commenter stated that no analysis of the environmental impacts of SNF storage can be complete without considering the DOE-preferred management program. The commenter stated that under that management program, the DOE would take title to SNF while that SNF remains in

on-site facilities associated with the reactors that generate the SNF. The commenter expected that on a case-by-case basis, according to the preference of the utility, the DOE would either undertake responsibility for managing these on-site storage facilities or would reimburse the utility for its management costs. The commenter referred to the March 12, 1999, testimony of Bill Richardson, Secretary of Energy, before the United States House Subcommittee on Energy and Power of the Committee on Commerce. (0198, 0198i)

- The commenter indicated that the DOE prefers the on-site storage option to a centralized DOE interim storage facility, because it would postpone the costs and potential hazards of SNF transport until a permanent repository site has been selected, thus avoiding any unnecessary transport in the event a site other than the proposed Yucca Mountain site is finally approved. The commenter stated that the DOE also prefers this option, because it avoids the additional costs associated with building a new, temporary DOE repository. The commenter stated that both of these reasons apply to a privately owned temporary repository as well. (0198, 0198i) The commenter stated that it is arbitrary and capricious for the NRC to dismiss the DOE proposal, which has sufficient credibility and detail. Moreover, the commenter indicated that the program was formulated, in part, to avoid some of the impacts that the proposed PFSF would create. (0198)

Some commenters opposed the DOE proposal. Referring to page 2-32, lines 16-30, Section 2.2.1.3 of the DEIS, “Alternatives That, in Effect, Eliminate the Need for the Proposed PFSF,” one commenter stated that this option is subject to uncertainties concerning legal authority, liability, and financial and operational responsibilities. The commenter indicated that the DOE option is similar to the no action alternative and does not by itself increase on-site storage or allow decommissioning to be complete. (0163)

Another commenter indicated that Congress has not authorized an approach in which DOE would “take title” and possession of SNF at reactor sites, as the Secretary of Energy proposed in 1999. The commenter stated that several governors are opposed to the move because it would create de facto indefinite storage on sites that were never designed for extended use, and this use would be beyond the jurisdiction of the states. According to the commenter, there is little difference between this alternative and the no action alternative, other than that the government would have financial responsibility, instead of the reactor licensees. (0236)

Another commenter stated the NRC staff should more closely examine the alternative that would eliminate the need for concentrated waste storage. Specifically, the commenter stated that “despite the fact that the latter proposal was made by the Secretary of Energy, the NRC simply sweeps it off in the DEIS.” (0045)

Another commenter stated that the DEIS should not determine “ripeness” (p. 2-23, lines 21-31), rather it should provide an analysis of the feasibility of alternatives. (0096)

#### **Response:**

The NRC staff’s reasons for not including a detailed analysis of the DOE proposal in the FEIS are discussed in Section 2.2.1.3 of the FEIS. The Secretary of Energy has stated that “we would still have to address a range of issues, including liability, financial, and operational responsibilities.” As a result, the NRC staff concluded that the Secretary’s proposal was not ripe for evaluation as an alternative because it would require the NRC to speculate on its key aspects, and these uncertainties remain. A recent contract amendment that included a provision to transfer title of SNF to the DOE, signed by the DOE and PECO, highlights the uncertainty of this proposal (Amendment to Contract DE-CR01-83 NE44405 Between U.S. Department of Energy and PECO Energy Company, from [www.rw.doe.gov](http://www.rw.doe.gov)). This contract amendment identifies specific terms and agreements that would need to be finalized if the contract provision were to be executed. Furthermore, the contract amendment clearly identifies the uncertainty with regard to the legal authority of the DOE to take title to the Peach Bottom storage

casks and ISFSI. The FEIS has been updated to include a discussion of the DOE and PECO contract amendment.

The NRC staff also points out that the basic environmental impacts associated with the former Secretary's proposal would be analogous to the environmental impacts of the no action alternative. As stated in the DEIS, the SNF would continue to be stored at the reactor sites under the Secretary's proposal.

The NRC is a regulatory agency and does not pursue, site, construct, or manage facilities to be used for specific purposes. The DOE is the Federal agency that would own and operate a permanent repository. The fact that the DOE has proposed to take title to and possession of SNF does not affect the applicant's right to submit a license application for the proposed PFSF or the NRC's obligation to review the license application. Any DOE internal policy regarding the location or operation of permanent repositories or temporary SNF storage facilities does not affect what types of facilities the NRC can license.

NEPA does not require the NRC to evaluate alternatives that are speculative, and the NRC considers the DOE proposal to take title to and possession of SNF to be speculative. As one commenter indicated, it is not clear whether the DOE has legislative authority to implement this proposal. Further, the proposal is not detailed enough for the NRC to conduct a detailed assessment of impacts, as the specific locations to which the proposal would apply and the reactor storage sites (if any) that would be expanded have not been identified. Absent this information, the DOE proposal is in fact similar to the no action alternative analyzed in the EIS. The DOE proposal does not in and of itself increase SNF storage space at reactor facilities.

### **G.3.5.3 The Applicant's Site Selection Process**

#### **G.3.5.3.1 Range of Alternatives**

##### **Comment Summary:**

One commenter stated that the discussion of siting alternatives in Chapter 8, "Facility Siting and Design Alternatives," of the ER was inadequate. The applicant first identified a list of 38 potential sites using the original list of applicants to the Nuclear Waste Negotiator's office and entities that expressed an interest. (The commenter referenced the ER at 8.1-2 and Table 8.1-1.) At least 20 of the sites appear to be located on an Indian Reservation. The commenter concluded that the applicant's basis for coarse screening could be summarized as: a willing jurisdiction, public acceptability, reasonable distance to known capable seismic faults and reasonable known ground accelerations, reasonable site flooding conditions, and favorable proximity to transportation access. Any jurisdictional restriction that would prohibit the proposed facility was used as an exclusion factor. (The commenter referenced the ER at 8.1-4.) (0198a)

The commenter stated that the applicant's second screening phase involved regulatory criteria, but there was no discussion or tabulation of the results from this second screening phase. The commenter indicated that the most confusing part of the site selection process is the third phase in which the applicant apparently used a questionnaire to determine site suitability (ER Table 8.1-2). The commenter stated that the ER did not mention whether the applicant sent the questionnaire to all 38 site owners or just to the Skull Valley Band, nor did it discuss any of the responses to the questionnaire. The commenter added that the applicant discussed "the remaining (3) candidate sites," but that the reader could not identify which sites the applicant meant, because the only sites mentioned by name were the 38 initial sites and the two sites located on the Reservation of the Skull Valley Band. The commenter stated that the final screening phase seemed to choose between two sites on the Reservation that were almost contiguous. (The commenter referenced ER Fig. 8.1-2.) (0198a)

In the opinion of the commenter, the applicant's most important criterion seemed to be a willing jurisdiction, such that its "screening" process narrowed from 38 sites to two sites located almost next to each other on the Reservation. In addition, the commenter asserted that the ER did not apply 10 CFR 72.90-108, "Site Evaluation Factors," to the candidate sites, and that other major omissions included failure to consider the adequacy of transportation corridors as well as accident and risk analyses.

The commenter stated that the NRC staff cannot rely on the applicant's site selection criteria because they did not apply at all levels of screening. The commenter also stated that information used in the screening process was not described or tabulated. The commenter concluded that the siting criteria in the ER were flawed and failed to demonstrate that the applicant fully and objectively considered the range of alternative sites available to it. (0198a)

The same commenter stated that the discussion of alternative sites in the ER is deficient. The commenter asserted that Section 8.1 of the ER lists 38 potential sites, but provides no reason, other than a willing host, to explain why the Skull Valley Reservation was the only siting alternative discussed in any detail. The commenter stated that the EIS must rigorously explore and objectively evaluate all the 38 potential sites listed in the ER, and asserted that the fact that the 38 sites are listed in the ER demonstrates that these sites are all reasonable alternatives to a site on the Skull Valley Reservation. (0198h)

**Response:**

Chapter 7 of the FEIS, "Evaluation of an Alternative Site in Wyoming," includes an alternate site analysis. Chapter 7 also provides a detailed description of the applicant's site-selection process, which differs from the commenter's summary. Chapter 7 further incorporates additional information to describe the applicant's process to identify the two site locations that the applicant retained for field investigation. See Section G.3.5.1.3, "Specific Storage Site Alternatives Analysis is Inadequate," for further explanation of the range of alternatives considered.

The NRC staff thoroughly reviewed the applicant's site selection process. The applicant started its site selection process by reviewing the sites identified in the NWN MRS siting process, and then added sites whose controlling entities expressed an interest in the proposed action. The applicant did not actively pursue any of the proposed sites without the approval and willingness of the potentially affected controlling entities.

The NRC staff's decision is limited to the applicant's proposal, which includes the proposed location for the project. The NRC staff does not have the authority to require an applicant to submit a totally different proposal, such as building a proposed facility on a different site. Rather, the NRC may make one of three determinations on an application for a proposed action. The NRC may:

- (a) grant the application (i.e., authorize the proposed action),
- (b) grant the application subject to certain conditions, or
- (c) deny the application.

The purpose of the review is to determine whether the proposed site is environmentally acceptable and whether an alternate site the applicant considered is obviously superior to the proposed site (i.e., substantially preferable from an environmental standpoint). Also, see the next section for further discussion of the site selection process.

### G.3.5.3.2 Adequacy of Site Selection Process

#### Comment Summary:

One commenter raised several concerns about the results from the initial screening form used in the site selection process (Appendix F, Exhibit F.3). The commenter asserted that the DEIS did not explain the purpose, meaning, intent, or weight of the initial screening form, and stated that the form was completed by an entity that favors the proposal because the facts are falsely slanted. (0039, 0077)

The commenter asked about the purpose of Appendix F and asked if it is considered to be supporting information that has any bearing on the NRC's issuing a license. (0077) The commenter stated that:

- The form contains false screening information regarding the proposed site's distance from a capable fault, which cannot be used to support or approve the proposed project. (0077)
- Because the majority of the responses on the form from the various sites were "unknown," the commenter said that the little available data are not meaningful or useful for the selection process. (0039)
- The area is not "free of pro-active anti-nuclear referenda" as the form states, noting that Governor Leavitt and the Utah Legislature have provided for referenda, and *Downwinders* has been an organized pro-active anti-nuclear organization for 20 years. (0039, 0077)

Another commenter stated that even if there were no referenda, there is clear opposition to the project, which is not included in Appendix F. (SL1-07)

Another commenter asserted that the proposed PFSF site was chosen based only on economic viability. (0212) One commenter stated that the financial relationship between the Skull Valley Band and the applicant is currently under investigation, which raises concerns about financial improprieties. (SL3-06)

Another commenter suggested that the applicant selected the Reservation to attempt to avoid state and local environmental regulations and tax requirements. (0198)

Another commenter stated that the applicant should not state that the Skull Valley Band has voluntarily pursued the location of the proposed site on their Tribal land because one-third of the Skull Valley Band opposes the plan. (SL1-10)

One commenter referred to Section 6.2 of the DEIS, "Environmental Justice," which stated that the siting of the proposed PFSF on the Reservation is the result of a voluntary choice by the Skull Valley Band. The commenter explained that the Skull Valley Band began investigating interim storage technology before their involvement with the applicant and negotiations regarding the lease. In addition, the commenter stated that the Skull Valley Band has been an active participant in the voluntary siting effort initiated under the NHPA by the NWN and is acting under its own governing procedures as overseen by the BIA. (0163)

#### Response:

The purpose of Appendix F is to display the information and the process used by the applicant to select a site for the proposed PFSF. Section 7.1 of the DEIS, "Site Selection Process," described the applicant's site selection process. As stated in the DEIS, the initial screening forms in Appendix F were based on the information the applicant gathered for phases 1 and 2 of the site selection process. The applicant eliminated many of the sites with "unknown" information during the first phase of the site selection process, because the applicant determined that the host jurisdiction was no longer willing to



site an ISFSI or because the DOE denied further funding in support of an MRS site. Section 7.1 also discussed other information considered during the site selection process, including information from field investigations of the final two candidate sites. The NRC staff did not use the information in Appendix F to prepare the environmental analysis in the DEIS or any other technical reviews.

The commenter expressed concern regarding the information on the proposed site's distance to a capable fault. The NRC staff's analysis of the site specific seismic characteristics and the proposed PFSF's design to withstand an earthquake are documented in the SER, as updated. The NRC staff did not base its safety evaluation and conclusion on the information in Appendix F.

As stated above, the NRC staff did not use the information in Appendix F to prepare the DEIS. Therefore, the accuracy of the information provided in Appendix F as to "free of proactive anti-nuclear referenda" opposition to the project is not germane to the environmental review, because the NRC staff did not analyze it.

#### **G.3.5.3.3 Evaluation of Nearby Population**

##### **Comment Summary:**

Several commenters stated that the proposed PFSF site is inappropriate because it is too close to a major city, specifically the Salt Lake City metropolitan area. (0095, 0097, 0098, 0113, SL1-15, SL3-57) One commenter stated that the area is not "remote" and that urban development in Tooele County is increasing rapidly. (0198h)

##### **Response:**

There are no NRC requirements that designate population density as a factor to consider in siting ISFSIs. The NRC reviewed the environmental impacts of siting the proposed PFSF in Skull Valley. The NRC staff did not identify any significant environmental impact.

#### **G.3.5.3.4 Site Selection and Discriminatory Effects**

##### **Comment Summary:**

One commenter stated that the applicant's site selection process does not satisfy the demands of the President's Executive Order 12898 or NEPA, and the NRC staff must be directed to conduct a thorough and in-depth investigation of the applicant's site selection process. According to the commenter, the NRC's responsibility under the President's Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (Feb. 11, 1994), is to make achieving environmental justice part of its mission. The commenter states that the Executive Order further directs agencies to conduct their activities without discriminating against low income and minority populations. According to the commenter, the Commission has voluntarily agreed to implement the President's directive on environmental justice.

In addition, the commenter stated that NEPA mandates that the NRC must evaluate the applicant's siting process to ensure the site selection is free from discrimination. The commenter also stated that NEPA guarantees procedural protections to "all" persons and does not tolerate subjecting some people to environmental impacts not suffered by others (see 42 USC 4331(b)(2) and (c), and 4332). Furthermore, the commenter stated that courts have made it clear that biased decision-making will not be tolerated (*Calvert Cliffs Coordinating Comm. v. AEC*, 449 F.2d 1109, 1115, D.C. Cir. 1971). The commenter concluded that any discriminatory effects in the site selection process must be evaluated under both NEPA and the President's Executive Order.

The commenter stated that the Atomic Safety and Licensing Board (ASLB) left no doubt in *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), LBP-97-8, 45 NRC 367 (1997), that the NRC is

obligated to carry out, in good faith, the President's Executive Order on Environmental Justice in its activities that substantially affect human health and the environment. The commenter stated that ASLB found the President's Executive Order applicable to NRC licensing actions because those actions substantially affect human health and the environment.

The commenter argued that progression of the site selection process and narrowing of the search raised the level of minority representation in the population, and the applicant focused disproportionately on areas of high minority populations. The commenter stated that the applicant started its site selection with 38 sites, over 20 of which were located on Indian reservations, and ended up with two closely located sites on the Reservation of the Skull Valley Band, which raises an inference of discrimination in the site selection process. The commenter stated that the NRC may not approve the selection of the proposed Skull Valley site without conducting a thorough and in-depth investigation of the applicant's siting process to ensure the site selection was not discriminatory. (The commenter referenced 45 NRC at 391.) (0198a)

#### **Response:**

The commenter cited an ASLB decision in the *Louisiana Energy Services, L.P.* proceeding as requiring NRC staff review of the applicant's siting process for racial bias. (See *Louisiana Energy Services, L.P.* (Claiborne Energy Center), LBP-97-8, 45 NRC 367 (1997).) The Commission, however, reversed that portion of the ASLB's decision in the *Louisiana Energy Services, L.P.* proceeding that would have required such an NRC staff review, holding that no such review is required. (See *Louisiana Energy Services, L.P.* (Claiborne Energy Center), CLI-98-3, 47 NRC 77, 100-106 (1998).) Rather, the Commission ruled that the NRC staff, in the course of its environmental review pursuant to NEPA, is required to evaluate whether a proposed facility would have a disparate impact on minority and impoverished citizens. See *id.*, at 106-110. With respect to the PFS application, the NRC staff made precisely this inquiry, considering whether the proposed PFSF would cause any such disparate impacts, as set forth below.

Executive Order 12898 requires Federal agencies to evaluate whether proposed actions could create disproportionately high and adverse human health and environmental effects upon minority or low-income populations. Chapter 4 of this FEIS, "Environmental Consequences of Constructing and Operating the Proposed PFSF," presents the NRC staff's evaluation of the impacts of the proposed PFSF on the Skull Valley Band and concludes that no significant adverse impacts would occur. Section 6.2 of this FEIS, "Environmental Justice," specifically addresses environmental justice concerns, as related to Executive Order 12898, and concludes that the proposed action would not result in a disproportionately high and adverse impact to low-income or minority populations. The commenter did not identify any specific deficiencies in the FEIS regarding environmental justice, and changes to the FEIS are not required. Also, see the discussion in Section G.3.18.

### **G.3.5.4 The ITF Alternative and the Use of Heavy-Haul Vehicles on Skull Valley Road**

#### **G.3.5.4.1 Opposition to Multiple Rights-of-Way and Heavy-Hauling**

##### **Comment Summary:**

One commenter asserted that the applicant has two requests for rights-of-way before the BLM, one for an ITF and one for the rail line from Skunk Ridge (near Low, Utah). The commenter stated that the BLM must consider at least three alternatives: granting one or the other of the proposed rights-of-way, granting both rights-of-way, or some other combination. This commenter stated that granting one right-of-way would have fewer environmental impacts and lower costs than granting both rights-of-way. The commenter also stated that both rights-of-way serve identical functions, so there would be no additional benefit to granting both. (0198i)

Another commenter commended the DEIS statements that there would be no truck transport of materials if the proposed PFSF opens, and that there would be a separate NEPA proceeding if the truck transportation alternative were adopted. (SL3-09)

**Response:**

The NRC staff received the comment urging the BLM to approve only one, but not both, of the proposed applicant rights-of-way during the scoping process. As stated in Section 1.5.3 of the DEIS, "BLM Federal Action," the BLM intends to approve either one or neither of the applicant's rights-of-way requests, but not both. The action proposed by the applicant and described in the DEIS is to transport SNF by rail to a new rail siding north of the proposed site. A new rail line would provide local transportation of the SNF to the proposed PFSF. The DEIS also examined the impacts of operating an ITF, including the use of heavy-haul trucks. If the applicant uses heavy-haul vehicles to transport SNF transportation casks on Skull Valley Road, the applicant would need to obtain a road-use permit from the Utah Department of Transportation due to the size and weight of the vehicles that it would use. Further NEPA action would not likely be required if the applicant used heavy-haul trucks.

With respect to the comment on truck transportation, as stated in Section 2.2.4.1 of the DEIS, "National Transportation Options," for long distance transport of SNF the applicant would need to obtain a license amendment from the NRC to use a different type of dual-purpose canister than currently proposed and approved, including one that could be transported by truck. The NRC agrees that it would need to conduct a NEPA review in order to make a decision on such a license amendment.

**G.3.5.5 Consideration of the Wyoming Alternative is Inadequate**

**Comment Summary:**

Several commenters stated that the NRC did not consider the Wyoming alternative seriously. (0090, 0096, 0112, 0113, 0158, 0198, 0215, GR-01, GR-14, SL1-07, SL1-11, SL1-28) Specific comments are summarized below:

- One commenter stated that the Wyoming site was discounted because a Native American Tribe would not benefit economically. However, the commenter stated that the Wyoming alternative has fewer impacts since it only requires 1 mile of new rail line, whereas the proposed action requires 32 miles of new rail. (0090)
- One commenter stated that the DEIS does not comply with requirements of NEPA to analyze the feasible alternatives, because the only alternatives that the NRC staff analyzed were the proposed action and the no action alternative. The commenter stated that there were little to no data for the determination of the impact of the Wyoming site, referring to pages 9-2 and 9-3 in Section 9.3 of the DEIS, "Comparison of Potential Impacts." (0096) Another commenter, referring to the Executive Summary (page xxxiii, lines 20-33), said that the Wyoming alternative has not been adequately studied, which contradicts the intent of NEPA. (0112) The commenter stated that the DEIS lacks credibility because it did not consider the Wyoming alternative. Referring to the Executive Summary, page xxxviii, lines 4-44, the commenter asked how the Wyoming alternative could be compared to the proposed action if a detailed design for an ISFSI in Wyoming does not exist. The commenter also asked why an indefinite site in Wyoming was included and other viable options such as permanent alternatives were excluded. (0112, SL1-11)
- One commenter stated that if the NRC is seriously considering this alternative, it should have performed a detailed safety evaluation of the proposed site. (GR-14)

**Response:**

Chapter 7 in the DEIS, "Evaluation of an Alternative Site in Wyoming," identified the process the applicant used to select the proposed site. From this process, it is clear that the applicant did, in its final decision, consider the legislative uncertainty associated with the Wyoming site. As previously stated, the NRC does not select sites or participate with an applicant to identify proposed sites.

The NRC staff evaluated the Wyoming site as an alternative to the proposed site and discussed this evaluation in the FEIS. Although the Wyoming alternative was not the preferred alternative, it was evaluated in sufficient detail to determine whether the site was obviously superior to the proposed site. Chapter 9 in the DEIS, "Comparison of Alternatives," compares the potential impacts of the Skull Valley Site A alternative with those of the Wyoming alternative. The NRC staff concluded that the Wyoming site was not substantially preferable from an environmental standpoint and, therefore, not obviously superior to the proposed site. The NRC staff can only perform a safety evaluation on a site for which it has an application, and the NRC has not received an application involving the Wyoming site.

**G.3.5.6 The No Action Alternative****G.3.5.6.1 General Support for the No Action Alternative****Comment Summary:**

Many commenters supported the no action alternative, or the option of not building the proposed PFSF. (0004, 0005, 0006, 0007, 0008, 0009, 0010, 0012, 0013, 0015, 0018, 0019, 0022, 0023, 0028, 0030, 0032, 0033, 0035, 0036, 0037, 0038, 0039, 0041, 0042, 0044, 0045, 0046, 0050, 0051, 0053, 0054, 0055, 0056, 0057, 0058, 0059, 0060, 0063, 0064, 0065, 0071, 0072, 0073, 0074, 0075, 0076, 0077, 0078, 0080, 0081, 0083, 0087, 0090, 0091, 0092, 0093, 0094, 0096, 0097, 0101, 0102, 0103, 0104, 0105, 0106, 0113, 0114, 0126, 0129, 0134, 0140, 0141, 0142, 0156, 0160, 0164, 0165, 0166, 0167, 0172, 0174, 0176, 0178, 0180, 0188, 0189, 0190, 0194, 0196, 0197, 0198g, 0198h, 0201, 0204, 0210, 0210a, 0211, 0212, 0214, 0215, 0217, 0224, 0225, 0227, 0228, 0229, 0230, 0232, 0237, 0239, 0246, 0247, 0249, 0253, 0256, 0257, 0260, 0264, GR-01, GR-05, GR-09, GR-13, GR-14, GR-20, GR-21, GR-22, GR-23, SL1-01, SL1-04, SL1-05, SL1-06, SL1-09, SL1-10, SL1-12, SL1-14, SL1-15, SL1-17, SL1-18, SL1-20, SL1-21, SL1-24, SL1-26, SL1-28, SL1-31, SL1-34, SL1-35, SL1-36, SL1-37, SL1-38, SL1-39, SL2-02, SL2-05, SL2-09, SL2-13, SL2-14, SL2-15, SL2-16, SL2-18, SL2-19, SL3-02, SL3-04, SL3-05, SL3-06, SL3-07, SL3-08, SL3-09, SL3-10, SL3-11, SL3-12, SL3-13, SL3-14, SL3-15, SL3-16, SL3-17, SL3-18, SL3-20, SL3-21, SL3-22, SL3-23, SL3-24, SL3-25, SL3-26, SL3-27, SL3-28, SL3-29, SL3-31, SL3-32, SL3-33, SL3-34, SL3-35, SL3-36, SL3-37, SL3-38, SL3-40, SL3-41, SL3-42, SL3-43, SL3-44, SL3-45, SL3-46, SL3-47, SL3-48, SL3-49, SL3-54, SL3-57)

One commenter stated that the NRC should evaluate the possibility of expanding existing at-reactor storage sites or building new at-reactor storage sites. (0018) A few commenters indicated that temporary storage should not be undertaken anywhere or that SNF should stay at the point of origin. (0019, 0189, 0210a, 0217, SL2-15)

**Response:**

The NRC staff acknowledges all comments supporting the no action alternative.

The alternative proposed by the commenter of expanding existing at-reactor storage sites or building new at-reactor storage sites, is the no action alternative. The impacts of the no action alternative are discussed in Section 6.7, "Potential Impacts of the No Action Alternative" of the FEIS and in Section 9.3, "Comparison of Potential Impacts," and in Table 9.1, "Summary and Comparison of Potential Environmental Impacts." As a regulatory agency, the NRC reviews applications for at-reactor ISFSIs or away-from reactor ISFSIs such as the proposed PFSF. The NRC will issue a license for such

activities only if an applicant provides reasonable assurance that it will implement its proposal so as to provide adequate protection of the public health and safety. To the extent comments addressed particular aspects of the NRC staff's evaluation of the no-action alternative, such comments are addressed below.

### **G.3.5.6.2 Impacts of the No Action Alternative Compared to the Proposed Action**

#### **Selection of the No Action Alternative as the Preferred Alternative**

##### **Comment Summary:**

Some commenters stated that the DEIS failed to explain adequately why the no action alternative was not selected as the preferred alternative. (0018, 0096, 0142, 0198, 0198g, 0198h, 0201, 0204, 0215, SL1-04, SL1-07, SL1-21, SL1-28, SL2-12, SL3-23) Other commenters argued that the no action alternative was the most technically feasible, cost-effective, and safe alternative for storing SNF. (0039, 0077, 0166, 0215, SL1-04) One commenter stated that the NRC must approve only the no action alternative and cited the DEIS Executive Summary (page xli, lines 26 through 49), which states that SNF can be stored on site without significant environmental impact for at least 30 years. (0039, 0077) Several commenters asserted that the data in the DEIS are insufficient to support the proposed alternative but show that the no action alternative is the only reasonable option. (0039, 0077, 0142, 0156, SL2-02) One commenter claims that dry cask storage until a permanent storage solution, such as [the proposed] Yucca Mountain can be completed is clearly the safer and less expensive alternative. The commenter stated that a temporary high-level storage facility should not be considered before final determination of the permanent repository location. The commenter added that the DEIS notes that DOE policy requires that a permanent storage site be completed by 2010, and that there would be minimal impact to energy supplies and no negative impact on health or safety if on-site storage continues until then. (GR-01)

Several commenters stated that if the waste is safe, as the NRC contends, then it should stay where it is. (0012, 0028, 0034, 0035, 0037, 0049, 0060, 0076, 0098, 0101, 0126, 0128, 0212, 0225, 0229, 0246, SL1-01, SL1-04, SL1-09, SL1-20, SL2-15, SL3-06, SL3-16, SL3-18, SL3-38, SL3-43)

Commenters provided various reasons for supporting the no action alternative. Some commenters asserted that the proposed PFSF would create safety risks (0029, 0039, 0053, 0054, 0055, 0056, 0063, 0064, 0077, 0103, 0106, 0129, 0131, 0160, 0166, 0172, 0174, 0198, 0237, 0246, 0257, 0260, GR-01, GR-21, SL1-06, SL1-20, SL1-21, SL1-38, SL1-39, SL2-05, SL2-12, SL2-13, SL2-15, SL3-02, SL3-04, SL3-06, SL3-25, SL3-35, SL3-36, SL3-38, SL3-42, SL3-43), health risks (0007, 0022, 0029, 0044, 0063, 0114, 0115, 0141, 0151, 0160, 0260, GR-21, SL1-37, SL2-05, SL3-02, SL3-04, SL3-36), environmental impacts (0090, 0114, 0115, 0151, 0156, 0160, SL3-46), and financial risks. (0005, 0029, 0039, 0077, 0090, 0104, 0141, 0156, 0160, 0237, GR-01, SL1-04, SL1-39, SL2-05, SL2-16, SL3-02) Other commenters stated that the impacts from new or expanded at-reactor SNF storage facilities would be small. (0007, 0142) One commenter cited the DEIS Executive Summary (page lviii), and stated that the impact of the no action alternative on nuclear power plants would be substantially smaller than the expected impact of the proposed PFSF, due to the smaller quantity of SNF that would need to be stored at each individual plant. (0090) Two commenters stated that the no action alternative would have minimal impact on energy supplies because reactors would continue to store SNF at their sites, and no negative, incremental environmental impacts would result. (0051, 0090) Specific comments included:

- One commenter indicated that the NRC has stated publicly and in the DEIS that at-reactor storage is safe and would have no significant impact on the quality of the human environment, but failed to adequately address why at-reactor storage cannot be expanded. The commenter suggested the following reasons why storage cannot be expanded: some reactors may not have sufficient room to expand their storage facilities or to construct new storage areas; and if the reactor has room to expand, several state legislatures or other governmental entities have expressed strong

opposition to such expansion. The commenter stated that the FEIS should present a more detailed discussion of these reasons. (0089)

- One commenter referred to Chapter 6, "Summary of Impacts," of the DEIS and stated that continued SNF storage at either existing at-reactor storage facilities or in new or expanded at-reactor SNF storage facilities would create no significant impacts on human health, ecological resources, cultural resources, air quality, water resources, noise, scenic qualities, or recreation. (0142) One commenter referred to Chapter 9 of the DEIS, "Comparison of Alternatives," Section 9.4.1.5, "The No Action Alternative," and stated that no health or safety risks would be eliminated by the proposed action. (0007) Another commenter stated that placing highly radioactive SNF on an earthquake-susceptible site exposed to the weather is not acceptable. (SL1-31)
- Another commenter stated that storing SNF at the place of generation is the most logical approach in the management of high level waste because on-site storage reduces the public's exposure to high level waste, reduces the health risk posed by high level waste, presents a more manageable and controlled environment should an accident occur, provides a site secure from the public, includes employees of generators of high level waste trained in evacuation procedures, includes trained personnel and specialized equipment, facilitates prevention or containment of contamination, and occurs where the site has undergone extensive scientific studies and been deemed suitable for activities involving radioactive material. (0198h) According to the commenter, storing SNF at the reactor site longer would significantly decrease the dose rates outside of shipping casks, thus greatly reducing radiation exposures to workers and the public during an accident or during incident-free transport. (0198g) Another commenter asserted that dry casks already in use at reactors have suffered from early degradation and manufacturing defects. The commenter indicated that this is a good reason to support the no action alternative. Also, the commenter stated that the longer high-level wastes are allowed to cool down at the reactors the more they will radioactively decay and the less dangerous they will be for transport in the future. (0257) Another commenter stated that compared to the no action alternative, the proposed action will result in greater release of radioactivity from cask handling, increased waste generation, increased air pollution, and more negative impacts. (0215)
- One commenter supported the no action alternative due to concern about the DEIS groundwater assessment. (SL2-16)
- Another commenter supported the no action alternative noting the accident potential of aircraft flying in the area of the proposed PFSF. (SL2-01) Another commenter supported the no action alternative because expansion of at-reactor SNF storage would occur at sites already disturbed by construction activities. (0051)
- One commenter referred to the Executive Summary, page xli, lines 24-45 of the DEIS and stated that the no action alternative would seem to have favorable cost benefits compared to the costs of transportation, necessary radiological remediation team, training of such a team, etc. for the proposed site. (0096) One commenter stated that the only answer to the nuclear waste problem is on-site storage and deactivation of the material. (0196)
- Another commenter stated that dry cask storage technology could be safe for on-site storage and notes that such a technology did not exist when Yucca Mountain was considered as the only site to be studied for a possible repository. (SL2-12)

#### **Response:**

The NRC staff agrees that SNF can be safely stored at facilities on or near the site of production. However, NRC regulations (10 CFR Part 72) allow for the storage of SNF in away-from-reactor facilities as well. The applicant has requested a license for an away-from-reactor ISFSI, under the provisions of 10 CFR Part 72, and that application is being reviewed on its own merit. Although it may

be true that reactor licensees could choose to develop on-site storage for the SNF, they have the right, in accordance with the regulations, to pursue other options. The proposed PFSF is one such option.

The NRC has reviewed the application for the proposed PFSF. In addition to reviewing the technical aspects of the application and determining whether the application complies with NRC safety requirements (10 CFR Part 72), the NRC staff reviewed the environmental impacts of the proposed action. After these reviews are completed, the five Commissioners will consider the information in the FEIS, the SER, and the record of the proceeding before the Atomic Safety and Licensing Board, and will make a decision whether or not to license the proposed PFSF.

The at-reactor storage alternative was analyzed in the EIS under the no action alternatives analysis. This analysis concluded that at-reactor storage is a possibility for many power reactor sites, although continued storage at some sites will become difficult and could result in some reactors shutting down prior to the end of their licensed lives if sufficient on-site storage capacity is not available. Based on its analysis of the no action alternative, the NRC staff concludes that SNF could continue to be stored at reactor sites without significant environmental impact. The no action alternative was discussed in Chapters 2, 6, and 9 of the DEIS. Commenters stated that the DEIS presents only one alternative (the proposed action), and ignores, negates, or inadequately treats the no action alternative. Section 6.7 of the DEIS discusses the environmental impacts of the no action alternative and Table 9.1 of the DEIS sets forth a comparison of the environmental effects of the proposed action and alternatives, including the no action alternative. Notwithstanding the discussion in the DEIS, the NRC and the Cooperating Agencies have revised the text of Chapter 9 in the FEIS to (1) specifically explain the differences between the proposed action and the no action alternative, and (2) discuss why the no action alternative was not selected as the preferred alternative. The NRC and the Cooperating Agencies have included this discussion in Section 9.3 of this FEIS. That section documents the environmental impacts of the no action alternative, as compared to the proposed action.

### **Transportation Benefits of No Action Alternative**

#### **Comment Summary:**

Several commenters raised transportation concerns as a reason not to build the proposed PFSF. (0033, 0035, 0039, 0061, 0063, 0077, 0083, 0103, 0105, 0128, 0151, 0172, 0174, 0198g, 0203, 0214, 0217, 0246, 0249, 0257, SL2-05, SL2-12, SL2-13, SL3-06, SL3-36, SL3-43) One commenter stated that transportation distances would be reduced by the no action alternative, which would be one of its highly significant benefits. The commenter stated that by waiting to ship SNF until a final repository is available, the number of transport miles would be reduced and the number of intermodal transfers would be reduced, thus eliminating radiation doses from incident-free transportation and reducing the chance of accidents involving radiological releases. (0198g) One commenter stated that the no action alternative would have significantly fewer impacts because it does not require the transportation of SNF through numerous states and hundreds of communities, with all the risks and costs such an unprecedented transportation campaign would entail. (0204) Three commenters who support the no action alternative stated that shipping nuclear waste through cities and towns increases the risk of accidents. (0051, 0151, 0174) Other commenters stated that it would be extremely dangerous to move the waste twice. (0051, 0063, 0103, 0166, 0198g, GR-01) Another commenter stated that the NRC has been reluctant to address the option of storing the SNF on site of the generating facilities, thereby avoiding the risks and costs of transporting hundreds to thousands of shipments of waste half way across the country, only to later incur the risks and costs of moving that waste again into the repository. (0185)

One commenter stated that the evaluation of the no action alternative should include the impacts, risks, and costs that would be avoided if SNF were stored at existing nuclear power plant sites until a permanent repository becomes available, arguing that the applicant's proposal doubles the number of times that SNF must be transferred to and from storage casks to shipping casks, increases the distance that the SNF must be shipped, and increases the time that SNF would be moving across the

country, subject to accidents or sabotage. This commenter asserted that some transportation corridors, including the I-80 Union Pacific Railroad transportation corridor east-west through Tooele and Salt Lake Counties, are not designated transportation corridors for other shipments of high level nuclear waste, and except for the pending proposal would not be subject to the risks of transportation of high level nuclear waste. The same commenter argues that the NWPA requires the Federal government, when selecting interim storage sites, to minimize the transportation of SNF. (42 USC 10155(a)(3)). The commenter believes that as part of the EIS, if the NRC determines that the proposed PFSF would result in excess transportation of SNF rods, the EIS must recommend that the proposed PFSF alternative is flawed and unacceptable under NEPA. (0198h)

**Response:**

Regarding transportation risk, the NRC staff evaluated the risk of transporting SNF to and from the proposed PFSF and concluded that the risk is small. For more a detailed response, see Section G.3.16.

**G.3.5.6.3 Adequacy of Evaluation of No Action Alternative Impacts on Reactor Sites****Comment Summary:**

Some commenters stated that the DEIS needs additional analysis and explanation of the no action alternative as it would affect existing reactor sites. (0007, 0142, 0198h, 0204) One commenter stated that the EIS must address more fully the alternative of storing high level nuclear waste as it is currently being stored, under the control of the generator or operator, until a permanent repository is available. One commenter stated that, in accordance with the requirements of 40 CFR 1502.14(d), evaluation of this no action alternative should assess the impacts and risks that could be avoided if the SNF continues to be stored at the existing reactor sites. (0198h, 0198i) One commenter cited page 2-43, lines 38-48 of the DEIS and stated that the no action alternative needs to include analysis, such that the public can compare the proposed action with the no action alternative. (0096) Another commenter stated that the DEIS needs to examine the feasibility of SNF storage at existing sites for an additional 10 years until the proposed Yucca Mountain, Nevada, facility is completed. (0007) One commenter stated that the impact on transportation of the no action alternative was not evaluated. (0198g) The commenter stated that the DEIS failed to evaluate the impact of numerous other actions, which would extend the dates of loss of full core offload capacity. The commenter added that all of those actions are part of the no action alternative and should be evaluated. (0198)

One commenter argued that Section 6.7 of the DEIS, "Purpose and Impacts of No Action Alternative," should have addressed the impacts of the delay in decommissioning shut down reactors under the no action alternative, and the added costs of building ISFSIs at reactor sites that would be avoided by the proposed PFSF. Referring to page 6-45 of the DEIS, the commenter indicated that activities at existing reactor sites may have additional impacts beyond those discussed in existing NEPA documentation for those sites, since additional land may need to be cleared for an ISFSI. The commenter stated that cumulatively the impacts at existing sites would probably be as large as, or even larger than, those at the proposed PFSF, even if the impacts at existing sites are small at each site. This commenter also argued that the discussion of the no action alternative should include the possibility that some reactors may have to cease operations because of state or local restrictions on SNF storage, in addition to ceasing operation due to physical constraints on SNF storage. (0163)

Commenters argued that the DEIS failed to describe the potential impacts of the no action alternative on the individual applicant participants. (0018, 0198)

One commenter cited pages xlix through lxxiii and Table ES.2 of the Executive Summary, as well as pages 9-15 through 9-39, and Table 9.1 of the DEIS, and stated that the evaluation of the environmental impacts for the no action alternative was based on impacts at an individual reactor site rather than at many reactor sites. Comparing the impacts of the proposed PFSF to the impacts at one



reactor site would generally result in lower impacts at the individual reactor site due to its size. The commenter indicated that it would be more appropriate to assume that the impacts occur at those reactor sites that would depend upon the proposed PFSF throughput scenario, arguing that the same quantity of SNF would be stored either at the proposed PFSF or at reactor sites (as was done for the cost-benefit analysis). This commenter argued that the population impacts at reactor sites would likely be higher than those for the proposed PFSF because many reactor sites have higher population densities than the proposed site. Therefore, the commenter recommended that the NRC re-examine its results for the no action alternative to ensure that these results appropriately reflect potential impacts at many reactor sites rather than at a single reactor site. (0163)

Another commenter stated that there is no justification for evaluating the potential impacts of the no action alternative in a manner that “is limited to broad observations about the nuclear power industry.” (Page 6-44, lines 42-44 of the DEIS) (0018-3, 0198-83) The same commenter also suggested that the EIS should evaluate the storage of SNF at other reactor sites under the no action alternative. (0018)

One commenter stated that the DEIS is not consistent because page 6-43 (lines 27-28) stated that the no action alternative could lead to impacts at other locations, while page 6-44 (lines 13-26) stated that the storage of SNF in casks will not have a significant incremental effect on the quality of the human environment. (0096)

#### **Response:**

The no action alternative describes the situation in which the current system for managing SNF continues to be implemented. Under the no action alternative, reactor licensees would continue to store SNF at their reactor sites in facilities such as SNF pools or at-reactor dry cask ISFSIs until the SNF is transferred to a permanent geological repository. The no action alternative is described in Section 2.2.5 of the FEIS, “No Action Alternative.” An analysis of environmental impacts of the no action alternative is included in Section 6.7 of the FEIS, “Potential Impacts of the No Action Alternative.” The environmental effects of the no action alternative are compared to those of the proposed action in Section 9.3 and Table 9.1 of the FEIS.

As discussed in the FEIS, under the no action alternative, reactor licensees could expand the on-site storage capacity for SNF by constructing and operating at-reactor ISFSIs under a site-specific or general license, or, if possible, by expanding the capacity of their SNF pools. Some reactor licensees have already initiated or completed such expansions under their existing licenses and may be unable to expand such capacity further. Under this option, all SNF would be stored at existing sites until such time as a permanent repository or DOE interim storage facility becomes available. For other sites where expansion of on-site storage cannot be accommodated either economically or because of physical constraints, reactor licensees could propose developing an ISFSI at different locations away from the reactor sites, or the licensees could shut down the reactors prior to expiration of their operating licenses. For reactor licensees that can construct at-reactor ISFSIs, the NRC staff concluded that the environmental impacts would be small. See FEIS Section 9.4.1.5. In reaching this determination, the NRC staff appropriately referenced past studies that evaluated the environmental impacts of at-reactor dry storage ISFSIs. With the exception of the site-specific ISFSI environmental assessments, the other studies considered the cumulative impacts of building at-reactor dry storage ISFSIs at multiple reactor sites. While storage of SNF in casks at an individual reactor site will not have a significant incremental impact on the quality of the human environment, this does not mean such storage will not have any impact. The statements in Chapter 9 of the DEIS noted by the commenter are not inconsistent.

Commenters suggested that the NRC and the Cooperating Agencies analyze impacts on individual PFS members of the no action alternative. The no action alternative involves the impacts of the current system for managing SNF, which is continued storage in at-reactor facilities. The NRC staff cannot speculate what actions specific reactor licensees would take in the event that the proposed PFSF is not licensed. There are literally hundreds of permutations of specific actions for SNF

management that could be analyzed, and such analysis is impracticable. Any request for a specific licensing action concerning management of SNF at a particular site would be subject to NRC licensing, and the NRC would evaluate the site-specific impacts of any such proposals as part of the licensing process. Moreover, the NRC is not aware of the specific business decisions any licensee would make with respect to nuclear fuel storage at their reactor sites.

The NRC is a regulatory agency that is responsible for licensing and regulating reactors and SNF storage facilities. The NRC does not have the authority to develop or impose upon an individual reactor licensee, or upon the nuclear power industry as a whole, a specific program for managing SNF. It is the responsibility of the reactor licensees to manage their SNF until a permanent geologic repository becomes available, or DOE otherwise takes title to the SNF.

Regarding the comment that the environmental impacts of the proposed PFSF should be compared to the cumulative impacts of multiple at-reactor ISFSIs, the previous environmental assessment completed for the 10 CFR Part 72 general licensing rulemaking was in fact based on the impacts of constructing ISFSIs at multiple sites. Consistent with the results of that analysis and the Waste Confidence Decision, the FEIS concludes that the environmental impacts from multiple at-reactor ISFSIs is small.

#### **G.3.5.6.4 Support for the No Action Alternative based on Equity Issues**

##### **Comment Summary:**

A number of commenters argued that because the waste was created in other parts of the country, it should stay where it was generated. (0027, 0028, 0029, 0030, 0031, 0034, 0035, 0053, 0061, 0063, 0067, 0076, 0085, 0093, 0094, 0098, 0101, 0103, 0105, 0111, 0114, 0115, 0126, 0131, 0140, 0147, 0167, 0176, 0198, 0203, 0208, 0210b, 0211, 0212, 0247, GR-01, GR-14, GR-21, SL1-02, SL1-06, SL1-10, SL1-18, SL1-20, SL1-29, SL1-35, SL1-37, SL1-38, SL1-39, SL2-15, SL2-18, SL2-19, SL3-02, SL3-04, SL3-24, SL3-26, SL3-38, SL3-43)

Several commenters stated that the SNF should stay where the benefits are derived and the tax dollars are enjoyed. (0030, 0063, 0071, 0167, SL1-06)

One commenter stated that shipping SNF to Utah would lead to more government distrust and heartache for the citizens of Utah. (0098)

One commenter stated that the impacts implied in the Executive Summary (page xli, lines 9-18) of the DEIS are the responsibility of the nuclear industries. The commenter stated that if this intent is implied, then it should be the responsibility of the NRC and the Cooperating Agencies to state that the nuclear industries are the only industries that do not have to be responsible for the waste they generate. (0096)

##### **Response:**

As stated in Chapter 7 of the DEIS, "Evaluation of an Alternative Site in Wyoming," the NRC neither selects sites nor participates with an applicant in selecting proposed sites. NRC regulations in 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste," do not contain requirements related to the geographic proximity of ISFSIs and the reactors that generated the SNF. Applicants are free to propose sites of their choosing for ISFSIs, and the NRC is required to review safety and environmental issues related to any particular application. To obtain a license, an applicant must comply with the NRC's safety requirements, which shows that the applicant will provide adequate protection of the public health and safety, as required by the Atomic Energy Act of 1954, as amended (AEA). Under the AEA and the NWPA, each licensee is responsible for the safety of waste it generates. The AEA, NWPA, and NEPA, however, do not

impose any geographic requirements for SNF storage in relation to the location at which the SNF was generated.

### **G.3.5.6.5 Adequacy of Discussion of No Action Alternative in Environmental Report**

#### **Comment Summary:**

One commenter stated that the ER does not comply with NEPA because it does not adequately discuss the no action alternative. The commenter stated the basis for this assertion as follows:

- NEPA requires a discussion of the no action alternative (the commenter referenced 40 CFR 1502.14(2)). To satisfy NEPA, the NRC must consider the environmental consequences of not undertaking the action at all, or of continuing with the current plans and management regime. The applicant's ER cannot be used to meaningfully discuss the no action alternative, because the applicant focused solely on the perceived disadvantages of the no action alternative. NEPA requires that the no action alternative be included in the analysis to serve as a baseline and basis of comparison with the proposed action and other alternatives. By not properly considering the no action alternative, the applicant failed to provide a balanced comparison of environmental consequences among alternatives. For example, the ER did not consider the advantages of: not transporting 4,000 casks of SNF rods through thousands of miles across the country; not enhancing the potential for sabotage at a centralized storage facility; not increasing the risk of accidents from additional cask handling, etc.

The commenter quoted the following statement by the applicant: "The construction of additional on-site ISFSIs at plant sites will result in more sites disturbed and greater environmental impact than constructing one site in a remote, desert environment." (The commenter referenced the ER at 8.1-3). The commenter stated that the "remote desert environment" referred to by the applicant is thousands of miles from any domestic nuclear power reactor and twenty-four miles from the nearest railhead. The commenter asserted that the applicant failed to discuss the considerable safety advantages of storing SNF near the reactors, whose SNF pools would be available for transfers or inspections of degraded fuel. The commenter stated that, in contrast to expansion of on-site storage capacity within the reactor basin and any environmental disturbance that may entail, the "remote desert site" chosen by the applicant is an undisturbed site used primarily for grazing and an area of cultural and historical significance to a number of groups, including Native Americans.

The commenter stated that the NRC cannot rely on the applicant's inadequate and one-sided discussion of the no action alternative. The commenter concluded that the NRC would not satisfy NEPA if it does not adequately address all sides of the no action alternative the commenter referenced. (0198a)

#### **Response:**

This comment was received prior to the publication of the DEIS and was directed at the ER that was submitted to the NRC as part of the license application. This FEIS represents the NRC staff's evaluation of the environmental impacts of the proposed action. Specifically, the no action alternative is discussed in Section 2.2.5 of this FEIS, "No Action Alternative;" potential impacts of the no action alternative are evaluated in Section 6.7, "Potential Impacts of the No Action Alternative;" and the environmental effects of the no action alternative are compared to that of the proposed action in Section 9.3 and Table 9.1.

**G.3.5.6.6 Discussion of Adverse Operational and Environmental Impacts of the No Action Alternative****Comment Summary:**

Commenters referred to the discussion of the no action alternative in the Executive Summary (page xli, line 19) and stated that the discussion of the no action alternative should include the possibility that some reactors may have to terminate operations because of state or local restrictions on SNF storage, in addition to termination due to physical constraints on SNF storage. (0016, 0163) One of these commenters asserted that coal-fired power plants might replace the closed facilities, which would result in increased particulate levels downwind of the plants. (0016) Another commenter said that termination of the operation of nuclear reactor licenses and expansion of on-site storage are also alternatives to current operations at these sites. (0096)

**Response:**

The NRC staff has changed the Executive Summary to reflect the commenters' point.

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## **G.3.6 Agency Actions and Decisions**

### **G.3.6.1 General Comments**

#### **G.3.6.1.1 Agency Responsibility**

##### **Comment Summary:**

One commenter expressed concern for the ethical implications of the action, in combination with previous actions that have led to the current land uses around Skull Valley. (0011)

One commenter stated that the DEIS did not clearly define the regulatory responsibility of each of the Federal agencies to comply with NEPA. The same commenter expressed concern about the purpose of the DEIS and the limited participation and analysis of the DEIS by the public. The commenter noted that Section 102 of NEPA states: “1) [T]he Federal Government shall ... (A) utilize a systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and decision-making which may have an impact on man’s environment; (B) identify and develop methods and procedures... which will insure that presently unquantified environmental amenities and values may be given appropriate consideration along with economic and technical consideration...” The commenter stated that the DEIS was developed by the NRC, the BIA, the BLM, and the STB, and that although each of these agencies are significantly different from each other, the DEIS does not state what each agency’s responsibility will be in the decision-making process for this proposed action. Thus, the commenter stated that the public’s ability is limited on the determination of “what is the impact” of the proposed action. For example, the commenter said that the BLM, the NRC, and the STB have different regulations to assure that remediation of incidents will occur, and that each agency differs on how the remediation is to occur. (0096)

##### **Response:**

This FEIS evaluates the cumulative impacts of the proposed action in Section 6.3. This analysis evaluates how the incremental environmental impacts of the proposed action add to the impacts from past, present, and reasonable foreseeable actions within the vicinity of the proposed PFSF. The other commercial facilities in that area of Utah have been permitted and licensed by the State of Utah.

As stated in the DEIS, the cumulative impacts of the proposed PFSF are small. The Cooperating Agencies are unaware of and the commenter does not identify a requirement for an evaluation of perceived ethical implications of past actions.

The NRC staff and the Cooperating Agencies acknowledge the commenter’s concern that the DEIS does not clearly define the regulatory responsibility of each agency. However, Section 1.5 of the DEIS describes the regulatory authority and the Federal action before the NRC and the Cooperating Agencies for the proposed PFSF, as well as each agency’s responsibilities under NEPA.

#### **G.3.6.1.2 Agency Oversight**

##### **Comment Summary:**

One commenter noted that Representative Hansen of Utah has called for a Congressional investigation into the Federal agencies’ oversight of the process related to the financial arrangements between the Skull Valley Band and the applicant. (SL3-06)

**Response:**

The NRC and the Cooperating Agencies acknowledge the comment summarized above. The issue in the comment is not directly related to the NEPA environmental review of the proposed PFSF, and therefore no response is warranted. Should any investigation be initiated, the NRC and the Cooperating Agencies will fully cooperate.

**G.3.6.1.3 Support for Agency Oversight****Comment Summary:**

One commenter expressed support for the Federal government's ability to oversee the proposed action. (SL1-33) Another commenter supported the credibility of the NRC. (SL3-03)

**Response:**

The NRC staff and the Cooperating Agencies acknowledge this comment. No further response is required.

**G.3.6.1.4 Review Process in Light of Lawsuits****Comment Summary:**

One commenter stated that various lawsuits and appeals have been filed against the BIA, the applicant, and the BLM regarding the proposed PFSF. The commenter stated that the processing of this application should be suspended pending resolution of these actions. (SL1-17)

**Response:**

The United States Court of Appeals for the Tenth Circuit has dismissed the State of Utah's lawsuit against the DOI. State of Utah v. United States Department of the Interior, 210 F.3d 1193 (10<sup>th</sup> Circ. 2000). The United States District Court for the District of Utah has dismissed another lawsuit against the DOI. State of Utah v. United States Department of the Interior, Consolidated Case No. 2: 98CV380K (D. Utah, February 14, 2000). The plaintiffs did not appeal that dismissal. These lawsuits, challenging the BIA's conditional approval of the proposed lease, are separate processes and concern separate issues from the NEPA process currently underway. The NRC and the Cooperating Agencies conducted the review of the proposed action in accordance with all applicable regulations. These regulations do not require the agencies to stop their review due to the existence of a lawsuit or appeal.

**G.3.6.1.5 Agency Decision-Making****Comment Summary:**

Several comments were provided regarding decision-making authority:

- One commenter inquired about who will make the decision concerning this project so that comments could be sent directly to the decision-maker(s). (SL3-57)
- Commenters expressed dissatisfaction with previous Federal agency decision-making which led to nuclear testing and nerve gas. (SL2-05, SL2-18, SL3-04)
- One commenter stated that construction of the PFSF must not be allowed to begin until all agency decision-making has been completed. The commenter added that no agency should be forced to make an objective determination while the applicant commits large amounts of resources to this project. (0198)

- One commenter asserted that there is some contempt for the NRC's decision-making process, based on what the commenter indicated is a well-established history of bias and self-interested decisions masquerading as objective science. The commenter stated that a full civic dialogue is needed in which the NRC acts with integrity and credibility. (SL3-49)

**Response:**

The NRC and the Cooperating Agencies have conducted the review of the proposed PFSF in accordance with all applicable Federal regulations. The comment on previous Federal agency decision-making which led to nuclear testing and the development of nerve gas addresses actions not related to this proposal, and thus, does not require a response. As stated in the DEIS, the decision on whether to grant a license to the applicant is being made by the NRC in accordance with 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste." These regulations define several steps in the decision-making process, including a safety review, and an environmental review. Specific safety and environmental regulations in 10 CFR Part 72 and 10 CFR Part 51 govern these reviews. The NRC staff has conducted a safety review and an environmental review. These reviews are documented in a SER and this FEIS, both of which are available to the public.

The concerns of interested persons are also addressed before the NRC's ASLB. The State of Utah and other intervenors were granted status as parties to the ASLB adjudicatory proceeding on the license application. The intervenors raised a number of safety and environmental contentions that have been, or are in the process of being, adjudicated. This adjudicatory process began in 1997, shortly after the NRC staff received the license application from PFS. Hearings on some of the safety contentions were held in Salt Lake City in June 2000. Hearings on remaining safety contentions and environmental contentions are scheduled to be held in Salt Lake City during 2002. The final ROD for the application for the proposed PFSF will be the ASLB's initial decision or the final decision of the five Presidentially-appointed NRC Commissioners acting together as the Commission. The Commission's decision need not be unanimous. The five Commissioners, acting as a body, may delegate the Commission's authority to issue a license to the Director of the Office of Nuclear Material Safety and Safeguards. While the STB has granted a license for construction and operation of the proposed rail line from Skunk Ridge to the proposed PFSF, construction of the facility would not begin until the BIA approves the lease, the BLM approves the ROW for the transportation facilities, and the applicant obtains any applicable construction-related permits.

The BIA is fulfilling its trust responsibility by conducting its own independent evaluation of the EIS to ensure that it adequately analyzes the potential impacts of the BIA's proposed action and alternatives on the quality of the human environment. Upon the completion of the FEIS and if the NRC issues the proposed license, the BIA will issue its own ROD, and make a decision on the proposed lease.

**G.3.6.1.6 Executive Order 11514 – National Environmental Policy Act, Protection and Enhancement of Environmental Quality****Comment Summary:**

Referring to page 1-19, line 23 of the DEIS, one commenter stated that NEPA has been violated because there is no environmental enhancement, only environmental degradation and threat to the BLM's ACEC. (0077)

**Response:**

The NRC and the Cooperating Agencies disagree that NEPA has been violated. NEPA requires Federal agencies to assess the environmental impacts of their actions and to give those impacts appropriate consideration in their decision-making. NEPA does not require that the proposed action enhance the environment.



### **G.3.6.2 The NRC Action**

#### **G.3.6.2.1 Nuclear Waste Policy Act (NWPA)**

##### **Comment Summary:**

One commenter stated that the NWPA does not permit the construction and operation of an MRS until a permanent disposal facility has been identified. (SL1-14)

One commenter noted that the DEIS stated that the SNF stored at Skull Valley (the proposed site) will be transported to the [proposed] Yucca Mountain repository, when that facility has not yet been licensed. (SL2-17) One commenter stated that the NRC should develop a national policy before waste materials are stored in any community. (SL1-12)

Referring to page 1-6, lines 39-41, in the DEIS, one commenter said that it is DOE's problem, not the residents of Utah, that the deadline imposed by the NWPA is already nearly two years delinquent. The commenter stated that mismanagement and an apparent unwillingness to abide by the law discredits those who are presently making judgments with respect to relative degrees of environmental and socio-economic impacts. The commenter stated that there is a conflict of interest, and that justice cannot be served in any reasonable fashion by the same people who are responsible for creating the problem of delay. (0112)

##### **Response:**

The NRC acknowledges these comments. The issues raised in the comments are related to the requirements of the NWPA that apply primarily to DOE activities and responsibilities. These issues are not directly related to the PFSF environmental review and therefore need not be considered in this EIS. However, the commenters should note that the proposed PFSF is not an MRS, but an away-from-reactor ISFSI. Away-from-reactor ISFSIs are licensed under 10 CFR Part 72. Also, the NRC and the DOE are separate Federal agencies. The Energy Reorganization Act of 1974 established the NRC and the DOE. The mission of the NRC is to regulate the civilian use of nuclear materials for the protection of public health and safety. One of DOE's responsibilities is to establish a permanent repository for SNF and high level waste (for which the NRC will make a licensing determination).

The NRC acknowledges the comments on the proposed Yucca Mountain facility and notes that they are beyond the scope of the EIS. However, it should be noted that in its Waste Confidence Decision, 10 CFR 51.23 (55 Fed. Reg. 38474; Sept. 18, 1990), the NRC stated that at least one mined geological repository will be available at the end of 2025. The NRC finds no basis for the comment on conflict of interest.

#### **G.3.6.2.2 The NRC's Authority Under NWPA**

##### **Comment Summary:**

One commenter said that the NRC should not have the authority to make such a decision and that it should be left up to the people of the United States. (0117)

Another commenter requested that the NRC staff acknowledge that western states acting through the Western Governors Association have established a clear policy that "a private interim storage facility shall not be located within the geographic boundaries of a western state without the written consent of the governor." (0142)

One commenter stated that the DEIS is fatally flawed because the NRC is acting beyond its statutory authority in issuing a license to the applicant. The commenter said that Congress has not authorized the NRC to issue a license to a private entity for a centralized 4,000-cask, away-from reactor, SNF

storage facility. The commenter asserted that the NRC may only license the storage of SNF at facilities that are authorized by statute.

The same commenter stated that the NWPA, Part B, Interim Storage Program, 42 USC 10151-10157, defines the scope of facilities authorized for interim storage of SNF. In light of the NWPA, the commenter asserted that the NRC cannot rely on its general statutory authority or authority to license SNF as the source of its authority to license a centralized 4,000-cask away-from-reactor facility operated by a corporation claiming limited liability. The commenter asserted that the NRC's general licensing authority does not give the NRC carte blanche authority to make any rules it wishes regarding away-from-reactor storage of SNF.

The commenter stated that the Congress authorized storage of SNF away from reactors only at Federally-owned facilities, citing 42 USC 10155(h). According to the commenter, neither the NWPA nor the statutory basis in 1980 for the NRC to promulgate Part 72 can be construed as authorizing the NRC to issue a license for a privately-owned, centralized 4,000-cask, away-from-reactor, nuclear waste storage facility that is being sought by the applicant. The commenter stated that the Congress granted the NRC rulemaking authority for licensing technologies for the storage of civilian SNF at the site of any civilian nuclear power reactor, citing 42 USC 10153. The commenter also stated that the NWPA authorized the "establishment of a Federally owned and operated system for the interim storage of SNF at one or more facilities owned by the Federal Government with not more than 1,900 metric tons of capacity," citing 42 USC 10151(b)(2).

The commenter also stated that there is no assurance that the SNF in Utah will ever be moved. In addition, the commenter stated that the licensing of an off-site ISFSI is totally a regulatory creation by the NRC and there are no Congressional reporting requirements. (0198)

The same commenter stated that the analysis should consider whether the NRC has statutory authority to license the proposed PFSF, and assess the way in which the applicant will use public services without any compensation to the Federal government. The commenter asserted that Congress recognized that there would be social and economic impacts associated with a large centralized storage facility, citing 42 USC 10156(c), and stated that accordingly, Congress authorized payment of up to \$15 per kilogram of spent fuel or 10 percent of costs associated with planning, public services and other social and economic impact costs. The commenter stated that 10 CFR Part 72 imposes no requirements on the applicant to give financial assistance to governmental entities. For example, the commenter added that if the NRC licenses the PFSF, annual shipments of up to 200 casks of nuclear waste may travel through the rail-congested and populated Wasatch front area, including downtown Salt Lake City. According to the commenter, the State at least receives training and financial assistance from the Federal government for the military nuclear waste shipments (such as the Waste Isolation Pilot Project wastes) passing through the State as it would if this facility were authorized by the NWPA, but no such assistance will be forthcoming from this applicant. The commenter said the State is unaware of what arrangements the applicant intends to use to safeguard shipments and respond to emergencies en route, at Rowley Junction, or along Skull Valley Road. The commenter concluded that rather than receiving financial assistance, the State of Utah will be forced to expend funds to ensure that its citizens will not be harmed. (0198a)

#### **Response:**

The NRC staff acknowledges the numerous comments on its authority to review and approve an away-from-reactor ISFSI of this size, including policy statements of the Western Governors Association, and notes that they are beyond the scope of the EIS. The NRC has the authority under the Atomic Energy Act (AEA) to independently review and approve such a proposed ISFSI facility at or away from a reactor site. There are opportunities for public participation in the licensing and hearing process. The NRC has conducted its safety and environmental reviews in accordance with the AEA, and in accordance with regulations included in 10 CFR Parts 51 and 72. The NRC staff acknowledges the commenter's concern that the DEIS is flawed. However, the comments on 10 CFR

Part 72 are relevant to the rulemakings that created and amended those regulations and are not applicable to the EIS for the proposed PFSF. Comments on Congressional reporting requirements are also beyond the scope of the EIS. Requirements of the NWPA including State participation and financial compensation are not related to the environmental review but are related to the activities of the DOE and also are beyond the scope of the EIS. The comment on the ultimate movement of the fuel away from the PFSF is beyond the scope of the EIS as well. It should be noted that regulations of the NRC and Cooperating Agencies require that all fuel be removed after all regulatory approvals have expired.

The environmental impacts of transporting SNF are evaluated in Section 5.7.2 of this FEIS. The NRC staff has determined that the environmental impacts are small. Specific transportation issues raised in this comment are addressed in Section G.3.16.

### **G.3.6.2.3 The NRC Review Process**

Several comments were received addressing the NRC's licensing process that reflected opposition to the proposed facility, addressed the basis and schedule for the NRC staff's review of the application, public participation in the licensing and hearing process, missing information from the licensing process, and miscellaneous issues related to licensing.

#### **Comment Summary:**

Several comments were provided opposing the project.

- Some commenters expressed opposition to the project, and urged the NRC to disapprove the license and to stop the proposed project. (0039, 0053, 0076, 0077, SL1-10, SL1-17, SL1-18, SL1-39, SL3-04, SL3-43) One commenter said that the applicant should not be licensed in Utah since the applicant has not been forthright in the disclosure that the proposed PFSF may become permanent. (0053) One commenter said that the NRC should not grant the license for this controversial project and should put the needs of citizens first. (SL3-43)
- Two commenters stated that the opposition to this proposal by the Governor of Utah, Utah state regulators, and the citizens of Utah must be honored. (0039, 0053, 0077)

#### **Response:**

The staff acknowledges the comments opposing the proposal but they reflect opinion and are not applicable to the environmental review conducted for the proposed PFSF. Additional comments about permanence of the proposed PFSF are addressed in Section G.3.2.1

#### **Comment Summary:**

Several comments were provided concerning the timing and the schedule of the review process.

- Some commenters stated that the NRC has already reached its decision on the application. (0053, 0096, GR-06, SL3-48, SL3-57) One commenter stated that the EIS process is a sham and that the NRC has already decided to approve the project because it serves the interests of powerful nuclear industry stakeholders. (0015, GR-13)
- Referring to page 2-33, lines 31-32 of the DEIS, one commenter said it is not clear why the licensing process is being done prior to the NEPA process, unless NRC is just trying to say that it has met the necessary regulatory requirements of incorporating public participation. (0096)
- One commenter questioned the need to rush the review process. (GR-13)

- Commenters urged the NRC to slow down the review process, stating that the project is being rushed by politics, and asserted that the NRC should not risk the health of people in Utah and those along the transportation routes simply out of greed and environmental injustice. (GR-16, GR-22, SL1-37, SL3-16)
- One commenter stated that the NRC's hasty review process raised questions about the integrity of the report and the agency itself. The commenter said that the NRC was disregarding the health and socioeconomic impacts on the communities surrounding the proposed PFSF and along the transport corridors. The commenter said an independent commission equally represented by different sides of the issue should conduct a comprehensive review of the DEIS. (0185)
- One commenter questioned whether the Federal government is now being hasty as a result of missing the January 31, 1998, deadline for a permanent repository. The commenter claimed that DOE had broken promises and failed to fulfill its obligations throughout the process and that more time is needed for the residents of the Reservation of the Skull Valley Band, Salt Lake City, and all communities along the transportation route. (SL2-05)

**Response:**

PFS applied for a license to operate an ISFSI, which is an interim storage facility and not a permanent SNF disposal facility. The NRC's regulatory process for licensing an ISFSI, away-from reactor or at-reactor, is well defined in 10 CFR Part 72. The license application is being reviewed in accordance with those regulations. All required review periods and processes are being followed, including funding for the licensing review. However, consideration of the adequacy of the NRC licensing process is not a subject covered by this EIS. The NRC and the Cooperating Agencies have not decreased the time for reviewing and producing the necessary NEPA documents. The NRC and the Cooperating Agencies have reviewed the applicant's proposal in accordance with all applicable regulations. Further, the NRC is not pursuing a review schedule based on "greed and environmental injustice."

The NRC has not made a decision to license the proposed PFSF. For a contested license application, the NRC licensing process includes the completion of a safety and environmental review, as well as the completion of an ASLB proceeding. The NRC staff safety evaluation and findings must be documented in the SER that is available to the public. This FEIS documents the environmental review by the NRC staff and the Cooperating Agencies. There are no regulatory requirements to have the FEIS reviewed by additional independent parties. The NRC and the Cooperating Agencies have fostered public participation by holding a number public meetings about the proposal and have solicited comments on the DEIS, as referenced in this document. The ASLB proceeding permitted individuals or groups that established standing (i.e, demonstrated the potential to be adversely impacted by the proposed actions) an opportunity to submit contentions on specific safety and environmental issues related to the license application. The ASLB process is ongoing and is expected to be completed in 2002.

Following the completion of the ASLB proceeding, the five Presidentially-appointed NRC Commissioners will review the NRC staff's SER and FEIS, and the entire record from the ASLB proceeding, and then make and publish a decision whether to grant or deny the license application. The NRC licensing process will not be complete until this decision is made by the Commission.

**Comment Summary:**

Two comments were received about public participation in the NRC licensing process.

- One commenter stated that the NRC regulations must be changed so that the public has a meaningful voice in at-reactor dry cask storage decisions, and so that dry casks at reactors are manufactured, used, and maintained to lower the inherent dangers as much as possible. (0257)

- Another commenter stated that because the general public is excluded from participation in hearings before the ASLB, the public will be unable to fairly and completely respond to these critical decisions, contrary to the requirements of NEPA and Federal administrative procedures. (0198)

**Response:**

The suggestion to change existing NRC regulations is beyond the scope of the EIS and would be better suited to the process by which petitions for rule changes are made. The NRC staff considers the comment that the public is excluded from the hearing process to be incorrect. The hearing process allows individuals or groups that establish standing to participate in the hearings. In addition, during limited appearance sessions, members of the public are permitted to make statements to the ASLB. This process is consistent with NEPA requirements.

**Comment Summary:**

One comment addressed scoping comments on the proposed action. This commenter noted that there are three agencies involved in this environmental decision-making process that were not involved at the time of the NRC's 1998 scoping process, and one agency that was not involved at the time of the NRC's 1999 scoping process. Therefore, the commenter stated, EIS Scoping Comments submitted by the State of Utah on June 19, 1998, and May 27, 1999, should be included in the considerations of the agencies regarding the DEIS. (0198)

**Response:**

The NRC staff acknowledges the comment regarding the State of Utah's scoping comments. However, the NRC staff notes that a representative of the BIA was present at the 1998 scoping meeting in Salt Lake City. The comments provided by the State of Utah were summarized in two NRC scoping reports, published in September 1998 and November 1999. The Cooperating Agencies reviewed these reports and are aware of the issues raised by the State of Utah. Nevertheless, the State of Utah's scoping comments were included and responded to as comments on the DEIS.

**Comment Summary:**

One commenter discussed information that was missing from the licensing process. This commenter stated that the licensing process failed to disclose pertinent information regarding emergency preparedness, risk factors on the transportation corridors, and financial information needed to assure stability for this long-term nuclear waste facility. This commenter argued that this information is needed to further Utah's position regarding the citizen's health, welfare and safety. (0148)

**Response:**

The NRC staff acknowledges the commenter's concern. However, the NRC has addressed emergency preparedness and financial information in its SER. This information need not be included in the FEIS. Risk factors on the transportation corridors are considered in the FEIS in Section 5.7.2.

**Comment Summary:**

Three additional comments addressed miscellaneous aspects of the licensing process.

- One commenter asked how the licensing process is financed and if it creates a conflict of interest. (SL3-04)

- The same commenter said that a project of this magnitude will affect the entire country and that the decision should not be left to the NRC alone, but to public debate within our democratic process. (SL3-04)
- One commenter stated that the NRC's licensing process is inadequate for licensing a permanent or semi-permanent facility since it has been used only for reactor licenses. The commenter stated that the NRC's hearing process is biased in favor of the utility companies and tainted by the fact that the Federal government is being sued by the reactor licensees because no Federal permanent storage facility has been provided. The commenter said that it is unethical for the NRC to serve only the license applicants and to allow the applicant to enlist the Native Americans to store the waste, since it is environmentally unjust. (SL1-10)

**Response:**

The NRC is an independent Federal agency that has been directed by the U.S. Congress to charge license fees to fund greater than 90% of its budget. Hence the cost of the staff licensing review is being financed by fees being paid by the applicant. This is no different from any other licensing action and is not a conflict of interest for the regulator.

Federal actions similar to this licensing effort are generally not subject to a public approval process via voting. The Federal agencies' authority is delegated through the democratic processes inherent in our republican form of government. See Section 3.6.2.2 above.

The licensing process defined under 10 CFR Part 72 is applicable to an at-reactor facility as well as one that is located away from a reactor. The review and approval process are the same for both facilities and require a safety and environmental review for site-specific applications. The comment on the NRC hearing process is the opinion of the commenter and is not based on fact. As stated above, the NRC is an independent agency that is reviewing an unsolicited application for an ISFSI design. The NRC's action is not related to DOE's actions to develop a permanent geological repository. The NRC has no jurisdiction over the applicant's agreements made with the Skull Valley Band.

**G.3.6.2.4 Public Health and Safety****Comment Summary:**

Several comments were provided regarding the NRC's protection of public health and safety.

- Commenters encouraged the NRC to take seriously the mission of protecting public health and safety, the environment, and the common defense and security. (SL3-31, SL3-34)
- One commenter stated that it is vital that the NRC and other Federal agencies proceed with great care and sensitivity to make sincere efforts to protect public health, safety, and welfare in all of the states affected by the project, in light of the overall distrust of the Federal government and its nuclear waste program. (0236)
- One commenter said that the NRC needs to give greater weight to the comments from people having expertise in ionizing radiation than to those persons who have no knowledge of what is involved. The commenter stated that there is a great need for public education about the issues involved in the proposed action. (0122)

**Response:**

The mission of the NRC is to ensure adequate protection of public health and safety, the common defense and security, and the environment in the civilian use of nuclear materials in the United States. A formal license review is one way that the NRC ensures the protection of public health and safety. In

carrying out its safety review of the proposed PFSF, the NRC staff determines whether an applicant has demonstrated compliance with the requirements of 10 CFR Part 72, the NRC regulations for the temporary storage of SNF. The NRC staff documents its safety review of the proposed PFSF in the SER, as updated. The NRC's regulations for environmental reviews are found in 10 CFR Part 51. Those regulations have been followed by the NRC staff in carrying out this environmental review. The comments received on the DEIS have been given careful consideration and every effort has been expended to ensure that all the comments have been addressed fairly and accurately. Most importantly, the protection of public health and safety has been at the forefront in all decisions.

#### **G.3.6.2.5 Fiduciary Duties**

##### **Comment Summary:**

One commenter stated that the NRC has a fiduciary duty to consider perception damages in the same way that the BIA is required to do. (SL1-17)

##### **Response:**

The United States Supreme Court in Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 775 (1983) (PANE), decided that the perception of risk is beyond the scope of NEPA. In view of the Supreme Court's decision in PANE, there is no requirement for the NRC or the BIA to consider "perception damages." Further, neither the NRC's NEPA regulations in 10 CFR Part 51, nor the BIA's NEPA Handbook (30 BIAM Supplement 1) require consideration of perceived risk. In view of the above, the comment does not warrant changing the analysis or conclusions in the FEIS.

#### **G.3.6.2.6 Review of Safety Evaluation Report**

##### **Comment Summary:**

Some commenters stated that there were no plans to allow the public to comment on the SER. (0096, SL3-09) Commenters requested the comment period for the DEIS be extended until the SER is made available as an amendment to the DEIS. (0194, 0215)

One commenter stated that the general public is excluded from participation in hearings before the ASLB regarding the SER and, consequently, the public will be unable to fairly and completely respond to these sections, contrary to the requirements of NEPA. (0198)

Several other commenters made the following comments concerning the SER:

- One commenter stated that the public will not be able to submit comments on the SER, which will address transportation safety. (SL3-09)
- One commenter stated that since the SER is not subject to public notice and comment, it would not meet the requirements of NEPA, and the information it contains may not be relied upon in finalizing the EIS. The same commenter indicated that new information, upon which the action will be based, would not be available before the close of the comment period, and this information is necessary to complete the EIS. (0198)
- Another commenter stated that the SER should be available to the public for review and comment because it provides background for the EIS. The commenter stated that the SER's discussion of the following topics are not complete: military aircraft hazards, meteorological characteristics, seismic design and exemption request, soil classification, and stability of cask storage pads and the canister transfer building. (0051)

- Another commenter said that the SER would not be available until after the comment period, so its safety conclusions cannot be reviewed. (0096)
- One commenter stated that earthquake and seismic evaluations have been excluded from the DEIS, eliminating the opportunity for public review and comment. (0012, SL1-01)
- Another commenter stated that the issues brought up concerning Hill AFB, aircraft crashes, and seismic activity are addressed in the DEIS and the SAR. (SL1-23)

**Response:**

The NRC staff acknowledges these comments and notes that they are not directly related to the environmental review. Specifically, the SER, as updated, documents the NRC's safety evaluation of the license application and whether it meets applicable NRC safety regulations in 10 CFR Part 72. NRC safety regulations are established through a rulemaking process during which members of the public can comment on proposed regulations. Similar to the EIS process, the NRC must review and respond to public comments on rulemakings. This was done for 10 CFR Parts 51 and 72. The NRC staff has also conducted an environmental review in accordance with 10 CFR Part 51 and has documented it in the DEIS and FEIS. The technical objects discussed in this comment are reflected in the SER, as updated. Information in the SER need not be repeated in the DEIS or FEIS and the SER need not be complete for the environmental review to begin or end. Consistent with NEPA practices, any new relevant and material information must be included in the FEIS. The NRC staff and the Cooperating Agencies did not identify any new information that would change environmental impacts and the conclusions reached in the DEIS, and therefore the DEIS was not supplemented and reissued for comment.

**G.3.6.2.7 The NRC's Credibility and Objectivity in the Decision-Making Process****Comment Summary:**

Several comments addressed NRC's credibility and ethics, oversight and management record, its relationship with the industry it regulates, its objectivity, responsiveness and fairness, and its responsibility.

- One commenter stated that the NRC has no credibility based on past actions relating to the licensing of nuclear facilities. (0015) Another commenter noted that the NRC said that it has a solution but the commenter does not think the industry has really addressed the issue. (SL1-21) One commenter stated that earlier nuclear regulatory agencies told residents to watch nuclear blasts from their rooftops. (SL1-32)
- One commenter said that the NRC is at the core of the mismanagement and oversights of the nuclear utility industry. The commenter said that NRC is unethical. (SL1-10)
- The same commenter stated that the NRC should stop letting nuclear industries affect minority populations. (SL1-10) Another commenter said that, as a government agency, the NRC should not be involved in the exploitation of Native Americans, as has occurred in the past. (0029)
- Other commenters expressed concern about the relationship between the NRC and the nuclear industry and private reactor licensees (SL3-04, SL3-33, SL3-40, SL3-49), stating that the NRC, who is the "employer of the power plant," has the most waste to dispose of and is acting as a representative of the applicant. (SL3-25) One commenter said that the professional alliance between the NRC and the nuclear power industry should be challenged and that the NRC authorities who write, regulate, and judge its own laws should be questioned within a Congressional debate. (SL3-04) One commenter said that the NRC has a long history of serving the interests of powerful nuclear industry stakeholders. (0015) One commenter stated that the



NRC is not objective about the proposed project and that it is “championing” the project. The commenter urged the NRC and especially the Cooperating Agencies to carefully consider the objectivity of this process, stating that an objective review would lead to the conclusion that the DEIS, which the commenter believes is flawed, cannot support any decision-making. (0198) One commenter said that the limited liability corporation, not the NRC, is really making the decisions. (SL3-40)

- One commenter stated that the NRC is not credible, noting discrepancies in the distance of the proposed PFSF to Salt Lake City. The commenter said that during the scoping hearings, the PFSF was stated to be 54 miles from Salt Lake City, but in other documents the distance is 75 miles away. (SL1-15)
- One commenter said that the NRC’s approval of the proposed action will show that the NRC has accepted false information and is corrupt and fraudulent, operating outside its own laws and the laws of other entities. (0039, 0077) Another commenter said that the history of the nuclear industry has been one of deception. (SL3-40)
- One commenter said that political realities, which have an impact on the implementation of a decision in favor of the license application, were not addressed in the DEIS. The commenter asserted that the agencies and proponents have not been responsive or fair. In the commenter’s view, political realities may make implementation of a decision in favor of the applicant a practical impossibility and that if this project proceeds, whatever millions are spent in constructing a high-level nuclear waste dump here will ultimately be lost, perhaps with no alternative in sight. (0008)
- One commenter stated the NRC, the BLM, the applicant, the eastern reactor licensees, and the communities in the east who do not want the waste “in their backyards,” are being irresponsible. (0076, SL3-16)
- One commenter said that the NRC seems determined to designate the balance of Utah as a waste site. (0027)
- The same commenter asked what the NRC is doing to regulate the production of the SNF that is proposed to be shipped to Utah. The commenter stated that the welfare of people has a higher priority than the profits of big business. (0027) Another commenter said that the private nature of the SNF storage facility raises the issue of who will effectively regulate the industry. (0054)

**Response:**

The NRC acknowledges the comments summarized above. These comments are related to the commenters’ view of the NRC’s credibility and objectivity. These comments are not related to the environmental review, and therefore do not require a detailed response. However, the commenters should note that the NRC is an independent Federal regulatory agency with no ownership of any nuclear facility. The NRC has no association with any nuclear weapons program because it regulates only civilian uses of nuclear material. The NRC regulates licensees by conducting a thorough and independent review of each application for a license, consistent with its congressional mandate and the NRC’s regulations for safety and environmental review. These regulations establish an independent review process to consider factual issues and contentions brought before the NRC. The NRC staff completed the environmental review described in the EIS and that review was consistent with NEPA as well as the CEQ implementing regulations (40 CFR Part 1500-1508), the STB’s implementing regulations (49 CFR Part 1105), and the NRC’s implementing regulations (10 CFR Part 51). Those regulations specify the procedures for reviewing potential environmental impacts, and soliciting public review of the draft results and recommendations.

Throughout this review process, the NRC’s only relationship with the applicant is the formal and open exchange of factual information about the application, safety evaluation, and environmental report.

This exchange is completed through a process in which the applicant submits the license application, the NRC reviews the application and issues requests for additional information (RAIs), and the applicant responds to the RAIs. As part of this process, however, the NRC staff is authorized to confer privately with the applicant on an informal basis, and has done so with PFS. All RAIs and responses are documented and are publicly available.

For the proposed PFSF, the NRC staff and the Cooperating Agencies were required to prepare an EIS. The DEIS was based on the best scientific information available about the potential environmental impacts. This DEIS was completed by the NRC staff and the Cooperating Agencies and their consultants, independently of the applicant. When the applicant provided information, the NRC reviewed and verified the information, and conducted its own analysis of potential impacts. If comments on the DEIS provided specific corrections or additional information, including the information about the distance of the site from Salt Lake City, the staff evaluated, considered, and addressed this information in this FEIS, as appropriate.

#### **G.3.6.2.8 Preceding Actions**

##### **Comment Summary:**

One commenter stated that existing radioactive and Superfund sites should be cleaned up, workers affected by these sites compensated, and that the transportation of low level radioactive waste be regulated to protect railroad workers, before a new facility is licensed. (SL3-04)

##### **Response:**

The NRC acknowledges this comment. However the comment does not require any action to be taken regarding the environmental review of the PFS application. Contamination of old nuclear facilities is not within the scope of this EIS since cleanup of old Superfund radioactive sites is not related to the proposed action and is the responsibility of other Federal agencies and other parties. The NRC and the DOT have specific regulations for the transportation of low-level radioactive waste. The NRC and the DOT have concluded these regulations provide adequate protection to workers and the public.

#### **G.3.6.2.9 Seismic Standards**

##### **Comment Summary:**

A few commenters were concerned that the NRC will license a facility that is not designed to the very highest seismic standards or does not meet the NRC's regulations on seismic standards. (0053, 0198, SL1-38) One commenter asked if the NRC is going to waive its own earthquake regulations and make an exception for the proposed PFSF. The commenter also asked if the NRC would require a resident inspector at the proposed PFSF. (0053, SL3-48) Another commenter stated that despite objections from the State of Utah and significant evidence of geologic and seismic problems, the NRC is considering exempting the proposed facility from certain existing NRC seismic regulations. The commenter said that if this does occur it would allow the applicant to build and operate a facility to a lower design standard, which may have significant environmental consequences. (0198) Another commenter opposed giving a license to a corporation that does not use a design with the very highest possible seismic standards. (SL1-38)

##### **Response:**

As discussed in Section 4.7.2 of this FEIS, the applicant provided an in-depth analysis in its license application that considered the ground faults in the vicinity of the site and other information relevant to seismic characteristics of the proposed PFSF design. The applicant has also requested an exemption to the seismic requirements specified in 10 CFR 72.102(f)(1). These NRC requirements are based on

deterministic methods. The applicant requested, instead, to demonstrate the safety of the proposed PFSF design by considering uncertainties in seismic inputs by using a probabilistic seismic hazard analysis to evaluate the effects of potential seismic activity at the proposed PFSF. (Probabilistic seismic hazard analysis is allowed by the NRC for license applications for nuclear power plants.)

The applicant chose a 2000-year return period to find the expected maximum ground motion for its probabilistic seismic hazards analysis. The staff evaluated the proposed exemption and the supporting analysis and found that the applicant's method adequately considered the seismic hazards factors at the proposed site and demonstrated that a seismic event would not pose an undue risk to public health and safety. The applicant determined, and the NRC staff confirmed, from the applicant's analysis that the proposed PFSF and storage cask are adequately designed to withstand the expected maximum ground motion for the site based on the 2,000-year return period. The storage canisters containing the SNF would remain intact during the design basis earthquake and therefore would not release radioactive material. The NRC staff concluded that there would be no additional radiological or environmental impact from the proposed PFSF in the event of a design basis earthquake. See Chapters 2 and 15 in the NRC's SER, as updated, for a discussion of the staff's evaluation of the applicant's seismic analysis. The NRC staff recommended to the Commission that it grant the exemption if it decides to license the proposed PFSF.

At this time the NRC has no plans for assigning a resident inspector to the proposed site if the NRC grants a license.

#### **G.3.6.2.10 Public Acceptance of Risks from Proposed PFSF**

##### **Comment Summary:**

One commenter stated that the NRC should provide more compelling information regarding why the people of Utah should accept the risks associated with the proposed PFSF and whether the risks are fair. (GR-13)

##### **Response:**

The NRC is an independent Federal agency. Congress and the President have assigned the NRC the responsibility for regulation, certification, and licensing of civilian uses of radioactive material, pursuant to the AEA to ensure the protection of human health and the environment. The NRC protects public health and safety by setting standards for construction and operation, and requiring licensees to meet those standards. If the proposed PFSF described in the proposed action is built and operated as required by the regulations, then the risk to workers, and the general public is deemed to be acceptable.

#### **G.3.6.2.11 Commission Membership**

##### **Comment Summary:**

One commenter stated that a Native American representative needs to be included on the Commission in order for the NRC to understand why most Tribe members would never consider such an action. (GR-22)

##### **Response:**

The commenter should note that the recognized government of the Skull Valley Band approached the BIA with a proposed lease agreement with the applicant. Approval of the lease is an action being considered by the BIA. The NRC staff reviewed the environmental impacts of the proposed action and concluded that the impacts were either small or could be mitigated. The analysis included

evaluating the impacts to Native Americans. In addition, the NRC staff consulted with the Skull Valley Band and other American Indian Tribes and organizations as a part of its cultural resource review.

The NRC is comprised of five commissioners appointed by the President and confirmed by the Senate. Each commissioner serves a term of five years. The responsibility of the Commission is to require applicants and licensees to demonstrate reasonable assurance that their licensed activities will be conducted so as to provide adequate protection of the public health and safety. Consistent with the applicable laws and the NRC's regulations, the commissioners review and weigh the information provided to them from the application, the safety evaluation, the environmental review, any legal proceedings, and public comments in determining whether to approve an application and what conditions or requirements to place on applicants.

#### **G.3.6.2.12 Financial Responsibility**

##### **Comment Summary:**

One commenter stated that the NRC has a poor record of evaluating licensees' financial reliability. The commenter noted that the NRC failed to ensure that a private company had adequate funds to clean up the Atlas mill tailings site, noting that the company declared bankruptcy and was not ultimately responsible for the necessary cleanup. (0198)

##### **Response:**

A financial analysis of applicants is conducted as part of the NRC's safety review to ensure regulations in 10 CFR Part 72 are satisfied. The NRC required the applicant to demonstrate that it will be able to obtain sufficient funds to build, operate, decommission, and close the proposed PFSF. The analysis can be found in Chapter 17 of the SER. The comment on a previous NRC evaluation is beyond the scope of this EIS.

#### **G.3.6.2.13 State Involvement**

##### **Comment Summary:**

One commenter noted that the State of Utah has not been allowed fair representation in participating in the process. Referring to 42 USC 10155(d), the commenter noted a contradiction between the applicant's proposal and the centralized away-from-reactor storage under NWPA. The commenter stated that under NWPA, the Secretary of Energy first must apprise the state Governor and Legislature of potentially acceptable interim storage sites and the Secretary's intention to investigate those sites, according to 42 USC 10155(d)(1). Second, the commenter noted that the Secretary is required to give timely updates and results of investigations to the Governor and Legislature and enter into negotiations to establish a cooperative agreement between the Secretary and the State. The commenter stated that under such an agreement the state "shall have the right to participate in a process of consultation and cooperation ... in all stages of the planning, development, modification, expansion, operation and closure of storage capacity at a site or facility within such State for the interim storage of spent fuel from civilian nuclear power reactors," as stated in 42 USC 10155(d)(2). The commenter also noted that the cooperative agreement must include sharing of all technical and licensing information; use of available expertise; joint project review, surveillance and monitoring arrangements; and schedule of milestones and decisions points and opportunities for state review and objection, according to 42 USC 10155(d)(3). In addition, the commenter said that the Secretary must periodically report to Congress, according to 10155(f). Finally, the commenter stated that a state may voice its disapproval to Congress of a proposal to construct storage capacity of 300 metric tons or larger at any one site, according to 42 USC 10155(d)(6). (0198, 0198a)

The commenter stated that in contrast to a cooperative Federal-state role and meaningful involvement ascribed to the state under the NWPA, 10 CFR Part 72 requires no Federal cooperation or

involvement with the state. The commenter noted that the state is treated merely as any other party to the NRC proceeding. Regarding the proposed action, first, the commenter stated that the applicant has made no effort to apprise the state of its proposed PFSF and that the State of Utah first learned about the proposed PFSF through press releases and by sending state officials to Washington, D.C. to attend meetings between the applicant and the NRC, where the public was permitted to listen to the discussion. Second, the commenter said that there has been no cooperation or consultation between the applicant and the state, and that failure to allow the state to review and comment on the emergency plan, as required by 10 CFR 72.32(a)(14), is just one example of the lack of communication with the state. Finally, the commenter stated that there is no opportunity for state review or oversight of the project, except through litigation, and that the state has had to spend hundreds of thousands of dollars to participate through intervention in the NRC's formal license adjudication to have any voice in the siting and licensing of the proposed PFSF, despite what is required under 42 USC 10155(d). After comparing what the applicant is requesting and what Congress requires under the NWPA, the commenter stated that it is obvious that the NRC is avoiding the national policy and directives Congress set in the NWPA and is without statutory authority to license the proposed PFSF. (0198)

**Response:**

The NRC staff acknowledges the comments about state involvement with the proposal and how it differs with state involvement with actions under the NWPA. The NRC is conducting the licensing review of the application consistent with the NRC regulations. The NRC authority to establish regulations for licensing an ISFSI (10 CFR Part 72), is authorized by the AEA, not the NWPA. The NWPA does not specifically apply to licensing of a privately-owned ISFSI. After the license application was reviewed and docketed by the NRC, the State of Utah requested and was granted status as a party to the adjudicatory proceeding before the ASLB. This has afforded the state access and participation in the adjudicatory process. The commenter references the participatory process for the host jurisdiction for a geologic repository. This process is specific to the repository program and does not apply to the 10 CFR Part 72 licensing process. In any case, the host jurisdiction for the proposed PFSF is not the State of Utah, but rather the Skull Valley Band.

The comments regarding a lack of cooperation and interaction among various parties were made very early in the licensing process. NRC believes interactions with all parties have been appropriate.

The comment about the emergency plan is incorrect in that the NRC regulations in 10 CFR Part 72 do not require that the state review and approve the plan as part of the licensing process. The applicant is only required to coordinate its plan with local authorities, and the NRC is responsible for review and approval of the plan. Lastly, the suggestion that the state review or oversee the proposed facility is not consistent with Federal legislation and regulations.

**G.3.6.2.14 Rowley Junction Licensing****Comment Summary:**

One commenter expressed concern that a Part 72 license to protect public health and safety is not required for the proposed ITF. The commenter stated that due to the continuous presence of SNF arriving at or departing from the proposed ITF and the potential long-term storage of some of the SNF, it is important to provide the public with the regulatory protections that are afforded by compliance with 10 CFR Part 72. As examples, the commenter stated that the applicant should have a security plan that protects the site from intruders according to NRC standards. There should also be an emergency plan to protect workers and the public in the event of an accident at the proposed ITF. In addition, the boundaries of the proposed ITF site should be identified, and dose analyses performed to ensure that nearby members of the public are not exposed to unacceptable doses from SNF that is sitting on the site. The applicant should also provide assurance that the proposed ITF is designed in a way that protects public health and safety, using appropriate structures, equipment, and protective measures.

In the absence of such measures, the commenter stated, the proposed ITF poses an unacceptable safety and health risk to workers and the public. (0198a)

The same commenter stated that the license application should be rejected because it does not seek approval for receipt, transfer, and possession of SNF at the Rowley Junction ITF, in violation of 10 CFR 72.6(c)(1), in that the Rowley Junction operation is not merely part of the transportation operation but a *de facto* interim SNF storage facility at which the applicant will receive, handle, and possess SNF. The commenter added because the proposed ITF is an interim SNF storage facility, it is important to provide the public with the regulatory protections that are afforded by compliance with 10 CFR Part 72, including a security plan, an emergency plan, and radiation dose analyses. (0198a, 0198c)

The commenter stated that the point at which the NRC regulations apply instead of the DOT regulations may be when the ISFSI licensee is in receipt and possession of the casks. The applicant stated that it will accept delivery and perform receipt inspection at the proposed site, not at Rowley Junction. The commenter questioned who has actual or constructive possession and receipt of the casks at Rowley Junction. As stated by the applicant, either the applicant or the licensed reactor licensees will perform transportation under the DOT regulations, but the responsibility for operation at Rowley Junction has not been clearly addressed. The number of casks and the length of time casks will likely be at Rowley Junction before they are transferred to heavy-haul trucks expands the concept of in-transit to the point where the casks should be considered as being stored and in the possession of the applicant as part of its ISFSI operation. (0198b)

#### **Response:**

NRC received the comment concerning 10 CFR Part 72 licensing before publishing the DEIS. The DEIS analyzed and documented the potential health impacts resulting from the proposed ITF and concluded that the impacts would be small. The NRC staff has determined that the activities performed by the applicant at the proposed ITF are normal activities occurring during transport of Class 7 materials (radioactive hazardous materials or storage incident thereto). Thus, the activities are covered under the DOT regulations for shipping hazardous materials. (See Title 49 of the CFR.) Accordingly, the NRC has concluded that a Part 72 (10 CFR Part 72) license for the proposed ITF is not required. The NRC SNF storage regulations in 10 CFR Part 72 do not apply to the proposed ITF because the SNF would not be stored there.

Since the applicant plans to use its own locomotives on dedicated trains carrying the SNF, therefore, under the likely scenario, no proposed ITF will be operational. However, the potential environmental impacts of the proposed ITF are evaluated in the EIS as an alternative to the proposed action. See the discussion in Section 9.4.1.3 of this FEIS.

### **G.3.6.3 The BIA Action**

#### **G.3.6.3.1 The BIA Process and General Comments**

##### **Comment Summary:**

Many commenters stated that the BIA had failed to follow its own regulations, legal responsibilities, and fiduciary duties in processing the application for the proposed PFSF and lease. (0112, 0210, GR-01, SL1-17, SL1-21, SL1-39, SL3-07, SL3-18)

- One commenter noted that the BIA's approval of the lease agreement was without NEPA review. The commenter asserted that the BIA stated in court that they did not keep administrative records of the leasing process and, thus, the lease does not technically exist. In addition, the commenter claimed that Federal law prohibits NEPA reviews on Tribal lands, and that the DEIS cannot substitute for the BIA's NEPA review. (SL1-17)

- Several commenters expressed concern over the approval of the lease because not all members of the Skull Valley Band have signed the lease and because there are questions about the leadership of the Skull Valley Band and its relationship with the BIA. (SL1-26, SL3-04, SL3-07)
- Another commenter stated the BIA improperly prejudiced itself by approving in 1997 a “conditional” lease for the proposed facility, before the DEIS. By encouraging or allowing the transfer of funds and other actions based on the lease, the BIA impaired its ability to impartially carry out its trust responsibility to the Skull Valley Band. (0158)
- One commenter stated that the lease between the Skull Valley Band and the applicant must be approved by the BIA. (The commenter referenced 25 USC 415 and 25 CFR Part 162). The BIA waived certain regulatory requirements and granted “conditional” approval of the lease, subject to completion of the EIS. The commenter was concerned that only an edited version of the lease is available from the BIA. Lease terms regarding lease termination provisions, frustration of purpose provisions, surety bonding arrangements, lease rent, and taxes and regulations are not available. The commenter expressed concern that the BIA is deferring to the NRC process for an evaluation of the environmental effects caused by the Skull Valley Band entering into the lease, and the NRC may defer to the BIA for the evaluation of the lease provisions. The commenter added that it is incumbent on the NRC to require the applicant to fully disclose all provisions of the lease in order that the NRC and the petitioners may evaluate under what conditions the applicant is entitled to use and control the site, the financial costs associated with the lease, the termination and frustration of purpose provisions, and the Skull Valley Band’s regulatory requirements. (0198a)
- The same commenter stated the BIA will fail to meet its trust responsibility if it approves this lease, because the applicant is a limited liability company, and the lack of financial resources available in the event of an accident is not in the best interest of the Skull Valley Band. (0198)
- Another commenter noted that the BIA’s own regulations require it to evaluate perceived damages. (SL1-17)
- One commenter questioned if any other Tribal government would be affected by the proposal. (0096)
- Two commenters expressed concern about allegations of financial irregularities between the applicant and the Skull Valley Band. The commenters asked that the NRC or Congress investigate the financial relationship between the applicant and the Skull Valley Band and the BIA’s three-day approval of this facility. (SL1-17, SL3-04)
- One commenter noted that Section 2815 of the National Defense Authorization Act directs the Secretaries of Defense, Interior, Air Force, and Army to conduct a study to evaluate the impact upon military training, testing, and operational readiness of any proposed changes in land management of the State of Utah national defense lands. The commenter stated that the BIA cannot take any action until this study is complete. (GR-01)

**Response:**

The BIA has not yet given final approval to the proposed lease between the Skull Valley Band and the applicant. The court has confirmed that final approval has not been given by BIA in State of Utah v. United States Department of the Interior, 210 F.3d 1193 (10<sup>th</sup> Cir. 2000). Under the CEQ regulations implementing NEPA, the BIA has participated as a Cooperating Agency in the preparation of this EIS because of its jurisdiction by law (the required approval of the lease) and because of its special expertise in Indian matters. Leases and permits are issued in accordance with 25 CFR Part 162 and other applicable Federal regulations, and no lease is approved without consent of the Skull Valley Band members. In this case, the proposed lease is located on Skull Valley Band trust property, and a resolution by the governing body of the Skull Valley Band authorizing approval is sufficient. A majority

of the Skull Valley Band members approved a resolution granting authority to the Executive Committee to negotiate and enter into this lease. Skull Valley Band members also gave the Executive Committee the authority to approve future amendments to the lease. The BIA cannot provide final approval of the lease until the NEPA process has been completed.

The process for developing the FEIS is designed to avoid the potential problem noted by the commenter, that the NRC and the BIA will defer to one another with respect to certain issues, and therefore that the EIS will have gaps. The FEIS completes the documentation of the Cooperating Agency staffs' evaluation of the environmental effects of the PFSF, from construction up to and including license termination. The FEIS also evaluates the environmental effects of whatever structures might be left on the proposed site pursuant to the lease between the applicant and the BIA after the applicant completes decommissioning and the NRC terminates the license. With regard to the commenter's specific concerns, the FEIS addresses: (1) the conditions under which the applicant is entitled to use and control the site (Section 1.5.2); (2) the financial costs associated with the lease (e.g., the benefits to the Skull Valley Band) (Section 5.5); (3) impacts from termination of the lease (Section 4.9); and (4) the Skull Valley Band's regulatory requirements (Section 1.6).

With respect to the commenter's observation that the NRC must require the applicant to disclose all provisions of the lease, the NRC can provide that information only in accordance with the requirements of 10 CFR 2.790 and must not disclose proprietary information. This portion of the comment is not relevant to the adequacy of the analysis documented in the FEIS, and therefore, no further response is necessary.

The BIA has fulfilled its trust responsibility as a Cooperating Agency by conducting its own independent evaluation of the EIS to ensure that it adequately analyzes the potential impacts of the BIA's proposed action and alternatives on the quality of the human environment. After issuing the FEIS and if the NRC issues the proposed license, the BIA will issue its own ROD. Contrary to the commenter's assertion, the BIA's NEPA procedures and its leasing regulations do not require analysis of perceived risks. See 30 *BIA Supplement* 1 (1993) (the BIA NEPA Handbook) and 25 CFR Part 162. Furthermore, analysis of perceived risks is not required in NEPA reviews under Metropolitan Edison Company v. People Against Nuclear Energy, 460 U.S. 766 (1983).

The BIA acknowledges the comment requesting an investigation into alleged violations of Federal law by the DOI, including the BIA, and an investigation into the financial arrangement between the Skull Valley Band and the applicant. Should any such investigation be initiated, the DOI and the BIA will cooperate fully. The propriety of any financial arrangement between the applicant and the Skull Valley Band is outside the scope of this EIS. However, the provisions of the proposed lease and proposed license contain financial protections for the Skull Valley Band in case of default by the applicant.

Comments about the internal workings of the Skull Valley Band's government are outside the scope of the EIS and should be resolved within the Skull Valley Band through established procedures. To the extent that any of the commenters allege that the BIA officials witnessed or participated in any of the alleged improprieties, the BIA denies such allegations. The proposed lease was presented to the BIA for approval by the duly elected government of the Skull Valley Band as an official act of the Skull Valley Band. The BIA is therefore required, as part of its government-to-government relationship with the Skull Valley Band, to consider the proposed lease as an official act of the Skull Valley Band. The NRC and the Cooperating Agencies will continue the NEPA process and other processes for their proposed actions until completion or unless the applicant or the duly elected government of the Skull Valley Band withdraw the license application or the proposed lease.

With respect to the commenter's suggestion that Section 2815 of the National Defense Authorization Act applies to the BIA's decision to approve or disapprove the proposed lease, that section specifically prohibits amendments to RMPs by the BLM until the referenced study is completed. Although the legislation refers broadly to the Secretary of the Interior, the commenter is incorrect because Section



2815 does not prevent the BIA from making a decision on a proposed lease, independent of the study and the BLM actions.

### **G.3.6.3.2 The BIA Responsibility/Objectivity**

#### **Comment Summary:**

One commenter asked Cooperating Agencies, such as the BIA, not to be complacent and assume that the NRC has adequately analyzed the issues. According to the commenter, the NRC has opposed contentions by the State of Utah only to request the same information from the applicant in a non-litigation forum. The commenter stated that the lead agency preparing the DEIS is an advocate for the applicant, as opposed to an unbiased participant, and urged the NRC and the Cooperating Agencies to carefully consider the objectivity of this process. The commenter expressed concern about the NRC's acceptance of the applicant's proposal to "start clean, stay clean," where it has been determined that no contingency plans and minimal contingency funds are necessary. (0198)

#### **Response:**

In its role as a Cooperating Agency, the BIA is responsible for the quality of the analysis in the EIS. The BIA has conducted its own independent and objective evaluation of the EIS pursuant to the Indian Long-term Leasing Act, to ensure that it adequately analyzes the potential impacts of the BIA's Proposed Action and alternatives on the quality of the human environment. This review is based on Executive Orders (including that concerning environmental justice), CEQ's NEPA regulations and guidance, the BIA's NEPA procedures, NEPA case law, and sound science. After issuing the EIS and if the NRC issues the proposed license, the BIA will issue its own ROD. The ROD issued by the BIA will be the result of its objective appraisal of the issues discussed in the EIS and its independent analyses of impacts that may result from the construction of the proposed PFSF on the Reservation.

With respect to the commenter's concern that the proposed PFSF is not subject to contingency planning and has minimal contingency funds, the applicant will have nuclear property insurance and nuclear liability insurance. Also, the applicant has designed the facility in such a way so that release of radioactive material is not credible as a result of design basis accidents.

Concerns about the objectivity of the NRC's review process are addressed in Section G.3.6.2.7.

### **G.3.6.3.3 Statement by Kevin Gover, Assistant Secretary, Indian Affairs**

#### **Comment Summary:**

One commenter stated that on September 8, 2000, Kevin Gover, Assistant Secretary, Indian Affairs, DOI, said that injustice promulgated by the Federal government has been a significant impact on Native Americans. The agency's "legacy of racism and inhumanity" includes forced relocations and attempts to erase cultural heritage, described as "ethnic cleansing," according to Mr. Gover, the BIA Director. On behalf of the Federal government, Mr. Gover promised Native Americans that, "By accepting this legacy, we accept also the moral responsibility of putting things right. Never again will we attack your religions, your languages, your rituals, or any of your tribal ways." The commenter said that the DEIS contains serious inconsistencies and flagrant ethical lapses in "moral responsibility" as stated by Mr. Gover. In its obligation to objectively review the applicant's proposal and honestly recognize the long-term impact the proposed PFSF will have on Native Americans, the BIA cannot approve the project and comply with the promise and commitment as stated by Kevin Gover. (0112)

#### **Response:**

The BIA notes that it was the Executive Committee of the Skull Valley Band, not the BIA, that approached the applicant about placing storage facilities for SNF on its reservation. At the time the

Skull Valley Band approached the applicant with the proposal, the BIA had no knowledge of the Skull Valley Band's intentions and had not been informed by the Skull Valley Band. When the Skull Valley Band and the applicant approached the BIA to consider approving the proposed lease, the BIA was required by law to respond to the Skull Valley Band's request. Approving the lease is a "major Federal action" that requires the BIA to follow procedures outlined by NEPA, resulting in this EIS.

In his remarks, Kevin Gover apologized on behalf of the BIA for the past treatment of American Indian Tribes by the United States, which has been marked by periods of severe opposition to Tribal sovereignty and economic development. Mr. Gover also noted, however, that the BIA is "at long last serving as an advocate for Indian people in an atmosphere of mutual respect." Since the end of the termination policy in the early 1970's, the United States government continues to support the Tribes in their efforts to fulfill their status as sovereign nations. Also, beginning with the enactment of the Indian Self-Determination Act in 1975, the United States is making a greater effort to support actions by Tribal governments to give their people a better life, consistent with their traditions and culture, and also improving their ability to compete and thrive in the modern world. The proposed actions by the NRC and the Cooperating Agencies are part of that support, to assist the sovereign government of the Skull Valley Band to better the lives of its people.

The BIA acknowledges the comment that the DEIS contains serious inconsistencies and flagrant ethical lapses in "moral responsibility." The EIS has been reviewed and revised to reconcile inconsistencies within the document throughout the development process. The purpose of the NEPA review is to prepare a document that includes objective, thorough analyses of impacts, including direct, indirect, and cumulative impacts of the proposed action and alternatives.

#### **G.3.6.3.4 The BIA Statement of Purpose**

##### **Comment Summary:**

One commenter stated that the statement of purpose for the BIA's action is inappropriate. The NRC suggests in the DEIS that the purpose of the BIA's decision is to promote the economic development objectives of the Skull Valley Band. The commenter stated the Cooperating Agencies have precluded a meaningful assessment of the proposed PFSF by beginning the analysis with an artificially restrictive statement regarding the purpose and need for the proposed PFSF. By characterizing the purpose of the proposed PFSF in that way, the BIA has foreclosed objective consideration of any other alternative that would not accomplish exactly what the applicant and the Skull Valley Band have proposed. The commenter added that it is also not clear that the economic or other well being of the Skull Valley Band members is analogous to the economic development objectives of the Skull Valley Band. (0158)

##### **Response:**

As stated in the EIS, the purpose and need for the BIA action is founded on its trust responsibility to American Indian Tribes and the government-to-government relationship between the United States and American Indian Tribes. These two concepts are the cornerstones of the legal relationship between the United States government and American Indian Tribes. The trust responsibility requires that the United States appropriately manage the natural resources located within the boundaries of American Indian Reservations and that the United States assist American Indian Tribes in achieving economic self-sufficiency. The United States must therefore support the economic development efforts of American Indian Tribes, but must also examine the environmental impacts of those efforts to protect and manage the natural resources of the Tribes. The government-to-government relationship is rooted in the recognition that American Indian Tribal self-government predates the establishment of the United States. Thus, the United States recognizes the internal sovereignty of American Indian Tribal governments and deals directly with the Tribal government as the duly designated representative of the Tribe. The action of the BIA, and the range of reasonable alternatives to that action, are therefore limited to those that fulfill the trust responsibility of the United States to the Skull

Valley Band. In consideration of those alternatives, however, the BIA also must give due deference to the preference of the Skull Valley Band, as expressed through its duly elected sovereign government.

The BIA also noted that the economic development objectives of the Skull Valley Band are intended to promote the economic well being of the Skull Valley Band members.

### **G.3.6.3.5 Trust Responsibility**

#### **Comment Summary:**

Many comments were made regarding the BIA's trust responsibility, including the following:

- One commenter stated that the BIA has defined the scope of its review of the DEIS so narrowly that it has failed to meet its trust responsibilities. In the DEIS, page 1-15, the BIA states that “[a]s part of its government-to-government relationship with the Skull Valley Band, the BIA’s NEPA review is limited to the scope of the proposed lease negotiated between the parties, not evaluation of actions outside the lease (e.g., ultimate disposition of the SNF).” However, in light of the BIA’s trust responsibilities, the commenter stated that ultimate disposition of SNF is central to the question of whether the Indian land base will be preserved for the long term. (0198)
- Another commenter stated the DEIS failed to consider aspects and impacts of the proposed project that are necessarily the subject of the BIA review, and that the BIA should not be constrained by the NRC’s regulations and precedents in its analysis of the project, given the BIA’s trust responsibilities to the Skull Valley Band. The commenter added that the NRC improperly characterized the scope of the BIA’s role in the proposed action as limited to an analysis of the impacts of the proposed lease (see DEIS page 1-15). While the lease is what requires the BIA to be involved, the commenter expressed that the agency must analyze the entire project pursuant to its trust relationship with the Skull Valley Band. (0158)
- One commenter stated that the BIA cannot be a Cooperating Agency with respect to approval of the lease between the Skull Valley Band and the applicant. The commenter argued that such an action requires an independent EIS by the BIA because different standards are used in evaluating the impacts of these two major Federal actions under NEPA. The BIA has a trust responsibility to all Tribal members to evaluate the effects of approving the lease, whereas the NRC’s EIS will not evaluate the fiduciary responsibility of the Federal government to Tribal members. (0198h)
- Another commenter stated that the DEIS mischaracterizes the focus of the BIA’s trust responsibility. Rather than owing a responsibility to the Skull Valley Band as an entity, the BIA has a trust obligation to the members of the Skull Valley Band. The BIA fundamentally misstates its responsibilities in the DEIS at this threshold level, and as the entire DEIS is based on this misconception. Therefore, the commenter stated that the document is flawed. The commenter also said that in the DEIS the BIA ignores well-documented instances of improper treatment of members of the Skull Valley Band government related to the proposed lease and related to the transfer of lease funds. This improper treatment includes the government’s threats to withhold Tribal membership and other tribal benefits, the actual withholding of funds, attempts to interfere with the attorney-client relationship, and attempts to interfere with Tribal members’ ability to participate in the Tribal government. The commenter added that the Skull Valley Band members who oppose the proposed PFSF are suffering from the actions of the Skull Valley Band government as a direct result of their opposition to the proposed PFSF. By focusing on the Skull Valley Band government rather than Skull Valley Band members, the DEIS attempts to avoid analysis of these impacts and is inadequate. The commenter stated that this focus on the Skull Valley Band government rather than Skull Valley Band members also misleads the DEIS analysis, in that the document does not account for differences among Tribal members, particularly differences among, and differing impacts on, those living on the Reservation and those living off

the Reservation. These differences also include differing world views and differing attitudes toward and support for the proposed PFSF. (0158)

- One commenter stated that it would be impossible for the BIA to endorse the applicant's proposal because it is designed to take advantage of the very group the BIA is responsible for protecting. The commenter asked that the BIA explain that the applicant's consortium and its companies are looking out for themselves and their stockholders, not the welfare of the Skull Valley Band. (SL3-18)

**Response:**

The proposed action that the BIA has analyzed in this EIS is the approval or disapproval of a lease to store SNF on the Reservation. The term of that lease is a maximum of 50 years. The proposed lease requires that the SNF be removed from the Reservation before the end of that term. The proposed lease does not specify that the SNF be disposed of in a geologic repository or that the applicant must move the SNF to another storage facility. Therefore, the existence of a particular facility for the ultimate disposition of the SNF is not part of the BIA's proposed action, nor is it a connected action under the CEQ's NEPA regulations. Similarly, the trust responsibility as implemented through 25 USC 415 mandates that the BIA ensure that the SNF is removed from the Reservation and that the facility is decommissioned. However, the trust responsibility does not dictate the ultimate disposition of the SNF after it is removed from the Reservation. The disposition of SNF is addressed by NRC regulations. As discussed in G.3.4.3.1, the fuel would be relocated to a permanent repository (if available) or to a location identified by the owners of the fuel in accordance with applicable NRC rules.

Under the CEQ's regulations implementing NEPA, the BIA has participated as a Cooperating Agency in the preparation of this EIS because of its jurisdiction by law (the required approval of the lease) and because of its special expertise in Indian matters. The BIA has conducted its own independent evaluation of the EIS pursuant to the Indian Long-Term Leasing Act, to ensure that it adequately analyzes the potential impacts of the BIA's proposed action and alternatives on the quality of the human environment. This review is based on Executive Orders (including that concerning environmental justice), CEQ's NEPA regulations and guidance, the BIA's NEPA procedures, NEPA case law, and sound science. After issuing the EIS and if the NRC issues the proposed license, the BIA will issue its own ROD. Therefore, the BIA has adopted the NRC's EIS since the BIA has determined that it complies with NEPA and supports the BIA's proposed action. Participation in this EIS as a Cooperating Agency has also been consistent with the purpose of NEPA to reduce paperwork and duplication.

The BIA acknowledges the comment that the BIA's trust responsibility is to the members of the Skull Valley Band rather than to the Skull Valley Band as an entity. The proposed lease was presented to the BIA for approval by the recognized government of the Skull Valley Band as an official act of the Skull Valley Band. The BIA is, therefore, required, as part of its government-to-government relationship with the Skull Valley Band, to consider the proposed lease as an official act of the Skull Valley Band. The NRC and Cooperating Agencies will continue the NEPA process and other processes for their proposed actions until completion or unless the applicant withdraws the license application or the duly elected government of the Skull Valley Band withdraws the proposed lease.

The BIA staff disagrees that it has misstated its focus of its trust responsibility in the DEIS. Further the comments on improper treatment of Skull Valley Band members is beyond the scope of the DEIS. Lastly, the comment that the proposal by the applicant is intended to take advantage of the group that BIA is responsible for protecting is unfounded and also beyond the scope of the DEIS.

### G.3.6.3.6 BIA Statutory Authority

#### Comment Summary:

One commenter stated that the proposed action and process violates the BIA's statutory authority. The commenter stated that the Secretary of Interior, through the BIA, is required to approve the applicant's lease with the Skull Valley Band. Before 1970, it was acknowledged that the BIA's primary purpose in exercising that authority was to preserve the Native American land base for the furtherance of Indian culture and values. See Felix S. Cohen, *Handbook of Federal Indian Law*, § B, at 508-509 (1982 ed.).

The commenter added that, in 1970 the Indian leasing statute was amended by Pub. L. 91-275, which considerably broadened the list of factors that the Secretary must satisfy as having considered before approving a lease. The language of the amendment is as follows:

Prior to approval of any lease or extension of an existing lease pursuant to this Section, the Secretary of the Interior shall first satisfy himself that adequate consideration has been given to the relationship between the use of the leased lands and the use of neighboring lands; the height, quality, and safety of any structures or other facilities to be constructed on such lands; the availability of police and fire protection and other services; the availability of judicial forums for all criminal and civil causes arising on the leased lands; and the effect on the environment of the uses to which the leased lands will be subject. Pub. L. No. 91-275, §§ 1, 2, 84 Stat. 303 (codified as amended at 25 USC 415(a)(1993)).

The commenter also added that the Senate Report, issued in connection with the approval of this amendment, is instructive with respect to its purpose:

While it is not the intention of the committee to unduly burden development plans for Indian lands, the committee and the Department of the Interior have an obligation to protect the public interest and safety. S. Rep. No. 91-832 (1970), 1970 U.S.C.C.A.N. 3245.

The commenter further stated that the requirement in the 1970 amendment that environmental factors be considered by the Secretary in approving leases of Tribal lands, led to a Court decision that the requirements of NEPA are triggered by the Secretary's action in approving American Indian leases. According to the commenter, in *Davis v. Morton*, 469 F.2d 593, 598 (10<sup>th</sup> Cir. 1972), the Court held that Secretarial approval of a long-term lease would be likely to have a significant impact on the human environment and thus constituted "major Federal action" which required the preparation of an EIS. The commenter added that the Court held specifically that the purpose of the 1970 amendment to 25 USC 415(a) was to reaffirm "congressional intent that environmental considerations are to play a factor in any Bureau of Indian Affairs decisions."

The commenter stated that the DEIS cannot satisfy the requirements of 25 USC 415(a), because there is no expectation that nuclear waste will be removed from the proposed PFSF at the end of the lease period, which is clearly a negative impact on the environment. (0198)

#### Response:

The commenter is correct that the Secretary of the Interior must approve the proposed lease under 25 USC 415. The Secretary has delegated this authority to the BIA. The cited text from Cohen's *Handbook of Indian Law* refers not to approval of a lease, however, but to the continuing purpose behind the requirement of Secretarial approval for any alienation (i.e., sale or other transfer of title) of Indian trust land. (The 1970 date cited by the commenter apparently refers to amendments to 25 USC 415 that added certain criteria for the Secretarial approval of leases.)

The specific criteria listed in 25 USC 415 (quoted by the commenter) are being addressed by the BIA in its consideration of the lease under that statute. Under Davis v. Morton (also cited by the commenter), the NEPA process is only one part of the larger lease approval process.

Regarding the comment that the nuclear waste will be removed from the proposed PFSF at the end of the lease period, the BIA staff notes that the proposed action that the BIA has analyzed in this EIS is the approval or disapproval of a lease to store SNF on the Reservation. The term of that lease is a maximum of 50 years. The proposed lease requires that the SNF be removed from the Reservation before the end of that term. The proposed lease does not specify that the SNF be disposed of in a geologic repository or that the applicant must move the SNF to another storage facility. Therefore, the existence of a particular facility for the ultimate disposition of the SNF is not part of the BIA's proposed action, nor is it a connected action under the CEQ's NEPA regulations. Similarly, the trust responsibility (as implemented through 25 USC 415) mandates that the BIA ensure that the SNF is removed from the Reservation and that the proposed PFSF is decommissioned and the NRC license has been terminated. However, the trust responsibility does not dictate the ultimate disposition of the SNF after it is removed from the Reservation. The disposition of SNF is addressed by NRC regulations. As discussed in G.3.4.3.1, the fuel would be relocated to a permanent repository (if available), or to a location identified by the owners of the fuel in accordance with applicable NRC rules.

#### **G.3.6.3.7 Native American Interests**

##### **Comment Summary:**

Referring to page 9-1 Section 9.2.2 the BIA Action, lines 41-44 in the DEIS, one commenter questioned whether the BIA is complying with the decision in Cady v. Morton (527 F.2d 786), which stated that the BIA must prepare an EIS for any significant action regarding Tribal interests. The commenter stated this would include the conditional lease between the applicant and the Skull Valley Band. The commenter stated that the DEIS does not include analysis of the significance of the lease agreement regarding the Skull Valley Band's interests, and therefore the BIA ignored its mandate by not addressing the significant interest of Native Americans to assure their unique diversity and/or intergovernmental relationships. The commenter added that the BIA has failed to address significant interests of the Native Americans, and how these interests would or would not be affected by the proposed action. (0096)

##### **Response:**

In Cady v. Morton, 527 F.2d 586 (9<sup>th</sup> Cir. 1975), the United States Court of Appeals for the Ninth Circuit held that the BIA was required to prepare an EIS before approval of certain coal leases because that approval was a "major Federal action" under NEPA. The BIA has not yet given final approval to the proposed lease between the Skull Valley Band and the applicant. The court has confirmed that BIA has not given final approval for the lease in State of Utah v. United States Department of the Interior, 210 F.3d 1193 (10<sup>th</sup> Cir. 2000). Under the CEQ's Regulations implementing NEPA, the BIA has participated as a Cooperating Agency in the preparation of this EIS because of its jurisdiction by law (the required approval of the proposed lease) and because of its special expertise in Indian matters. The BIA has conducted its own independent objective evaluation of the EIS to ensure that it adequately analyzes the potential impacts of the BIA's proposed action and alternatives on the quality of the human environment. Part of that evaluation is to make sure that the EIS adequately addresses impacts to Indian trust resources and that the analysis properly considers the sovereignty of the Skull Valley Band and the government-to-government relationship of the Skull Valley Band and the United States. After issuing the EIS and if the NRC issues the proposed license, the BIA will issue its own ROD with respect to the proposed lease. Therefore, the BIA has adopted the NRC's EIS since the BIA has determined that it complies with NEPA and adequately evaluates the BIA's proposed action.

### **G.3.6.3.8 Long-term Financial Security**

#### **Comment Summary:**

One commenter referred to page 3-36, lines 9-12 of the DEIS, and noted that the statement there implies the Tribal government has no long-term financial security. The commenter stated it is the responsibility of the BIA to secure Tribal culture and diversity, and in doing so, assure the security of the Native American Nations.

Referring to page 9-14, lines 18-21 of the DEIS, the same commenter stated that the BIA's primary responsibility is to ensure the protection of Native American culture, historical interest, etc., but the possibility of storing SNF rods on Native American lands suggests that economic profits of the nuclear reactor licensees can affect the impacts of the established environmental justice requirements. (0096)

#### **Response:**

The commenter is correct concerning the long-term financial status of the Skull Valley Band, but misstates the responsibility of the Federal government. As part of the United States' trust responsibility, the BIA and other Federal agencies provide many services to American Indian Tribes, including the Skull Valley Band. One aspect of the trust responsibility is to encourage and assist American Indian Tribal governments, including that of the Skull Valley Band, in exercising their sovereign right to self-governance and self-determination. The right to give their people a better life, consistent with their traditions and culture, includes considering actions such as economic development opportunities like the applicant's proposal. The United States' trust responsibility, in addition to the Environmental Justice Executive Order language, required the Federal government to consider the impact of any proposal such as the proposed PFSF on the culture of the Tribe as well as other impacts. The BIA is conducting that analysis reflected in this EIS and in accordance with the lease approval process under 25 USC 415.

### **G.3.6.4 The BLM Action**

#### **G.3.6.4.1 Consistency with Mission Statement and Management Plan**

A number of comments were received about BLM actions, the Pony Express RMP, and about BLM's independence.

#### **BLM Mission and Actions**

##### **Comment Summary:**

Several commenters questioned the actions of the BLM:

- Two commenters stated the BLM is not following its Mission Statement to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. (0198, SL3-18) Several commenters stated that the DEIS has ignored the Pony Express RMP requirement that public lands not be made available for inappropriate uses such as storage or use of hazardous materials (munitions, fuel, chemicals, etc). The DEIS statement about the "absence of significant conflicts with existing resource management plans" cannot be supported. (0012, 0166, 0198, 0198i, SL1-01)
- Another commenter asserted that the NRC, the BLM, and the applicant have shown a lack of responsibility because they are located in the east and would not be affected by radiation if something goes wrong at the proposed PFSF. (0076, SL3-16)

- One commenter stated that in addition to the limited BLM evaluation criteria listed on page 1-15 of the DEIS, the BLM must also consider the possibility that the BLM lands would become contaminated, that parties responsible for this contamination may be absent, that there is a potential for increase in wildfires, and that firefighting forces may be inadequate. (0198)
- One commenter stated that the BLM must not approve the ROW request for the rail line. (SL1-39)

**Response:**

The BLM staff reviewed its Mission Statement and concluded that granting the ROW for the proposed rail line would not be in conflict with it. BLM's Mission Statement provides for the use of public lands by qualified ROW applicants. The ROW, if approved, would be subject to stipulations necessary to reduce or avoid environmental harm to the public lands. Regarding the comment about the location of applicant's and regulators' offices, the staff notes that the safe operation of any facility should be independent of the location of the applicant's corporate headquarters or the headquarters offices of regulators. See the response to item G.3.6.2.7 on NRC Credibility and Objectiveness. The comment on the agency and applicant responsibility is an opinion of the commenter and is acknowledged. No response is considered necessary.

The BLM staff reviewed the issue of the RMP regarding hazardous materials. The sentence to which the commenter referred was taken out of context from a decision regarding national guard permits on public lands. The RMP Decision on Hazardous Waste Management states "the BLM will not authorize placement or processing of hazardous wastes on public lands." The proposed storage site is not located on public lands and this decision does not preclude the transportation of hazardous wastes across public lands. The proposed ROW therefore is not in conflict with the RMP.

The potential for contamination is discussed in Sections 4.7.2.3 and 5.7.2.4 of this FEIS. BLM has identified two Mitigation Measures in FEIS Sections 2.1.5 and 9.4.2 which would be added to the ROW grant that specifies actions if an accident should occur. BLM has considered the increased fire risk in FEIS Section 5.8.4. The comments did not identify any specific element that was not already addressed. Therefore, no changes other than the additional Mitigation Measures in FEIS Section 9.4.2.

**Pony Express RMP****Comment Summary:**

Additional comments dealt with the Pony Express RMP.

- One commenter asked if the Pony Express RMP has been amended to consider all aspects of the proposed PFSF and, if so, to what extent the public was involved in this process. The commenter also asked when it was amended and by whom, and whether the RMP would be reconsidered if revisions to the DEIS are required. (0112)
- One commenter stated that the proposed amendments to the Pony Express RMP should not be limited to the rail spur; they must take into account other changes in the area: a coordinated resource management plan is underway, studies of vegetation are being conducted, the I-80 corridor is a target for development, and land values may rise. (0198i)
- The same commenter stated that when amending the RMP, the NEPA process must be followed, including consideration of alternatives such as the no action alternative. Such consideration must include the economic effect of implementing each alternative. (0198i)



**Response:**

Regarding the question about the RMP amendment, the land use plan has not yet been amended, and would not be amended until all the NEPA work is completed, a decision is made by the NRC regarding siting of the proposed PFSS, and the BIA approves the lease between the Skull Valley Band and the applicant. The BLM will also comply with Section 2815 of the National Defense Authorization Act for Fiscal Year 2000 or any future directives.

Plan amendments are used to change one or more of the terms, conditions, or decisions of an approved land use plan. Plan amendments are most often prompted by the need to consider a proposal or action that does not conform to the plan. In this instance, the plan amendment would allow a very specific project, a rail line, and is evaluated in this associated EIS. Section 6.3 of this FEIS presents the cumulative impacts. Cumulative impacts include past, present, and reasonably foreseeable actions. No additional information has been presented for inclusion and evaluation in this FEIS.

In accordance with NEPA regulations, the no action alternative was addressed in the FEIS. Included in this EIS was a discussion on the economic effect of the proposed action and alternatives.

**BLM Independence****Comment Summary:**

Two commenters addressed BLM's independent review of the proposal. The commenters noted that the BLM and other Cooperating Agencies should not assume that the NRC has adequately analyzed every issue, particularly because the commenters believe that the NRC is acting as an advocate for the applicant. The BLM should take an independent, unbiased look at the DEIS and should ensure that all issues have been studied in the level of detail normally required for an EIS prepared by the BLM. (0158, 0198) One commenter noted that the desire of Federal agencies to cooperate is laudable, but the BLM must not delegate their decision-making authority to any other agency; rather, the BLM should consider all of the facts about the transfer and storage of this waste. (0198)

**Response:**

The BLM has conducted its own independent evaluation of the EIS to ensure that it adequately analyzes the potential impacts of the BLM's proposed action and alternatives. This review is based on the Federal Land Policy and Management Act, CEQ's NEPA regulations and guidance, the BLM's NEPA procedures, NEPA case law, Executive Orders, and sound science. After issuing the EIS and if the NRC issues the proposed license, and the BIA has issued its ROD, the BLM will issue its own ROD. The content of the ROD issued by the BLM will be the result of its objective appraisal of the issues discussed in the EIS and its own analysis of impacts that may result from the construction of the railroad or ITF.

**G.3.6.4.2 Legacy Highway, Native Plants, and Wild Horses****Comment Summary:**

Some commenters made statements regarding the BLM actions and impacts on the Legacy Highway, native plants, and wild horses.

- One commenter expressed concern that the BLM appears willing to approve nuclear shipments along the same corridor as the Legacy Highway, which the BLM has objected to due to environmental impacts. (SL3-43)

- One commenter expressed concern that the use of non-native plants raises questions of how the BLM plans to protect native plants and the animal habitats that depend on them. (0096)
- Another commenter expressed concern that the DEIS states that wild horse patterns will have to change, even though a BLM official advised that impacts to the wild horse population should be evaluated and mitigated. (0039)

**Response:**

The BLM staff reviewed the comment regarding the Legacy Highway and concluded that this issue is not directly related to the environmental review. The BLM did not take a position on the Legacy Highway proposal as there are no public lands involved along its route. The proposed rail line in Skull Valley is approximately 50 miles southwest of the Legacy Highway route. The two proposals are therefore not related.

To prevent additional loss of native vegetation, clearance of the ROW would be limited to the minimum width necessary for construction by the applicant. Rehabilitation of the ROW would include native species, as well as fire-resistant species, which would help reduce the spread of wildfires. This would protect native plants and the associated animal habitats. See Section 5.4.1.1 of the FEIS for further detail.

The Cedar Mountain wild horse herd would not be adversely impacted by the proposed rail line because the herd's predominant use area is at a higher elevation on the mountain range than the proposed rail line. The location of the rail line may keep the horses within the designated herd management area.

**G.3.6.4.3 Need for Study of Military Impacts****Comment Summary:**

Two commenters noted that Section 2815 of the National Defense Authorization Act directs the Secretaries of Defense, Interior, Air Force, and Army to conduct a study to evaluate the impact upon military training, testing, and operational readiness of any proposed changes in land management of the State of Utah national defense lands. The commenters stated that the BLM cannot take any action for any proposal under or near the UTTR, including participating in this EIS process or amending the RMP, until this study is complete. The commenters asserted that the proposed ROW is located directly under the Service B Military Operating Area of the Test and Training Range. In addition, the commenters stated that a 1999 letter from the Solicitor for the DOI indicated that the National Defense Authorization Act essentially freezes any decision to change the RMP and any other related planning. (0198, GR-01)

**Response:**

The BLM reviewed the issue of Section 2815 of the National Defense Authorization Act for Fiscal Year 2000 and concluded that the BLM is not precluded from environmental studies on proposed projects. Paragraph (c) states: "The Secretary of Defense shall conduct the study in cooperation with the Secretary of the Air Force and the Secretary of the Army." The DOI was not directed to be a partner in the study. The prohibition in paragraph (d) states that "the Secretary of the Interior may not proceed with the amendment of any individual resource management plan for Utah national defense lands, or any statewide environmental impact ..." the BLM does not intend to make a decision on the Pony Express RMP amendment until the study has been completed.

Public Comment Letter #68, submitted September 19, 2000, is a letter from Department of the Air Force, Deputy Assistant Secretary Thomas W.L. McCall, Jr. acknowledging that the Air Force would not need to institute overflight restrictions or change operations of the UTTR. "Importantly, both the

NRC staff and representatives of PFS have assured the Air Force in private meetings that no overflights or other changes in the way the Air Force conducts its operations would be needed to accommodate the proposed facility.”

#### **G.3.6.4.4 Inappropriate Influence of Native Americans**

##### **Comment Summary:**

One commenter expressed concern that the NRC and the BLM inappropriately influenced Native Americans in Utah to consider this project because of their sovereign nation status. (SL3-16)

##### **Response:**

Neither the NRC nor the BLM were involved in any discussions between the applicant and the Skull Valley Band and both agencies had no role in the selection of a site by the applicant. The BLM's role in this NEPA process is to respond to and to evaluate a ROW proposal from a qualified applicant.

#### **G.3.6.4.5 Clarification of Decision-Making Process**

##### **Comment Summary:**

Commenters requested clarification regarding the BLM's decision-making process, given that page xviii of the DEIS indicated that “a BLM decision to grant a ROW to PFS would be dependent upon the decisions made by the NRC and the BIA.” (0047, 0089)

##### **Response:**

The two sentences in the DEIS following the sentence quoted by the commenter provide clarification. Those sentences state “If the NRC issues a license to PFS for the proposed PFSF and the BIA approves the lease, then the BLM's preferred alternative would be to amend the Pony Express RMP and issue a ROW for the Skunk Ridge rail siding and rail line. Absent such findings by the NRC and the BIA, the BLM would not grant either of PFS's rights-of-way requests.” In other words, the BLM would grant a ROW to the applicant only if the applicant had authorization to build the proposed PFSF on the Reservation.

#### **G.3.6.4.6 Inconsistency with State Law**

##### **Comment Summary:**

One commenter expressed that the DEIS did not take into consideration state laws (UCA 19-3-301 and 318) that govern the siting of high-level nuclear waste facilities, and the allocation of liability among owners of such facilities. The commenter asked if the BLM considered whether accidents or nuclear incidents on the rail spur may require Federal taxpayer clean-up, or whether equity interest owners are aware that they may be personally liable for such incidents.

- The commenter also asserted that the BLM did not consider the Utah state law (UCA 54-4-15) requiring that the State's permission (and concurrence by the Governor and legislature) be granted for the construction of a rail grade crossing of a public highway.
- The commenter stated that consistency or inconsistency with state law is normally discussed in detail in other EISs, such as the Grand Staircase-Escalante National Monument DEIS. In these other engagements, the BLM staff were much more available to meet with state and local interests to address concerns. The DEIS for this project does not mention this issue. The BLM should participate with the Governor in the review of this issue and should take the time to make information and personnel available to state, local, and private interests.

- The commenter noted that the BLM is required to coordinate all proposed actions with the State of Utah to determine whether the proposed actions are consistent with state purposes, plans, policies, and programs. This action is fundamentally inconsistent. (0198, 0198i)

**Response:**

Section 1.5.3.2 of the FEIS has been added to discuss consistency of the proposed action with state resource plans. The potential for accidents and contamination to occur from an accident along the proposed rail line is discussed in Section 5.7.2.4 of this FEIS. The BLM's ROW grant, if issued, would require the following: (1) the applicant's survey of the proposed rail corridor prior to decommissioning with the results of the survey reviewed by the NRC and the State of Utah; and (2) the applicant will be responsible for cleaning up any spills, resulting from transport of SNF, that may occur along the proposed rail corridor. The measures have been added to the FEIS.

While it is true that there is a Utah state law governing rail grade crossing of a public highway, according to the BLM's official land status records, there are no public highways that would be crossed by the proposed rail line. The existing roads in Skull Valley have not been granted a ROW under the Federal Land Management and Policy Act, nor has the county filed as an assertion under RS2477 to have those rights acknowledged by the BLM. Therefore, according to the current BLM policy, the roads have no legal status.

A discussion of planning consistency was added to the FEIS at Section 1.5.3.2. The State of Utah and other interested persons and groups were afforded an opportunity to participate in the plan amendment process by Notice of Intent published in the Federal Register April 15, 1999 (64 FR 18633). In addition, when it becomes possible to finish the plan amendment process, the State will again have an opportunity to work with the Salt Lake Field Office, BLM, in development of the final decision through the consistency review procedure. The BLM is following its procedures for completion of a land use plan amendment. The BLM's regulations at 43 CFR 1610.3-2 require that land use plans be as consistent as practicable with resource plans, policies, and programs of other Federal agencies, state agencies, local governments, and American Indian Tribes. Inconsistencies are required to be identified.

**G.3.6.4.7 Wild and Scenic Rivers Act****Comment Summary:**

One commenter stated that the DEIS contains conclusions about Wild and Scenic River eligibility which are inconsistent with the cooperative 1977 MOU entered into by the BLM, the Forest Service, the National Park Service, and the State of Utah. (0198)

**Response:**

Table 1.2 in the EIS describes Critical Elements identified by the BLM and considered in the DEIS. The table states that there is no effect on Wild and Scenic Rivers. This statement was made because there are no perennial streams or rivers in the Cedar Mountains. In the absence of perennial, running water, there was no basis for consultation with other agencies.

**G.3.6.4.8 Fair Market Value for Land****Comment Summary:**

One commenter expressed a concern that the BLM will not be able to comply with the Federal Land Policy Management Act requirement that it receive fair market value for the railroad spur ROW. Judging by the payments to the Skull Valley Band, the value is much higher than what is received for grazing land. (0198)

**Response:**

The BLM is required to obtain fair market value for all granted ROWs. This rental amount is determined through application of the BLM's rental schedule or through a formal appraisal process, which is consistent with the Federal Land Policy Management Act.

**G.3.6.5 The STB Action****G.3.6.5.1 Rail Licensing Action****Comment Summary:**

One commenter asked the STB to deny the license to construct the rail line. (SL1-39)

**Response:**

In a decision dated December 13, 2000, the STB granted preliminary, conditional approval of the license application for the proposed rail line. The STB approval was contingent on completion of the environmental review process and imposition of appropriate environmental mitigation. The STB's final review will include the DEIS and FEIS and all public comments and other information provided as part of its review proceeding. Further, the commenter provided no justification for the request.

**G.3.6.5.2 Application of the STB Criteria****Comment Summary:**

One commenter expressed a concern that the STB did not complete a comprehensive evaluation of the proposed action.

- The commenter stated that the DEIS reflects only a partial consideration of the STB's regulatory criteria for assessing environmental impacts of spent fuel transportation.
- The commenter stated that according to the DEIS, because each agency must take an action and because those actions are interrelated, the NRC, the BIA, the BLM, and the STB have agreed to cooperate in the preparation of a single DEIS. Elsewhere in the DEIS, however, the NRC staff made it clear that the STB has not yet undertaken its environmental analysis by stating, "STB will review both the merits of the proposal and the potential environmental impacts. STB will prepare a ROD [record of decision] providing the basis for its decision to either grant or deny the license application with appropriate conditions, including environmental conditions." Consistent with this second statement, the commenter added that the DEIS does not reflect a comprehensive evaluation by the STB of the applicant's proposal against the STB's regulatory criteria for information that must be provided in applicants' environmental reports. See 49 CFR Part 1105. The commenter also stated that the state believes the STB has had little involvement in the DEIS.
- The same commenter stated that the DEIS addressed the STB's criteria or the substantive issues raised by the criteria, but did an incomplete or inaccurate job. For instance, the NRC's discussion of whether transportation of spent fuel to the proposed PFSF meets the STB's threshold criteria for preparing an EIS thoroughly understated the significance of the impacts of the activity. The DEIS on page 5-2 stated that the proposed action does not meet the minimum threshold limits for an EIS set out in 49 CFR 1105.7(e)(4) and (5), i.e., an increase of rail line traffic so as to cause a minimum threshold increase in energy usage or air pollution, but that nevertheless, based on the hazardous nature of irradiated fuel, the STB "is considering potential environmental impacts" along the railroad lines that the applicant proposes to use. The commenter does not agree with this conclusion. The commenter asserted that, under any reasonable definition of an action

“significantly” affecting the environment, the proposed action of moving half the nation’s commercial irradiated fuel must be considered a “significant” Federal action.

- The commenter also noted out that the DEIS reflected only partial consideration of the STB’s regulatory criteria for assessing environmental impacts related to spent fuel transportation, which does not meet their commitment to conduct a full environmental review. (0198g)

**Response:**

The STB has participated fully as a Cooperating Agency in the environmental review of the proposed PFSF, including the environmental review of the proposed rail line. The text referred to by the commenter states that the STB will review both the public interest merits and the potential environmental impacts of the proposed rail line consistent with the STB’s rules for considering construction and operation of new rail lines. As a Cooperating Agency, the STB’s environmental staff has participated in preparing the DEIS and FEIS, consistent with the STB’s environmental review requirements. In considering the potential environmental impacts of the proposed rail line, the STB will consider the environmental analysis, recommended mitigation, and public comments described in this FEIS. No additional environmental review will be necessary for the STB to make its decision on final approval of the license application.

The DEIS statement on page 5-2 includes a reference to the STB’s thresholds for conducting an environmental review. Based on the STB’s environmental thresholds, the rail operations of the proposed action would not result in any significant impacts to the environment. The STB completed a full and thorough evaluation of potential environmental impacts of the proposed rail construction and operation. For the portion of the rail line that would be constructed, the analysis, results, and proposed mitigation are adequately described in this FEIS.

**G.3.6.6 Tribal Action**

**G.3.6.6.1 Ethical Concerns about Siting Facility on the Goshute Reservation**

**Comment Summary:**

Many commenters expressed concern that it is unethical to site the applicant’s facility on the Reservation and the Skull Valley Band’s sacred lands, and the Federal government should instead help the Skull Valley Band to improve their land. (0011, 0224, SL1-11, SL2-13, SL3-07, SL3-18)

Commenters expressed concern about the following ethical considerations:

- The Skull Valley Band is being targeted for the siting of the proposed PFSF because of their sovereign nation status and in an attempt to avoid state and local regulations and tax requirements. (0015, 0021, GR-06, GR-13, SL3-04, SL3-25, SL3-54)
- The Reservation was chosen because of all the other hazardous facilities already located in the vicinity. (0011, GR-06, SL1-05, SL3-54)
- The U.S. Federal government historically has not provided just compensation for confiscation of Tribal lands. (SL3-25)
- The people of Utah are being asked to bear the costs and risks so the nuclear industry and the people on the east coast can benefit from artificially low power costs. (SL3-23, SL3-33) This is occurring even though there is room to store waste at reactor sites. (SL3-33)

**Response:**

In 1992, the Skull Valley Band received a Federal grant to study the benefits and impacts of siting an MRS facility. From 1992 until 1995, the leaders of the Skull Valley Band carefully accumulated data and traveled to various parts of the United States and the world to examine first hand all aspects of the storage of SNF under the MRS Program. After the Skull Valley Band completed its research, it determined that it was interested in hosting the ISFSI and approached the applicant regarding that possibility. The siting process for the proposed PFSF is described in Chapter 7 of the FEIS.

The NRC and the Cooperating Agencies are executing their legal obligations to process the unsolicited application for the PFSF license and associated regulatory approvals by complying with environmental regulations and requirements. The proposed PFSF has gone through a public review as part of the NEPA analysis. The NEPA review includes acknowledgment of nearby facilities that store or process toxic pollutants. The NEPA review also analyzes the possible impacts that may result from constructing the PFSF, including cumulative impacts of the proposed PFSF when added to those facilities and other past, present, and reasonably foreseeable future actions.

One commenter stated that it is ethically wrong to impose hazardous materials on “sacred lands.” The Reservation is Goshute Indian land, and its sacredness is determined by the Goshutes. The BIA holds the Reservation in trust. The General Council and Executive Committee of the Skull Valley Band have the legal authority to determine the types of economic development proposals they would like to pursue. Input from Skull Valley Band members on these proposals is obtained by various means. However, evaluation of ethics by non-Skull Valley Band members is not relevant to this process. Concerns about the ethical issues associated with past land use decisions in Skull Valley and with other Tribal lands are not within the scope of the environmental review.

The NRC and the Cooperating Agencies’ decision process has considered all of the available information about the proposed PFSF, including compliance with regulations, the safety evaluation, the environmental review, and public comments. For a discussion on reactor storage capacity issues see Section G.3.1.

**G.3.6.6.2 Tribal Decision-Making****Comment Summary:**

Many commenters expressed concern that the Tribal decision-making regarding the proposed PFSF was not democratic. (0021, 0024, 0029, 0034, 0112, GR-06, SL1-15, SL1-17, SL1-26, SL3-25, SL3-46)

A number of commenters argued that the decision regarding construction of the proposed PFSF was being made by only a few of the members of the Skull Valley Band and that most other members of the Skull Valley Band, the people of Utah and the State of Utah government oppose the proposed PFSF. The commenters stated that such a decision is not appropriate for just a few Goshute Indians to make since it will affect so many people living outside the Reservation. (0029, 0034, 0095, 0106, 0126, 0149)

One commenter asked how many of the members of the Skull Valley Band are aware of private deals made by the three leaders. The commenter also questioned whether all the Tribal members have been given the opportunity to fully understand all the pertinent issues and vote or voice an opinion. The commenter stated that the process is prejudicial and inadequate if all members of the Skull Valley Band have not been adequately consulted. (0112)

Other commenters expressed the following beliefs regarding these issues:

- A few commenters said the Skull Valley Band Chairman signed the lease agreement without consulting with the rest of the Skull Valley Band. (0183, 0191, SL1-17, SL1-39)
- Several commenters stated that not every Tribal member will benefit economically from the lease agreement. (GR-06, SL1-17, SL1-26, SL3-25, SL3-46)
- Several commenters said that only a minority of the Tribe actually supports the project. (0034, 0057, 0106, 0134, 0189, GR-06, SL1-15, SL1-17, SL1-34)
- One commenter stated a number of Goshute Indians (25 or 30) are accepting an enormous bribe and do not really represent the rest of the Tribe. (SL3-07)
- One commenter said those Tribal members who do not receive economic benefits from the project would not be able to afford to leave the Reservation if they wanted to. (SL1-17)
- Commenters stated that Tribal members opposing the project are being harassed and threatened. (0042, 0201, SL3-25)
- Several commenters stated the only reason the Tribe supports this facility is because of the severe financial need that exists. (0054, 0106, 0149, SL1-02, SL1-10, SL1-36, SL2-06)
- One commenter suggested that DEIS Exhibit F-3 information under Public Acceptance is incorrect in that a vote of the host population on record in support of the proposed PFSF has not been taken by the Skull Valley Band. The commenter also stated that a lawsuit was filed alleging that the Tribal Chairman signed the lease with the applicant without consulting the Skull Valley Band's governing body. In addition the commenter added that the money being received by the Skull Valley Band for the proposal is only being distributed to the members who support the proposal. (0191)
- One commenter stated the references in the DEIS to Tribal opposition (page 6-27, Section 6.2.1.2, line 24) should be stated as "some members of the Skull Valley Band" and not as Tribal representatives, as the Tribe is represented by the Tribal Government. (0163)
- One commenter expressed concern that some Native Americans admitted to being "wined and dined" by the applicant and taken on foreign junkets to nuclear storage facilities and on-site storage facilities. (SL3-25)
- One commenter expressed concern that the Tribal decision-making process prevents outsiders from having a say in a decision that will affect them. (0095)
- One commenter said a nuclear waste dump should not be allowed to be placed 50 miles away from 1.5 million people in Salt Lake City. (0126)

**Response:**

The comments addressing the internal workings of the Skull Valley Band's government are beyond the scope of the EIS. The proposed lease was presented to the BIA for approval by the government of the Skull Valley Band as an official act of the Skull Valley Band. Therefore, the BIA is required, as part of its government-to-government relationship with the Skull Valley Band, to consider the proposed lease as an official act of the Skull Valley Band. The NRC and the Cooperating Agencies are continuing the NEPA process and other applicable processes for their respective proposed actions until their completion, unless the applicant withdraws the license application or the recognized government of the Skull Valley Band withdraws the proposed lease. To the extent that any of the



comments allege that the BIA officials witnessed or participated in any improprieties, the BIA denies such allegations.

The Skull Valley Band has the legal authority to negotiate leases, ROWs and permits for development purposes on its reservation. The Federal approvals and Skull Valley Band decisions associated with these types of actions must comply with Federal laws and regulations. The BIA has the regulatory authority to approve leases, ROWs, and permits on Skull Valley Band trust lands. The Skull Valley Band's decision to consider the construction and operation of the PFSF on the Reservation and the BIA's approval of the lease are based on factors that include the economic development goals of the Skull Valley Band and the environmental analysis and evaluation documented in the FEIS.

Members of the Skull Valley Band elect their government officials democratically to serve as the recognized Skull Valley Band leaders for specified terms in office. The General Council and Executive Committee of the Skull Valley Band have the authority to make decisions that reflect the best interest of the Skull Valley Band members, provide economic development opportunities, and allow preservation of their heritage. Although some members of the Skull Valley Band have filed lawsuits against the BIA, the proposed project approvals have been consistent with the Skull Valley Band's governing practices. The decision by some Skull Valley Band members to live off the Reservation is made by individual or family Skull Valley Band members, not the Skull Valley Band leadership. This does not preclude those Skull Valley Band members from recognizing and acknowledging that Reservation lands are an integral part of their heritage and lives.

The NRC staff acknowledges the comment regarding the effect of the facility on people, including some Skull Valley Band members opposed to the project as well as people in the State of Utah. The Skull Valley Band sought construction of the ISFSI on the Reservation. The proposed lease was entered into by the recognized government of the Skull Valley Band. Any concerns by Skull Valley Band members with the action of that government should be addressed through the internal procedures of the Skull Valley Band and are outside the scope of this EIS. The NEPA process analyzed the impacts of constructing and operating the facility and soliciting public comments and opinions concerning the impacts. The State of Utah and non-Tribal members do not, however, have the authority to decide the types of development activities that the Skull Valley Band should or should not pursue. The General Council and Executive Committee of the Skull Valley Band has the authority to make decisions concerning any economic development opportunities on their Reservation.

The location of the proposed site and its proximity to Salt Lake City has been evaluated by the NRC in its SER and in the EIS. Both are acceptable and consistent with applicable regulations.

### **G.3.6.7 Agency Consultations and Coordination**

#### **G.3.6.7.1 Agency Consultation**

##### **Comment Summary:**

Commenters stated that the DEIS did not include consultation with the following agencies: the DOE, the DOT, the USAF, Army, or Pentagon; the State of Nevada; the Union Pacific Railroad and railroad trade organizations; the State of Utah (including its Division of Transportation); transportation corridor states; the local community and Native American jurisdictions; and the Forest Service. (0039, 0042, 0077, 0112, 0134, 0166, 0171, 0198, 0198g, 0198h, 0201, GR-01, SL2-11, SL3-09, SL3-55)

Two commenters expressed concern that NRC staff had not met with representatives from the U.S. Army's Dugway Proving Ground or the citizens of Dugway in preparing the DEIS. (0039, 0077, GR-05)

Referring to the DEIS, pages 1-17, lines 15 and 32, and pages 1-18, lines 1-12, one commenter specifically questioned whether (and to what extent) the Confederated Tribes of the Goshute

Reservation, tribes other than the Skull Valley Band of the Goshute Indians (including the Northern Ute, Paiute Indian Tribe of Utah, Northwestern Band of Shoshoni Nation, and other Goshute Bands), the Oregon-California Trail Association, and the National Park Service participated in the consultation process. (0112, SL1-11)

One commenter stated that the NRC and the DOE should communicate about the implications of the proposed PFSF. The commenter stated that the NRC staff met with the DOE staff regularly to resolve technical issues related to site characterization of the [proposed] Yucca Mountain repository, and both the [proposed] Yucca Mountain repository and the proposed PFSF relate to managing SNF and affect both agencies. The commenter stated that the agencies should determine how the location of 40,000 metric tons of SNF in rail canisters affects the DOE's plans. The commenter stated that only rail canisters will be used at the proposed PFSF and this affects the DOE; therefore, the commenter suggested that the private facility should be planned in coordination with the DOE. (0171)

One commenter said that the NRC should openly discuss the full extent of the State of Utah's legal and regulatory authority [relative to the PFSF] with appropriate State officials. (0198h)

One commenter stated that inter-governmental coordination and public involvement have occurred. The commenter added that because one part of the Federal government, through its failure, created the necessity for the project, it is fitting that agencies would work together to meet NEPA obligations. (0236)

**Response:**

The NRC staff and the Cooperating Agencies consulted with all appropriate agencies and groups, as discussed below.

The NRC staff met with Colonel John A. Como, Commander of the Dugway Proving Ground, on January 26, 1998. Army personnel gave the NRC staff and representatives of the parties to the adjudicatory proceedings a tour of the facility and briefed them on the activities conducted there. The NRC staff provided the Dugway officials with an overview of the proposed PFSF. The NRC staff and the other Cooperating Agencies also invited Dugway Proving Ground representatives to participate in the consultation process required by Section 106 of NHPA. A description of these interactions with Dugway Proving Ground was inadvertently omitted from Chapter 10, "Agencies Consulted," of the DEIS. NRC revised Chapter 10 of the FEIS to include the consultation activities with Dugway Proving Ground.

On November 4, 1999, the NRC staff met with representatives of the USAF at the Pentagon in Arlington, Virginia. The NRC staff discussed the ongoing safety and environmental review for the proposed PFSF. The meeting focused on the potential impacts of the proposed PFSF on activities at the UTTR. The USAF discussed, in a general way, the types of flight operations that take place closest to the proposed PFSF. The NRC staff met with the USAF again on November 17, 1999, at Hill AFB, in Ogden, Utah. Representatives of the Army (from Dugway) and the USAF agreed that officers from Hill AFB would represent the U.S. military interests at the meeting. The USAF provided a detailed discussion of the military use of the air space over the proposed PFSF. The USAF also provided an overview of military operations, the type of equipment used, and some specific accidents that occurred at the UTTR, and the impact of any possible air space restrictions. Descriptions of these meetings were omitted from Chapter 10, "Agencies Consulted" of the DEIS. In September 2001, the NRC staff met with USAF representatives. The NRC revised the FEIS to reflect the consultation activities with the USAF and US Army.

Utah State representatives have participated in a number of public meetings held by the NRC staff to discuss the EIS and the proposed action.

Regarding the suggestion to consult with Tribes other than the Skull Valley Band, the NRC has consulted with the Skull Valley Band, the Confederated Tribes of the Goshute Reservation, and Tribal Council of the Te-Moak Western Shoshone Indians of Nevada. In addition, the NRC has forwarded project cultural resources information to the Northern Ute Indian Tribe, Paiute Indian Tribe of Utah, and the Northwestern Band of Shoshoni Nation. However, these tribes have declined to be consulting parties in the Section 106 consultation process of the NHPA.

The NRC consults with DOE on technical issues associated with the proposed geologic repository program and site characterization activities at Yucca Mountain, Nevada, in accordance with specific requirements of the NWPA, as amended. This pre-licensing consultation is unique to the repository program.

The NRC did not identify any need to gather additional data from the State of Nevada or consult with the State of Nevada, because the host jurisdiction of the proposed site is surrounded by the State of Utah. The NRC did not determine any need to consult with the Union Pacific railroad, because the proposed actions would not result in any unique use of the Union Pacific rail line that is not already addressed by current DOT regulations. Similarly, there was no need to consult with the railroad trade organizations. NRC did not determine any need to consult with the DOT, because the NRC and the DOT have an interagency agreement regarding the transportation of radioactive material and NRC's regulations address the transportation of radioactive material. No specific transportation corridor states have been identified at this time. Until a license is granted and the applicant, its member reactor licensees and other clients decide upon a shipping schedule, discussions associated with routing are speculative.

The State of Utah provided a significant number of comments during the scoping process and has raised contentions as a party to the ASLB proceeding. These safety and environmental contentions were also submitted as comments on the DEIS. Based on these comments, the NRC is aware of the State's concerns. The NRC staff consulted with Utah SHPO. Discussion of this consultation is in Section 1.5.5, "Required Agency Consultation," of the EIS. The NRC staff also gathered necessary state-generated data through the applicant's and State of Utah's web sites. The NRC did not determine a need to consult with the Forest Service, because there are no Forest Service lands involved. Similarly, there was no need to consult with the National Park Service, because no National park land would be affected.

The NRC acknowledges the comment that intergovernmental coordination has occurred.

The NRC staff recognizes the DOE as a stakeholder and notes that DOE representatives have regularly attended the public meetings on the proposed PFSF. The DOE requested and received copies of major publicly available NRC documents on the proposed PFSF.

#### **G.3.6.7.2 U.S. Fish and Wildlife Service (FWS)**

##### **Comment Summary:**

FWS stated that it concurs with the DEIS determination that the proposed action would have no effect on listed endangered or threatened species. If the proposed action changes or if additional information becomes available, FWS may reconsider this determination. (0089)

##### **Response:**

The NRC acknowledges FWS's concurrence. The proposed action has not changed since publication of the DEIS, and no additional information has become available that would change the determination of no effect. Additional information about the consultation process with FWS can be found in Section 1.5.5, "Required Agency Consultation," and in Appendix B, "Consultation Letters" of this FEIS.

### G.3.7 Public Participation Process

#### G.3.7.1 Scope and Scale of the Public Participation Process

##### Comment Summary:

Several commenters stated that the proposal is beyond the scale of anything the NRC has ever approved, and has the potential to affect millions of people. The commenters stated that the Cooperating Agencies and the public should be made aware of the magnitude of this proposal and that the scope of the public participation process should consider the magnitude of the proposal. (0012, GR-04, SL1-01, SL1-27) Other commenters stated that the scope of the comment process was limited. Additional comments are summarized below:

- One commenter stated that this program would start the unprecedented transport of hundreds of thousands of high-level radioactive waste shipments on our nation's roads and rails through communities inhabited by millions of people. The commenter stated that there would be more shipments in one year under this proposal than in all past shipments combined. (0185)
- Some commenters stated that the NRC should establish an outreach program to better educate the public about the project. (0236, GR-14) Many commenters requested that the various agencies hold question-and-answer sessions, as the format of the public meetings did not allow citizens to have their questions answered, especially if they were general questions not related to the DEIS. (0026, 0034, 0043, 0053, 0170, GR-14, SL2-20, SL3-48) One commenter stated that the failure to answer questions suggested the project proponents had something to hide. (GR-14) Another commenter said that project supporters downplayed very real concerns. (SL3-16) One commenter asked when people would have the opportunity to discuss the whole project, not just the DEIS. (SL1-14)
- One commenter stated that a project that affects everyone should be decided by everyone. (SL3-32) Another commenter stated that citizens of Utah should be allowed to vote on this initiative. (0188)

##### Response:

The NRC staff and the Cooperating Agencies appreciate the concerns about the scale and magnitude of the proposed project. The Cooperating Agencies sought public participation during the scoping process and public comment on the DEIS with full consideration of the project's scale and associated public concerns. The public participation process for the proposed PFSF was consistent with the NRC's regulations applicable to an away-from-reactor ISFSI (10 CFR Part 51 for the environmental review and 10 CFR Part 2, Subpart G, for the formal hearing process). Public participation activities also met the requirements of the other Cooperating Agencies.

The NRC staff has reviewed numerous license applications for nuclear power plants which are technically more complex than the proposed PFSF. The applicant proposes an SNF storage facility that would have a significantly larger capacity than any current at-reactor facility. However, the technology being proposed for this storage facility is the same for any such facility, regardless of size. NRC regulations provide appropriate processes for EIS scoping and for soliciting comments on DEISs for such facilities.

The Cooperating Agencies evaluated the number of SNF shipments that would result if the proposed PFSF were approved. This evaluation is described in Chapter 5 of this FEIS. NRC regulations in 10 CFR 71.5 and DOT regulations in various parts of 49 CFR govern the transportation of SNF. Compliance with these regulations provides adequate protection of public health and safety during SNF transportation.

Regarding suggestions for public education and question-and-answer sessions about the project, the agencies prepared the DEIS to provide information about the potential environmental impacts of the proposed PFSF for public review and comment. The NRC and the Cooperating Agencies conducted the public meetings to receive comments on the DEIS. The meetings were not intended as question-and-answer sessions on the proposed project. The public could ask questions during the meetings and comment period and the NRC has responded to those questions in this FEIS. In addition, the NRC staff was available both before and after the public meetings to answer questions.

In the Atomic Energy Act of 1954, as amended, Congress authorized the NRC to license persons to use and possess the materials that the applicant proposes to store at the proposed PFSF. Congress also authorized the NRC to institute specific standards and procedures for reviewing license applications. Congress did not make licensing of individual facilities subject to a vote or consensus of the public. Rather, Congress directed the NRC to establish procedures through which persons, whose interests might be affected by a proposed action, could request a hearing on that action (see G.2). The ASLB is currently presiding over a proceeding initiated because several parties requested such a hearing. The State of Utah and organizations representing members of the public are participating in this proceeding. The proceeding involves the NRC's review of the requested action, including safety and environmental matters. The FEIS documents the NRC and Cooperating Agencies' analysis of environmental issues. However, discussion of "the whole project," including safety issues and the actions requested of the BLM, the BIA, and the STB, are beyond the scope of the FEIS.

### **G.3.7.2 Accessibility of the Public Participation Process**

#### **Comment Summary:**

Several commenters were concerned about public accessibility and participation including:

- One commenter stated that the process and opportunities for public input have been inadequate from the inception of the proposal. (SL1-05)
- Another commenter stated that the SAR and the applicant's ER, which are repeatedly referred to in the DEIS, are inaccessible to members of the public. The commenter further stated that the NRC document room offers copies at \$121.50 and \$52, respectively, and that most concerned individuals and organizations cannot afford copies. (0194)
- One commenter stated that information about the project supporters' credentials and their credibility was unavailable. The commenter further stated that some discrepancies have been revealed concerning the reported qualifications of the supporters' experts, which suggests that they are hiding something. (SL3-12)
- One commenter stated that members of the Skull Valley Band opposed to the proposed project were barred from the licensing process and questioned why they had been barred. The commenter said that public comments would have little influence. (GR-06)
- Another commenter stated that the cost/benefit/risk information had not been shared with the Skull Valley Band, the citizens of Utah, or residents along the transportation routes. (0053)
- One commenter stated that the NRC did not provide for a local Utah mail drop-off or e-mail delivery of comments on the day comments were due, which shortened the comment period. (0198) Another commenter did not see a place to comment or cast a vote about the proposed PFSF on the NRC web site. (0095)

**Response:**

The NRC staff made the following comprehensive efforts to inform the public about the proposed action and involve the public in the EIS process: The NRC staff held two sets of public scoping meetings early in the environmental review process to receive comments on the scope of the environmental review (June 1998 and April 1999). The NRC staff distributed the DEIS to interested and affected public agencies and to the Marriott Library in Salt Lake City. The DEIS was also available on the NRC's web site at [www.nrc.gov](http://www.nrc.gov). The NRC has conducted an open public process, consistent with the requirements of the NEPA, NRC regulations, and Cooperating Agencies' regulations.

The agencies provided a 90-day public comment period for the public and Federal and state agencies to review the DEIS and provide comments. During the public comment period, the agencies scheduled two public meetings on the DEIS (July 27 and 28, 2000). The NRC staff conducted public meetings to receive comments on the DEIS, and at these meetings, provided copies of the DEIS and the web address for the DEIS. In response to concerns expressed at these public meetings, the agencies scheduled two additional public meetings on August 21, 2000, to receive additional public comments. To allow everyone attending the meetings an opportunity to comment, the agencies encouraged commenters to summarize their comments on the DEIS and submit detailed comments in writing. Comment cards were also distributed at these public meetings. The NRC staff was available to answer questions about the review process before and after the public meetings.

The DEIS, ER, and SAR continue to be available for public review free of charge on the NRC web site, at the University of Utah Marriott Library in Salt Lake City, and at the NRC's public document room. These documents include the information about the costs, benefits, and risks associated with the proposed PFSF.

The NRC staff notes that some members of the Skull Valley Band opposed to the proposed PFSF were given status as a party to the licensing proceeding. Ohngo Gaudadeh Devia, an organization of these members of the Skull Valley Band, has participated since the beginning of this process.

The NRC web site allowed the public to submit comments by e-mail and several individuals used the web site to provide comments. The NRC staff accepted for consideration any e-mail, faxed comments, or written comments received as late as one to two weeks after the close of the public comment period.

Generally, Federal actions and regulatory decision-making such as this are not subject to a public voting process.

The credentials or credibility of other commenters is outside the scope of this FEIS.

**G.3.7.3 Community Awareness and Understanding****Comment Summary:**

Several commenters were concerned that others are not aware of the proposed project. (0013, 0052, 0105, GR-05, SL1-27, SL2-08, SL3-39, SL3-41)

Commenters stated that the majority of people to whom they spoke were not aware of the application or the hazards associated with the proposed PFSF (0217), that a comment period was occurring, or that they lived on a transportation route for the proposed PFSF. (0105, GR-16, GR-20, SL1-36, SL2-07, SL2-12, SL3-39) Other commenters stated that the pending decision could affect the lives of hundreds of generations, and that a decision should not be made at this time with the public so uninformed. (GR-06, SL1-27)

One commenter stated that for-profit corporations, assisted by public agencies, could not force a burden as heavy as nuclear waste storage on a public that is unsuspecting or unwilling. (SL1-38)

Another commenter stated that if the proposed PFSF accepts waste from non-member nuclear reactor licensees, then many other states could be subject to commercial, irradiated nuclear fuel shipments, and the associated risks to health, property, and the environment, without having been consulted or notified by the NRC. (0052)

One commenter stated that the FEIS should address notification of affected states and tribes along the rail lines. (0240) Another commenter said that the DEIS did not indicate that communities will be notified of these dangerous shipments and must have response plans. The commenter said that mayors of towns and cities along the rail lines in Utah were not aware of these requirements. (GR-05)

#### **Response:**

The EIS scoping process and a 90-day public comment period served to involve the public in the EIS process. At the public DEIS scoping meetings in Salt Lake City (1998 and 1999) and Tooele (1999), Utah, the NRC staff discussed its proposed schedule and provided contact information for parties interested in further information or discussions. The NRC staff issued notices of scoping meetings in the *Federal Register* (63 Fed. Reg. 24197, May 1, 1998; 64 Fed. Reg. 18451, April 14, 1999) and advertised the meetings in the *Salt Lake Tribune*, *The Deseret News*, and the *Tooele Transcript Bulletin*. In addition, the NRC and the Cooperating Agencies held a series of public meetings in Salt Lake City and Grantsville, Utah, during July and August 2000, to receive oral public comments on the DEIS. The NRC staff also issued notices of these meetings in the *Federal Register* (65 Fed. Reg. 39206, June 23, 2000; 65 Fed. Reg. 49029, August 10, 2000) and advertised these meetings in the local newspaper. The meetings also received substantial publicity from the Salt Lake City area media. The NRC and the Cooperating Agencies provided ample opportunity for public participation in the development of the EIS.

When the NRC received and accepted the PFS license application for docketing, the NRC staff published a notice in the *Federal Register* (62 Fed. Reg. 41099, July 31, 1997). This notice began the process that resulted in the designation of the State of Utah and others as parties to the licensing proceeding (see G.2). Therefore, since the fall of 1997, the State of Utah has participated in the applicant's licensing proceeding before the ASLB, which conducts the formal licensing hearings. Other parties opposing the application before the ASLB include: Ohngo Gaudadeh Devia (an organization of the members of the Skull Valley Band who are opposed to the proposed action); the Southern Utah Wilderness Alliance; and the Confederated Tribes of the Goshute Reservation (a separate Federally recognized Indian Tribe with familial connections to members of the Skull Valley Band). Originally, a group of ranching interests with land bordering the Reservation were granted status as parties, but they later reached a settlement with the applicant and are no longer involved in the adjudicatory process. The Skull Valley Band is also a party to the licensing proceeding. Both the applicant and the NRC staff also participate in this adjudicatory process. In addition, at hearings, the ASLB often provides, at its discretion, an opportunity for citizens to state their positions in limited appearance statements regarding the licensing action being considered. These limited appearance statements are transcribed at the time they are made, and are placed in the docket of the proceeding.

Limited appearance statements do not form part of the evidentiary record of the proceeding upon which the ASLB must rely in making any decision on the merits of the issues raised by the intervening parties. Nonetheless, the public's limited appearance statements may help the ASLB or the parties in their deliberations in connection with the issues to be considered in the proceeding.

Regarding notification along transportation routes, the NRC staff provided the public along transportation routes the same opportunities to comment on the scope of the EIS and on the DEIS. However, specific routes have not yet been identified for SNF shipments to the proposed PFSF. The NRC's regulations do not require any further notification for the EIS process.

### G.3.7.4 Availability of DEIS

#### Comment Summary:

Several commenters expressed concern about the availability of paper copies of the DEIS and the difficulty of downloading a copy of the DEIS from the Internet. (0003, 0012, 0052, 0096, 0194, 0232, SL1-01, SL1-11, SL1-36, SL1-39, SL3-09, SL3-48)

#### Response:

The NRC and the Cooperating Agencies sought to make public documents such as the DEIS available to all interested parties. In accordance with NRC regulations, the NRC staff issued a notice of availability for the DEIS in the *Federal Register* (65 Fed. Reg. 39206, June 23, 2000). In the notice, the NRC staff provided information on how to obtain a free copy of the DEIS, and also informed the public that the DEIS was available on the NRC web page. In recognition of the document size, the document was posted to the web site on a chapter-by-chapter basis, so that it would be easier to download. Technical difficulties in downloading the DEIS from the NRC web site may have been caused by the size of the document. However, the NRC staff listed a phone number on the same web page as the DEIS from which the public could request a free paper copy of the DEIS. The NRC distributed approximately 700 copies of the DEIS to Federal, Tribal, state, and local government officials, as well as members of the general public. The NRC staff made copies of the DEIS available to every person who requested a copy.

The NRC, in keeping with its goal of becoming a paperless office, has closed local public document rooms around the country. At the time the DEIS was published, the local public document room in Utah had been closed. However, the NRC staff provided multiple copies of the DEIS to the former local public document room at the University of Utah Marriott Library in Salt Lake City.

### G.3.7.5 Length of Comment Period

#### Comment Summary:

Several commenters asked the NRC to extend the comment period to ensure adequate opportunity for public input. (0010, 0012, 0016, 0043, 0048, 0052, 0059, 0101, 0127, 0141, 0148, 0167, 0183, 0187, 0198, 0201, 0203, 0210, 0233, 0250, GR-04, GR-16, GR-21, SL1-15, SL1-39, SL3-17, SL3-19, SL3-21, SL3-29, SL3-34, SL3-37, SL3-39, SL3-42, SL3-45)

Commenters suggested an extension of the comment period by:

- At least 60 days. (0052, 0084, 0099, 0118, 0127, 0130, 0135, 0139, 0151, 0157, 0180, 0185, 0189, 0194, 0195, 230)
- 90 days. (0003, 0027, 0159, 0198, 0249, 0257)
- Six months or more. (0026, 0034, 0036, 0041, 0042, 0043, 0046, 0053, 0060, 0086, 0121, 0134, 0201, 0210, 0210b, 0217, 0229, SL2-07, SL2-12, SL2-14, SL3-04, SL3-06, SL3-09, SL3-12, SL3-27, SL3-31, SL3-33, SL3-35, SL3-40, SL3-43, SL3-45, SL3-47, SL3-48, SL3-54, SL3-55)

Two commenters said the proposal was moving too quickly and more time was needed to comment. (SL1-05, SL1-36)

One commenter argued strongly that 90 days was not a sufficient time to analyze the details of a proposal of this magnitude. The commenter stated that the Federal government routinely allows comment periods well in excess of 90 days for large EIS's, for issues that are also important, but not as clearly fundamental to the health and safety of the people of Utah. The commenter stated that the



DOE's DEIS on the [proposed] Yucca Mountain repository, which was also national in scope and similar in its impact, had an initial comment period of 180 days, with an additional extension beyond that time. The commenter also stated that the comment period should be extended because, in the commenter's view, agency staffs have made it unnecessarily difficult to submit comments, as many citizens were confused about how and where to submit them, and the DEIS itself lacked any guidance. (0198)

**Response:**

The NRC and the Cooperating Agencies reviewed the comments requesting additional time to comment and concluded that the participatory process had provided sufficient time and opportunities for the public to bring forward issues and concerns for the agencies' consideration. The NRC staff provided a 90-day comment period on the DEIS, a period which exceeds the 45-day period generally provided under NRC regulations (10 CFR 51.73) and those of the STB (49 CFR Part 1105). The comment period also exceeds the recommended 60-day comment period in the BIA's NEPA guidance (30 BIA Manual, Supplement 1, 1993), and met the 90-day period required for EISs involving the BLM resource plan amendments (43 CFR 1610.2(c)). The NRC and the Cooperating Agencies held a series of public meetings in Grantsville and Salt Lake City, Utah, to receive oral public comments on the DEIS. The *Federal Register* notice announcing the availability of the DEIS provided directions and addresses for submitting public comments. The NRC staff also provided directions on how to submit public comments, and contacts for each agency during the public meetings. In addition, the NRC and the Cooperating Agencies considered several comments that were received after the comment period. The NRC staff reviewed several requests to hold additional meetings along "the proposed transportation routes" and concluded that the additional meetings were not warranted because specific transportation routes have not yet been identified.

In view of the already expanded opportunities for public comment on the DEIS, earlier NRC staff efforts to solicit public involvement in the EIS scoping process, and public meetings held during the comment period, the NRC and the Cooperating Agencies concluded that an extension of the comment period was not warranted. Additional information on the opportunity for commenting during the EIS scoping process and the 90-day public comment period is provided in Section G.3.7.2. The NRC received thousands of comments from several hundred commenters by the September 21, 2000, comment period closing date, and therefore concluded that the length of the comment period did not preclude meaningful and substantial public comment on the DEIS.

**G.3.7.6 Requests for Additional Public Meetings**

**Comment Summary:**

Many commenters requested additional public meetings. (0003, 0019, 0021, 0027, 0029, 0062, 0096, 0201, 0230, GR-04, GR-14, GR-21, GR-23, SL1-15, SL1-37, SL1-39, SL2-06, SL2-08, SL2-14, SL2-20, SL3-06, SL3-19, SL3-21, SL3-35, SL3-55) Commenters suggested meeting locations in Grantsville, Tooele, Ogden, Spanish Fork, and in southern Utah. (GR-14, SL3-55)

- Two commenters said there has not been enough public opportunity to understand, discuss, and mitigate issues fairly with Utah residents. (0010, 0015)
- Some commenters said that communities through which the waste would pass have been denied the opportunity to voice their concerns and that it would be more efficient to resolve their concerns prior to the approval of the action. (0198, SL2-05, SL3-56) Other commenters said meetings should be held in communities along the transportation route. (0026, 0034, 0042, 0043, 0052, 0084, 0096, 0101, 0118, 0124, 0127, 0130, 0135, 0136, 0139, 0141, 0151, 0157, 0180, 0182, 0183, 0185, 0187, 0189, 0195, 0201, 0203, 0210, 0217, 0249, 0257, GR-21, SL1-05, SL1-09, SL1-35, SL1-36, SL1-39, SL2-05, SL2-12, SL2-14, SL3-06, SL3-09, SL3-23, SL3-35, SL3-36, SL3-40, SL3-41, SL3-45, SL3-47)

- One commenter indicated that few persons outside Utah were aware of the proposed PFSF and that the DOE held half of the 20 hearings on the impacts of the proposed Yucca Mountain repository outside of Nevada. (0198)
- Many commenters suggested that meetings be held in the cities where the SNF originates and in cities along the perceived transportation routes, including cities in California, Illinois, Indiana, Michigan, Minnesota, Missouri, Nebraska, Nevada, Utah, and Wyoming and states affected by high level waste shipment from non-member reactor licensees to the proposed PFSF. (0003, 0021, 0118, 0135, 0171, 0180, 0249, 0257, GR-14, GR-16, GR-23, SL1-35, SL1-36, SL2-05, SL2-14, SL3-31, SL3-35, SL3-54)
- Several commenters suggested specific cities for public meetings, including St. Louis, Missouri; Kansas City, Missouri; Jefferson City, Missouri; Gary, Indiana; Chicago, Illinois; Des Moines, Iowa; Omaha, Nebraska; and Laramie, Wyoming. (0159, 0194, 0249)
- Other commenters said the two meetings initially scheduled were too few and too early in the DEIS comment period. (0012, 0015, SL1-01, SL1-14, SL1-37, SL3-21)
- Two commenters said the public has a right and a need to be able to address the impacts of the proposed PFSF. The commenters expressed concern that the DEIS comment period was the last opportunity the public would have to address this proposal before the final documents are generated. The commenters stated that there will be licensing board hearings, but only for parties that have been admitted, and that the limited appearance statements submitted at those hearings are not considered in the same way as comments on the DEIS are considered. (0198, GR-04)

**Response:**

The NRC differentiates between public meetings and hearings. The NRC holds public meetings as forums to allow members of the public to express their views on specific issues related to NRC licensing or other actions. By contrast, hearings are generally associated with the formal adjudication of issues before the ASLB. Members of the public can seek to become parties to such a hearing with full participatory rights, including cross-examination of other participants. At this time, the State of Utah, the Skull Valley Band, the applicant, Ohngo Gaudadeh Devia, the Confederated Tribes of the Goshute Reservation, and the Southern Utah Wilderness Alliance are all parties to the hearings. Any members of the public, and others who are not official parties to a hearing, can participate by submitting a written statement or making oral presentations (known as limited appearance statements).

The NRC and the Cooperating Agencies conducted a public scoping process before preparing the DEIS. The agencies held scoping meetings for the EIS in Salt Lake City, Utah (June 1998 and April 1999), and Tooele, Utah (April 1999). At these meetings, the agencies discussed the proposed schedule and solicited input from the general public on environmental concerns related to the proposed PFSF. The NRC published notice of the scoping meetings in the *Federal Register* (63 *Fed. Reg.* 24197, May 1, 1998; 64 *Fed. Reg.* 18451, April 14, 1999) and advertised the meetings in the *Salt Lake City Tribune*, the *Deseret News*, and the *Tooele Transcript Bulletin*.

The NRC staff published notice on June 23, 2000, that it had made the DEIS publically available (65 *Fed. Reg.* 39206, June 23, 2000), and the NRC staff and Cooperating Agencies provided a 90-day comment period on the DEIS. This period exceeded the 45-day comment period required under NRC and STB regulations. The comment period also exceeded the 60-day comment period recommended in the BIA NEPA guidance, and met the 90-day comment period required for EISs involving the BLM resource plan amendments. In view of the already expanded opportunities for public comment on the DEIS, earlier NRC staff efforts to solicit public involvement in the environmental impact statement scoping process, and public meetings held during the comment period, the NRC and the Cooperating Agencies concluded that an extension to the comment period was not warranted. The NRC received

thousands of comments from several hundred commenters by the September 21, 2000, comment period closing date, and therefore concluded that the length of the comment period did not preclude meaningful and substantial public comment on the DEIS.

The NRC staff reviewed several requests to hold additional meetings along the potential transportation routes and concluded that the additional meetings were not warranted. Through the notification described above, the NRC staff provided the public along potential transportation routes the same opportunities to submit written comments on the scope of the EIS and the DEIS. The NRC regulations do not require any further notification during the EIS process. The applicant has not identified routes for SNF shipments to the proposed PFSF. Therefore, it would be premature for the NRC staff to begin to schedule or hold public meetings in areas that may or may not be on the route to the proposed PFSF. If the proposed PFSF is licensed and routes are established, members of the public can notify the NRC staff and request additional information.

### **G.3.7.7 Public Notification and Meetings Process**

#### **Comment Summary:**

Some commenters expressed concern about the notice of public meetings and the process, location, and adequacy of the meetings.

- Several commenters stated that notices of the public meetings (37 days for the July meetings and two weeks for the August meetings) were not adequate (0026, 0183, 0198, 0210, SL2-14, SL3-19, SL3-21, SL3-47), and press coverage has been inadequate. (0034, 0036, 0198, SL2-18, SL3-41) One commenter suggested 23 specific organizations that should be notified about future meetings. (SL3-47) Two commenters said that neither they nor their neighbors were notified about the project. (0233, GR-05)
- Other commenters stated that the NRC did not consult or notify public and elected officials in communities along the transportation route about the DEIS (0194, SL3-55), or advertise the public meetings in those communities, as the DOE has done with previous projects. (0060, 0198, 0210, SL3-09)
- One commenter stated that more responses will be submitted now that more people are learning about the proposed project. (SL3-55)
- One commenter stated the hearing process for the proposed PFSF was inadequate. The commenter said that the NRC should hold public meetings in public buildings in the future. (GR-21, SL1-35)
- Some commenters wondered why the meeting room was so small, and why the NRC held the meeting during a week when most people go on vacation. (GR-21, SL1-10, SL1-14) Another commenter said the agencies were not prepared for the number of people at the public meetings. (SL3-55)
- One commenter asked why his bags were searched during a public meeting. (0021)
- One commenter was reportedly told that if one “could speak English,” then one could comment on the public record. The commenter expressed concern about this statement, because people who do not speak English might be disenfranchised or alienated by this process. (GR-21)
- Some commenters said the meetings should allow more time for commenters to speak, stating that two minutes is inadequate. (0015, 0198, GR-13, GR-21, SL1-09, SL1-14, SL1-15, SL2-08, SL3-19, SL3-56)

- Some commenters stated they were not treated with respect at the public meetings. (GR-06, GR-21, SL1-14, SL1-21, SL1-35, SL3-19, SL3-49)
- One commenter asked where additional comments could be sent, other than to the NRC and to Congress. (SL3-57)

**Response:**

The NRC and the Cooperating Agencies acknowledge the concerns expressed by the commenters. Based on the public involvement activities, the NRC and the Cooperating Agencies consider the distribution of the DEIS and the public meeting notification processes to be adequate.

In accordance with NRC regulations, the NRC staff published a notice of availability for the DEIS in the *Federal Register* (65 Fed. Reg. 39206, June 23, 2000). In the notice, the NRC staff provided information on how to obtain a free copy of the DEIS, and also informed the public that the DEIS was available on the NRC web page. From June 16, 2000, to September 2000, the NRC distributed approximately 700 copies of the DEIS to Federal, Tribal, state, and local government officials, as well as members of the general public. The NRC staff also provided multiple copies of the DEIS to the University of Utah Marriott Library. Based on these actions, the NRC staff concluded that the availability and distribution of the DEIS were adequate.

During the public comment period, the NRC and the Cooperating Agencies scheduled two public meetings on the DEIS (July 27, 2000, in Salt Lake City, Utah, and July 28, 2000, in Grantsville, Utah) to receive oral public comments on the DEIS. In response to concerns expressed at these public meetings, the agencies scheduled two additional public meetings on August 21, 2000, in Salt Lake City to allow for additional public comment. The NRC published notice of these meetings in the *Federal Register* (65 Fed. Reg. 39206, June 23, 2000, and 65 Fed. Reg. 49029, August 10, 2000). The NRC staff also advertised these meetings in Utah newspapers and issued nationwide press releases. The Salt Lake City area media provided substantial meeting coverage.

The meetings were held to provide interested parties with an opportunity to present comments on the DEIS rather than to provide question-and-answer sessions on the proposed project. Based on the number of commenters, it was necessary to limit the time allowed to each commenter during the meeting to provide as many people as possible with an opportunity to speak. When announcing the time limitations, the agencies emphasized that detailed comments could be submitted in writing. Furthermore, during the first meeting, the agencies committed to schedule a least one more meeting to provide an additional opportunity for interested members of the public to provide oral comments. As a result, the NRC staff and the Cooperating Agencies held two additional meetings. The NRC published notices for these meetings in the *Federal Register*, for two weeks in advance (65 Fed. Reg. 39206, June 23, 2000 and 65 Fed. Reg. 49029, August 10, 2000) and sent written meeting notifications to all individuals who had requested them.

The NRC staff did not prevent any non-English speakers from participating in the public meetings. The Cooperating Agencies did not receive any requests for translation services, although they would have been provided if requested.

The NRC and the Cooperating Agencies selected the meeting venues primarily to ensure safe and sufficient public meetings. The NRC has specific procedures for maintaining a safe atmosphere in which the public can provide comments and the agencies can respectfully listen and receive those comments. The procedures are designed to minimize disruption during the meetings and to allow both supporters and opponents of an application an opportunity to be heard. One procedure includes searching the bags of every person who attends the meetings.

Attendance at the first meeting was larger than anticipated; consequently, the room was too small for all participants. The NRC provided an overflow room, adjacent to the meeting, with a monitor to view

the meeting. The NRC and the Cooperating Agencies subsequently extended the time of the meeting and scheduled additional meetings in both the afternoon and evening to allow all interested people to provide comments.

Based on these public involvement activities, the NRC and the Cooperating Agencies consider the public meetings for the DEIS appropriate and sufficient to fulfill each agency's objectives.

### **G.3.7.8 Adequacy of Project Information**

#### **Comment Summary:**

One commenter expressed concern that the information provided on the proposed action was inadequate and inaccurate. The commenter requested that a summary of the DEIS be made available for the average reader to comprehend. The commenter cited a brochure that the applicant produced and asked that the NRC require the applicant to provide objective, factual information to the public. (0053, SL3-48)

One commenter stated that the licensing process has failed to disclose pertinent information regarding emergency preparedness, risk factors on the transportation corridors, and financial information needed to assure stability for this long-term nuclear waste facility. (0148)

One commenter stated that the nuclear industry has had a minimal amount of experience with the shipment of irradiated fuel rods from commercial power plants, and that rods have been corroding and leaking in spent fuel pools for decades. The commenter questioned whether the Skull Valley Band and other Tooele County residents have been told this. (0203)

#### **Response:**

The NRC staff considers that the DEIS contains a complete description of the proposed action and a thorough evaluation of the potential environmental impacts. The DEIS also included an Executive Summary, which provides a simplified summary of the information in the DEIS for public review. The FEIS also includes an Executive Summary. The NRC staff does not regulate, restrict, or specify the information that an applicant (e.g., PFS) must provide to the public about its proposals before the NRC. The applicant submitted all of the information the NRC required for a license review. The NRC specifies the information the applicant must supply to the NRC as part of its application, as listed in applicable regulations. This information is publicly available on the NRC docket for the application. The NRC (and other parties to the licensing proceeding) reviewed all of the information provided by the applicant.

Information about the NRC staff evaluation of emergency preparedness and financial information about the proposed project is available in the SER. Information about the risks along transportation corridors is provided in Section 5.7 of the FEIS. The NRC staff concluded that neither the proposed PFSF nor the transportation of SNF to the proposed PFSF would result in significant impacts to the environment.

The NRC staff concluded that SNF can be safely transported and stored with minimal environmental impacts, as described in the SER, as updated and Sections 4.7.2 and 5.7.2 of the DEIS.

### G.3.7.9 Fairness of the Decision-making Process

#### Comment Summary:

Many commenters questioned the fairness of the decision-making process.

- One commenter expressed concern that the agencies have already made a decision to approve the proposed action, regardless of public opposition. (SL3-11)
- One commenter stated that stakeholders must have truthful information before they are able to give their “informed consent” to allow the transportation or storage of nuclear waste in their communities. The commenter believes that the applicant’s information and materials about the project are misleading and deceptive. The same commenter stated that the people of Utah do not want to be patronized, misled, misinformed, or deceived by the applicant, some members of the Skull Valley Band, or the Tooele County Commission. (0053)
- Two commenters questioned whether the project proponents intend to engage in a meaningful civic dialogue about the impacts of this project, and whether they are trying to avoid certain legal and political constraints by making a deal with a Tribal government. (0015, GR-13, SL3-31)
- Another commenter stated that even though the facility is located on land owned by a Tribal government, the land is located within Tooele County, and the public should have a role in the decision-making process. (SL1-15) Another commenter stated that locating the facility on Tribal land effectively eliminates participation by elected officials, regulators, and the public. (SL3-31)
- One commenter stated that the planning of this radioactive waste transportation and storage program has taken place between the waste generators and the proposed hosts of the facility secretly and out of the public’s eye. (0185) Another commenter stated that the wishes of the residents of Utah and the entire Skull Valley Band were not being heard. (SL1-39)
- A few commenters expressed distrust about the proposed action and questioned the fairness of the Skull Valley Band’s decision-making process. (GR-06, GR-13, GR-14) One commenter stated that opposition speeches were not permitted at Tribal meetings and questioned how this can be understood or portrayed as a fair and mutual decision by the Tribal community. (GR-06)

#### Response:

Each of the actions that PFS has requested of the NRC and each of the Cooperating Agencies requires development of an EIS. Specifically the applicant has: (1) applied for a license from NRC for the proposed PFSF, (2) applied for a license to construct a new rail line from STB, (3) requested rights-of-way (which to be granted would require a land use plan amendment) from BLM, and (4) requested BIA review and approval of the lease between the applicant and the Skull Valley Band. These actions are prerequisites to implementation of the proposed action. (Refer to Section 1.5 of the DEIS.) Each agency is using the decision-making process required by its regulations. The NRC and each Cooperating Agency has a well-defined process for determining whether to grant or deny this type of application. The applicant has not received a license or unconditional approval from any agency. The Cooperating Agencies find no basis for the comment about a predecision on the approval of the proposed PFSF.

Part of each agency’s process is the completion of an environmental review. Each agency has carefully considered all comments received on the DEIS, and, where appropriate, have made revisions to the document. In addition, the agencies have included in the FEIS summaries of all the comments received on the DEIS. This information will allow each agency’s decision-makers to carefully consider the opinions of interested members of the general public.

The FEIS was revised to answer questions and clarify issues of concern expressed in the public meetings. The responses to public comments and additional information provided in the document provide greater detail to increase public knowledge and understanding of the proposed action. The agency decision-making process will be based on the best available information and analysis of the information.

The NRC regulatory process for licensing an away-from-reactor ISFSI, such as the proposed PFSF, consists of both safety and environmental reviews. The NRC SER, as updated, concludes that the proposed PFSF can be designed, constructed, and operated safely. However, the NRC can only issue the requested license upon a decision of the Commission itself (majority vote of five commissioners). This cannot occur until the FEIS is complete and the ASLB adjudicatory process is complete. Subsequently, the license will be issued. The Commission will not make a final decision on the licensing of the proposed PFSF until both reviews are complete.

The BIA has not yet given final approval to the proposed lease between the Skull Valley Band and the applicant (see State of Utah v. United States Department of the Interior, 210 F.3d 1193 (10<sup>th</sup> Cir. 2000)). Under CEQ regulations implementing NEPA, the BIA is participating as a Cooperating Agency in the preparation of this EIS because of its jurisdiction by law (the required approval of the lease) and because of its special expertise in American Indian matters. The BIA is conducting its own independent evaluation of the EIS to ensure that it adequately analyzes the potential impacts of BIA's proposed action and its alternatives on the quality of the human environment. Upon completion of the FEIS and if the NRC issues the proposed license, the BIA will issue its own ROD.

The NRC staff and the BIA acknowledge the comment regarding the fact that the Reservation is bordered on all sides by Tooele County, Utah. However, the reservations of Federally recognized Indian tribes are separate and distinct geopolitical entities. The NRC and the Cooperating Agencies recognize and respect this distinction.

Several comments address the internal workings of the government of the Skull Valley Band. These comments are outside the scope of the EIS and should be resolved within the Skull Valley Band. The proposed lease was presented to the BIA for approval by the elected government of the Skull Valley Band as an official act of the Skull Valley Band. The BIA is therefore required, as part of its government-to-government relationship with the Skull Valley Band, to consider the proposed lease as an official act of the Skull Valley Band. The NRC and the Cooperating Agencies will continue to review the applications before them until they determine to grant or deny them, unless the applicant withdraws the license application or the elected government of the Skull Valley Band withdraws the proposed lease.

At each public meeting associated with the NEPA process, the agencies provided opportunities to comment to all persons who desired to speak. At the request of many members of the public, the agencies scheduled additional public meetings. The agencies selected meeting locations to maximize public participation. Grantsville, Utah, was chosen because it is near the proposed site. Salt Lake City, Utah, was chosen because it is the largest population center in Utah and is located near Skull Valley. The meeting buildings were chosen to accommodate the expected number of participants.

#### **G.3.7.10 Agency Responsiveness**

##### **Comment Summary:**

Several commenters who expressed concern about the responsiveness of the agencies stated the following:

- One commenter stated that some of the public's recent interactions with the NRC did not make them feel comfortable that comments and objections by the State of Utah would be taken

seriously. (SL1-16) One commenter said that some of the NRC's statements at a public meeting fell short of complete disclosure. (SL2-20)

- Some commenters said that they did not feel satisfied with NRC's decision-making process and expressed concern that the NRC was not being objective. (0008, 0015, GR-23) Two commenters stated that for the NRC to assume they have accumulated adequate public input with so little effort is insulting and a flagrant disregard for the democratic process. (0183, SL1-21)
- Two commenters stated that nuclear waste storage could only be addressed with the broadest public consensus. The commenters stated that the process pursued by the NRC so far will not lead to that consensus. (SL1-38, SL3-49)
- Another commenter stated that the NRC's hasty completion and review of the DEIS raises serious questions about the integrity of the report and the agency, and the commenter requested either more public meetings in all of the affected communities or a more comprehensive DEIS review by an independent commission equally represented by different sides of the issue. (0185)

**Response:**

The administrative, technical, environmental and adjudicatory processes of the NRC and the Cooperating Agencies exist to ensure that the interests and concerns of all citizens are appropriately considered and addressed. The NRC and the Cooperating Agencies must follow the existing legal and regulatory frameworks, as they have done. The regulations governing the agencies' review and the proposed PFS are not the subject of the EIS; therefore, comments regarding the responsiveness of the cooperating Federal agencies and the NRC decision-making process are beyond the scope of the EIS. The agencies believe the proposed PFSF review process, which has been underway since 1997, is not a "hasty" review. As described above, the agencies have not made their final decisions.

**G.3.7.11 Support for Public Participation Process**

**Comment Summary:**

Some commenters supported the public participation process. (0100, 0206, 0236, GR-10, SL1-23, SL2-02, SL2-03, SL2-10, SL2-12, SL3-01)

- One commenter stated that the public should realize the opportunity they have for input and use it fairly. (SL2-03)
- Two commenters said that there was no need or time for additional public input. (0132, 0255)
- Additional commenters said that the NRC provided adequate opportunities for input on the DEIS. (0100, 0206, SL3-57)
- Another commenter said the panel was really listening to what the public was saying. (SL3-39)
- Several commenters thanked the NRC for holding additional hearings (i.e., public meetings held on August 21, 2000). (0050, SL2-06, SL2-08, SL2-10, SL3-58)

**Response:**

The NRC staff and the Cooperating Agencies acknowledge the statements of support for the public participation process for the proposed PFSF. The NRC has conducted an open public process, consistent with the requirements of NEPA and with the regulations set forth by the NRC and the Cooperating Agencies. The NRC held two sets of public scoping meetings early in the environmental review process (June 1998 and April 1999) and four public meetings on the DEIS during the public



comment period (July 27 and 28, and August 21, 2000). The agencies provided a 90-day public comment period for agencies and the public to review the DEIS and provide comments. This FEIS considers and addresses the nearly 4,000 individual comments NRC received in more than 250 letters, e-mail messages, and 140 oral comments transcribed at public meetings.

## G.3.8 Adequacy of the EIS

### G.3.8.1 NEPA Procedural Requirements

#### G.3.8.1.1 Adequacy of Information and Analysis

##### Comment Summary:

Several commenters stated that the DEIS is deficient in the information and analysis required by NEPA and other Federal regulations. (0012, 0039, 0077, 0096, 0112, 0113, 0134, 0142, 0148, 0186, 0198, 0198g, 0198i, 0215, GR-11, SL1-07, SL1-10, SL1-32, SL1-37, SL2-02, SL2-13, SL3-02)

Several commenters indicated general and specific deficiencies. Specifically:

- Some commenters stated that the DEIS is seriously deficient in the information and analysis required by NEPA, the NRC's own regulations, and other Federal regulations. Several requested that the DEIS be reissued for public comment. (0012, 0156, SL1-28)
- One commenter stated that the "draft" document should not include false data or unsupported information, but rather a "draft" should only require adjustments in font style, punctuation, and other format, not adjustments to content. (0039)
- Another commenter stated that the DEIS is so deficient that it could not serve as the basis for the careful analysis and consideration that a project of this magnitude requires. (0012)
- One commenter stated that the DEIS is far from a complete document, since it is difficult for members of the public to get an accurate picture of the proposed PFSF. The commenter stated that some of the missing information can be obtained, but much of it has been claimed by the applicant to be proprietary and is not available. The commenter indicated that such proprietary information is only available to parties to the licensing proceeding who have entered into a confidentiality and non-disclosure agreement with the applicant. (0198)
- The same commenter stated that NEPA requires the NRC to consider fairly "unquantified environmental amenities," such as impacts on flora and fauna. (0198i)
- The same commenter stated that an EIS must accurately describe the existing environment of the area(s) that would be affected by a proposed action, and must assess the potential impacts of the proposed action and all reasonable alternatives on that environment, as stated in 40 CFR 1502.15 and 1502.16 and 10 CFR 51, Subpart A, Appendix A, Sections 6 and 7. (0198i)
- One commenter stated that the DEIS is not in compliance with NEPA, specifically 42 USC 4332, because it ignores Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks," (April 21, 1997) and 42 USCA Section 11001 to 11050, "Emergency Planning and Community Right-To-Know." The commenter indicated that such references are missing in the following places: the dialogue box in the Executive Summary on page xxxiv, Table ES.1 on page xxxix, and pages 1-18 through 1-21, Section 1.6.1.1, "Federal Laws and Regulations." (0096)

Commenters indicated that the DEIS did not address the consequences and cumulative impacts of the proposed action as required by the CEQ regulations in 40 CFR 1500. Specifically, commenters stated the following:

- Three commenters argued that the consequences and cumulative impacts to ecological and health issues were not adequately analyzed, and in some cases were not identified in the DEIS. (0012, 0096, 0198)

- One commenter stated that the CEQ regulations in 40 CFR 1508.25(c) require that an EIS consider costs and cumulative impacts (40 CFR 1508.7), as those impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other action. The commenter said that several existing facilities that should be considered in this context are described in the commenter's June 19, 1998, scoping comments. (0198i)
- One commenter referenced page 3-54, lines 45-46 of the DEIS and the dialogue box on page xxxiv of the Executive Summary, stating that there is a lack of cumulative impacts analysis and data upon which to base such analysis. (0096)

**Response:**

The NRC staff reviewed the comments on the adequacy of the DEIS and has determined that the DEIS was complete based on publicly available information when it was prepared and that it complied with NEPA, environmental regulations and procedures of the Cooperating Agencies, and all applicable Federal regulations and Executive Orders. Consistent with the requirements of NEPA, the NRC staff evaluated and compared the environmental impacts of the proposed action and its alternatives. The DEIS described the proposed action (Chapters 1 and 2), the purpose and need for the action (Chapter 1), alternatives to the proposed action (Chapter 2), potentially affected environment in Skull Valley, Utah (Chapter 3), the direct and indirect environmental impacts of the proposed action and proposed mitigation (Chapters 4, 5, and 6), the cumulative impacts of the proposed action (Chapter 6) and a comparison of the alternatives (Chapter 9). The changes identified in this FEIS are minor clarifications and do not change any conclusions of the EIS. Therefore, the NRC and the Cooperating Agencies will not reissue the DEIS. For a detailed explanation of how the NRC staff addressed Executive Order 13045 and 42 USC 4332 and 42 USC Sections 11001-11050, which were cited by the commenter, see Sections G.3.15.5.2 and G.3.3.1.7, respectively of this FEIS.

The analysis contained in the EIS fully considers the environmental impacts of the proposed action and is consistent with the type of analyses performed in other NEPA documents prepared by the NRC and the Cooperating Agencies. The NRC staff acknowledges the commenters' concern about cumulative impacts. However, the NRC staff notes that the cumulative impacts analysis considers the incremental impact of the action when considering other past, present, and future foreseeable actions. As discussed in Section 6.3 of the EIS, "Cumulative Impacts," the proposed action has relatively small and localized impacts and, therefore, has negligible effects on the environmental conditions in the area, even when considered with other foreseeable actions.

The NRC staff reviewed the DEIS and concluded that the environmental analysis adequately meets the CEQ NEPA regulations (40 CFR Part 1500), the NEPA requirements in the NRC regulations (10 CFR Part 51), and the requirements of the Cooperating Agencies.

**G.3.8.1.2 Compliance with NEPA Implementing Regulations****Comment Summary:**

Many commenters stated that the DEIS does not comply with NEPA or the regulations for implementing the requirements of NEPA. (0039, 0077, 0096, 0112, 0113, 0142, 0156, 0158, 0198, 0198g, 0198h, 0198i, GR-11, SL1-07, SL2-02) Commenters provided the following specific statements:

- One commenter indicated that the four Cooperating Agencies have failed in their responsibility to address public laws and policies in accordance with the statutory requirements of NEPA: 42 USC 4332, states: "The Congress authorizes and directs, that, to the fullest extent possible: (1) the

policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this chapter.” (0096)

- One commenter stated that the DEIS is inadequate because it does not comply with Federal regulations for implementing NEPA and the NRC’s own implementing regulations. The commenter requested that the DEIS be redrafted to address the omissions, that a draft be reissued, and that the public be given an opportunity to review and comment on the revised draft prior to any decision on the proposal. (0113)
- One commenter stated that the DEIS provides abundant evidence that the applicant and the NRC have been evasive, dishonest, misleading, unwilling to bring forward pertinent scientific facts, and on many counts have been attempting to evade the Federally mandated process. (0112) The commenter stated that, regarding the applicant and the DEIS, the NEPA process is unethical and the NRC kept the public uninformed by not distributing the DEIS prior to the June hearing. (0112)
- Two commenters stated that the NEPA process was not objective. (0158, 0198) One commenter, stating that the NEPA process did not precede the licensing process, asserted that the NRC and the Cooperating Agencies have essentially committed themselves to approving the proposed PFSF, and NEPA has become an exercise of post-hoc rationalization rather than a truly objective, information-gathering process. Specifically, the commenter said that the DEIS fails to address the need for the proposed PFSF and the real alternatives. (0158)
- The same commenter stated that the NRC relies too heavily on Oak Ridge National Laboratory, an entity with institutional prejudice in favor of nuclear power. The commenter said this is particularly true given that the Cooperating Agencies do not share the NRC’s pro-nuclear mandate. (0158)
- One commenter indicated that the DEIS discusses BMPs to be employed in facility construction and in transportation, but omits BMPs for facility operation, presumably because such BMPs have not been developed. (0156)
- One commenter stated that the magnitude, scope, and unprecedented movement of SNF across the country solely as the result of the applicant’s proposal demands that all of the agencies involved conduct an independent and unbiased analysis. (0198)
- The same commenter stated that the DEIS does not reflect joint consideration or preparation with the STB. (0198g)
- The same commenter stated that, since the SER is not subject to public notice and comment, it does not meet the requirements of NEPA, and may not be relied upon in finalizing the EIS. (0198)

Several commenters commented specifically on the provisions in NUREG-1555, “Environmental Standard Review Plan — Standard Review Plans for Environmental Reviews for Nuclear Power Plants,” to indicate a lack of compliance with implementing NEPA requirements. Specifically:

- Some commenters stated that, consistent with NUREG-1555, the DEIS should not refer to other documents, such as the SER and SAR, for supporting and explanatory information, as it does on several occasions. (0039, 0077, 0096, 0156, 0198, 0215, GR-11, SL1-07, SL2-02) For example, one commenter noted that the DEIS reference to the SER on pages 1-12 and 4-2, is a technical and procedural flaw. (0198) Referring to page 1-12, lines 43-44 of the DEIS, one commenter also stated that the NRC safety evaluation needs to be a part of the DEIS, since it is difficult for the public to get the necessary information to make an informed determination of impacts. (0096)
- One commenter stated that the DEIS fails to emphasize significant issues, as required by NUREG-1555. (SL2-02) The commenter cited the DEIS’ emphasis on economic benefits

resulting from a brief construction period as an example of focusing on insignificant issues. (0039, 0077)

**Response:**

The NRC staff concluded that the DEIS is complete and complies with NEPA and that the EIS was conducted under an appropriate NEPA process. The process the NRC staff used to consider the application for the proposed PFSF is the same process the NRC uses to license other facilities. The licensing review process involves separate environmental and safety reviews, both of which begin after receipt of the license application, which together account for the overall NRC review. As part of its application, the applicant submitted an ER to provide information for the NRC staff's environmental review, and a SAR to provide information for the NRC staff's safety review. The NRC is a regulatory agency and, as such, it does not propose projects; it regulates the civilian use of nuclear materials. Therefore, the NRC staff's review begins upon receipt of the license application. The DEIS documents the environmental review and the SER documents the safety review.

NUREG-1555 provides guidance to the NRC staff regarding the environmental review for nuclear power plants, not SNF storage facilities. Notwithstanding the fact that NUREG-1555 is not directly applicable to the environmental review for an ISFSI, page 3 of the introduction to NUREG-1555 states that each EIS will stand on its own as an analytical document that fully informs decision-makers and the public of the environmental effects of the proposed action and those reasonable alternatives. The EIS is not intended to supplant the safety evaluation. NUREG-1555 does not preclude reference to SERs, SARs, or other publicly available technical reports.

NUREG-1555 also states that the EIS should emphasize the issues that are significant and reduce emphasis on other issues and background material. One commenter indicated that the DEIS emphasized insignificant issues rather than only concentrating on significant ones. The NRC staff found that the issues indicated in the comment are discussed at an appropriate level of detail commensurate with their significance as they relate to the environmental impacts of the proposed action.

As described in the introduction to Section 1.5 of the DEIS, this EIS has been prepared as a collaborative effort between the NRC and the Cooperating Agencies. The Cooperating Agencies have used the technical expertise available at Oak Ridge National Laboratory, as well as technical expertise from other consulting firms, to prepare portions of the analyses and assessments contained in this FEIS. Oak Ridge National Laboratory possesses no commercial SNF that could be sent to the proposed PFSF, nor does it have any other interest in or anticipated benefit from the proposed PFSF. The NRC and the Cooperating Agencies have attempted to respond to all specific and general comments received on the DEIS.

The NRC staff concluded that the EIS is consistent with NEPA and the NRC regulatory requirements and guidance and that the FEIS emphasizes issues that are significant to the environmental review.

**G.3.8.1.3 Consideration of Connected Actions**

**Comment Summary:**

One commenter stated that the DEIS should include evaluations of several connected actions as required by 40 CFR 1508.25. The commenter stated that only one permanent site, Yucca Mountain, is under consideration for permanent disposal of SNF, and that the proposed PFSF is only justifiable if the waste can ultimately be shipped by rail to the [proposed] Yucca Mountain repository site through Lincoln County, Nevada. The commenter stated that the applicant's proposal and the [proposed] Yucca Mountain project, therefore, must be considered connected actions. (0193)

One commenter stated that because the proposed PFSF is a national-scale facility that will store a significant percentage of all SNF destined for the [proposed] permanent repository, the EIS must address the implications of this licensing decision on other SNF options under NWPA. The commenter stated that these are connected actions that are not “sufficiently distinct” to be considered separately and that the siting of such a “national-scale facility” should have input through the NEPA process from affected parties, such as states affected by transportation, construction, operation, and decommissioning of such facilities. (0198b)

**Response:**

The NRC staff believes the EIS appropriately considered connected actions to the proposed PFSF. The NRC staff does not consider the issue raised by the commenters to be a connected action. Specifically, 40 CFR 1508.25(a)(1)(i) states that actions are connected if they “automatically trigger other actions which may require” EISs. Construction of the proposed PFSF would not trigger the construction of the proposed Yucca Mountain Geologic Repository. In addition, 40 CFR 1508.25(a)(1)(ii) states that actions are connected if they cannot “or will not proceed unless other actions are taken previously or simultaneously.” The construction and operation of the proposed PFSF would occur before the proposed permanent geologic repository at Yucca Mountain would be built, if it were approved. Finally, 40 CFR 1508.25(a)(1)(iii) states that actions are connected if they are “independent parts of a larger action and depend on the larger action for their justification.” The proposed action has utility independent of the availability of a permanent geological repository and independent of any specific route used to transport the SNF to such a permanent geological repository.

The EIS does not need to address the implications of the proposed PFSF on other SNF options under the NWPA. If the NRC approves the application, it would not be precluded from taking nor compelled to take further actions for SNF storage or disposal. As stated in Section 1.3 of the DEIS, “Need for the Proposed Action,” the proposed action provides reactor licensees with an alternative to at-reactor storage. The applicant has identified three primary reasons why an away-from-reactor ISFSI is needed: First, some reactor sites have constraints that could prevent expanding on-site storage. Second, an away-from-reactor ISFSI would afford reactor licensees with reactors that are already shut down with the ability to fully decommission their sites sooner. Third, a centralized away-from-reactor ISFSI would reduce the cost of SNF storage for some reactor licensees. Likewise, the proposed permanent geologic repository has utility independent of the proposed PFSF. The DOE is currently considering several transportation modes and routes. Specifically, the DOE is evaluating several possible locations for an ITF. It would be speculative to assume that the DOE would select the location of an ITF based solely on the construction of the proposed PFSF.

Regarding the comment on the NWPA and connected actions, the proposed PFSF is being licensed as an interim facility under 10 CFR Part 72. The proposed action is not subject to the requirements of the NWPA. Likewise, the NWPA requirements for the construction of a permanent geologic repository are not reduced or eliminated because of the possibility of the proposed PFSF.

**G.3.8.1.4 State and Local Consistency and Compliance**

**Comment Summary:**

One commenter stated that the NRC cannot rely on the ER prepared by the applicant, because it is inadequate to satisfy the requirements for writing a defensible EIS. The commenter stated that the NRC regulations require EISs to describe approvals, permits, and legal entitlements that the facility would need to undertake the proposed action and the compliance status of those requirements. The commenter referred to 10 CFR 51.71(c). The commenter stated that the CEQ regulations in 40 CFR 1506.2(d) require full cooperation and lack of duplication with state and local procedures. (0198h)

**Response:**

Comments regarding state and local requirements were based on the applicant's ER. The NRC did not use the ER alone to satisfy the requirements of an EIS. Both the CEQ's implementing regulations for NEPA and the NRC's NEPA regulations allow the use of environmental information from an applicant (40 CFR 1506.5(a) and 10 CFR 51.43, respectively). As required by the CEQ NEPA regulations, the NRC staff independently evaluated the information submitted by the applicant, to the extent that it was used in the EIS.

Section 1.6.2 in the FEIS lists all permits that must be obtained by the applicant prior to operating the proposed PFSF. The NRC staff finds that the environmental analysis in the EIS adequately meets the NEPA requirements (40 CFR Part 1500) and the NEPA requirements in NRC's regulations (10 CFR Part 51).

Regarding the comment on cooperation and lack of duplication with state and local procedures, 40 CFR 1506.2(d) states: "To better integrate environmental impact statements into State or local planning processes, statements shall discuss any inconsistency of a proposed action with any approved State or local plan and laws (whether or not Federally sanctioned). Where an inconsistency exists, the statement should describe the extent to which the agency would reconcile its proposed action with the plan or law." As set forth in Section 1.6.2 of the FEIS, the State of Utah has enacted legislation in Utah S.B.81 (2001) establishing extensive (and possibly prohibitive) requirements relating to the transportation, transfer, or storage of high-level nuclear waste within the exterior borders of the State. PFS has filed a legal action concerning the validity of this legislation and the matter remains pending at this time. Regarding the other parts of 40 CFR Section 1506.2, the NRC staff is not duplicating any state or local agency review process, including any NEPA-equivalent process. Section 1.5 of the FEIS includes a discussion of the consistency review conducted by the BLM.

**G.3.8.1.5 Rail Line Impacts on Regional Environment****Comment Summary:**

One commenter stated that the Low Corridor License Amendment does not comply with 10 CFR 72.100(b), 10 CFR 51.45(c), or 40 CFR 1508.25, because it failed to evaluate, quantify, and analyze the costs and cumulative impacts on the regional environment associated with constructing and operating the rail line. The commenter's basis is the following: NRC regulations require the applicant to define the potential effects of the ISFSI on the region. In particular, 10 CFR 72.100(b) requires an evaluation of "the effects on the regional environment resulting from construction, operation, and decommissioning of the ISFSI...." Moreover, 10 CFR 51.45(c) requires an analysis in the environmental report of "other benefits and costs of the proposed action." Furthermore, the CEQ regulations in 40 CFR 1508.25(c) require that an EIS consider cumulative impacts. "Cumulative impact" is defined in 40 CFR 1508.7 as:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The commenter added that the CEQ regulations further require that "cumulative actions which, when viewed with other proposed actions, have cumulatively significant impacts should therefore, be discussed in the same impact statement." 40 CFR 1508.25(a)(2). The commenter stated that the rail line from Skunk Ridge (near Low, Utah) is being constructed solely to move SNF casks from the Union Pacific mainline at the junction of Interstate 80 and Low across public lands to the Skull Valley Reservation. According to the commenter, the proposed rail corridor has no independent utility other

than to serve the applicant's proposed PFSF. Thus, the commenter concluded that the rail line is inextricably part of the applicant's ISFSI project and, as such, must be evaluated under the criteria in 10 CFR 72.100(b), and 10 CFR 51.45(c) and the CEQ regulations. (0198i) Moreover, the commenter argued that the Low Corridor License Amendment is wholly without discussion of the direct and indirect costs or cumulative impacts associated with the construction and operation of the proposed rail line. Rather, the amendment described only the indirect benefits of the rail line (e.g., the rail line will provide opportunities for further Skull Valley Band economic development projects). (0198c)

**Response:**

This comment was directed at the applicant's license application and ER. The DEIS considered the applicant's ER and addressed the concerns identified in the comment. Chapter 5 of this FEIS describes the potential environmental impacts from constructing and operating the proposed new rail line in Skull Valley. Section 6.3 of this FEIS addresses cumulative impacts, including those from the proposed rail line. Section 5.7.2.8 of the FEIS addresses the regional impacts of SNF transportation. The NRC staff determined that the EIS adequately complies with the regulations cited by the commenter.

**G.3.8.1.6 Other Impacts in NEPA Review**

**Comment Summary:**

One commenter asserted that compliance with NEPA requires consideration of cumulative impacts; risks of accidents along the Skull Valley Road; flooding; and pollution, seismic, and visual effects. The commenter stated that these impacts are not addressed in the DEIS and that consideration of these impacts is a distinctly separate legal requirement from compliance with the NRC safety regulations. (0198b)

**Response:**

This comment was based on the applicant's ER. Cumulative impacts are addressed in Section 6.3 of this FEIS. Risks of accidents are addressed in Sections 5.7.2, "Radiological Impacts" (Transportation), and 4.7.2, "Radiological Impacts at the Proposed Site (Site A)." Potential impacts from flooding are discussed in Section 5.2.2, "Impacts During Operation" (Transportation), and 4.2.2, "Impacts During Operations at the Preferred Site." Impacts to water quality and air quality are discussed in Sections 4.2, 4.3, 5.2, and 5.3 and visual impacts are discussed in Sections 4.8.2 and 5.8.2, "Scenic Qualities" (Transportation). The environmental impacts from a seismic event are discussed in Section 4.7.2.3, "Estimated Doses from Off-Normal Operations and Accidents."

**G.3.8.1.7 Additional Natural Resources Information**

**Comment Summary:**

One commenter stated that the applicant acknowledges in the ER that additional studies must be done to identify species and develop mitigation plans prior to construction. The commenter stated that to meet the 10 CFR 72.100 and 10 CFR 72.108 requirements and NEPA, the information must be obtained and included in the ER. The commenter also referred to the Horseshoe Springs Wildlife Management Area, the Timpie Springs Waterfall Management Area, Great Salt Lake, Salt Mountain Springs, and the proposed PFSF, and stated that the 10 CFR regulations and NEPA require the applicant to identify what is in the area. (0198b)



**Response:**

This comment was based on the applicant's ER. The DEIS considered and addressed the issues identified by the commenter and provided additional analyses prepared by the NRC, the Cooperating Agencies, and their contractors.

Several surveys have been conducted since the applicant prepared the initial version of the ER (e.g., as referenced in Chapter 12 of the FEIS: Kass 1998a, 1998b; Stone and Webster 1998). Sections 4.4 and 5.4, "Ecological Resources," of the FEIS discuss the predicted ecological impacts of the proposal and include mitigation measures to minimize impacts. To provide current data on which to design and implement monitoring programs, the applicant will conduct additional surveys and coordinate with the responsible Federal agencies prior to initiating construction.

**G.3.8.1.8 Military Training Impacts****Comment Summary:**

One commenter stated that the DEIS failed to comply with NEPA regulations and the NRC's regulations for implementing NEPA (10 CFR 51.71(d)) because it does not adequately assess the cumulative and socioeconomic impacts from loss of military operations airspace use, including a reduction in military readiness and national security, and potential socioeconomic impacts to Utah communities that rely on employment and patrons of military agencies that use the Sevier B military operating area. In an EIS scoping comment, the commenter raised the issue that the proposed storage and transportation of SNF may impact the vitality and mission of the UTTR operated by Hill AFB. The commenter said that such an impact should be considered because Hill AFB is a major part of Utah's economy. (The commenter referenced DEIS, Appendix A, Environmental Impact Statement Scoping Process, Supplemental Scoping Report, Private Fuel Storage Facility, Skull Valley Indian Reservation, Tooele County, Utah, November 1999, at 8.) The scope of the EIS, according to the commenter, should include "potential cumulative impacts, if any, of the proposed facility in the context of other existing and proposed facilities and activities in the area" and "the direct and indirect economic effects (both beneficial and adverse) on employment, taxes, residential and commercial development, agriculture, and public services in the area" (Id. at 12). Moreover, the commenter stated that Section 3.2 of the Supplemental Scoping Report addresses "Issues Outside the Scope of the EIS," such as issues relating to conflicts in State-Tribal jurisdiction and DOE responsibilities and activities, as well as issues relating to health and safety that will be evaluated in the SER (Id. at 15). The commenter stated that the impacts to the vitality and mission of the UTTR and the effect on Utah's authority cannot be seen to be outside the scope of the DEIS. (0198e)

According to the commenter, fighter wings stationed at Hill AFB use the Sevier B military operating area to conduct low and medium altitude entries into restricted airspace over the UTTR-Dugway Proving Ground land mass. (The commenter referenced the letter from Colonel Ronald G. Oholendt to Governor Michael O. Leavitt, May 3, 1991.) The commenter stated that there is a conflict between the military's use of the area and the proposed PFSF and the proposed rail line from Skunk Ridge (near Low, Utah), which will be located under the Sevier B military operating area. The commenter said that this conflict must be addressed in any NEPA analysis of the proposed PFSF.

According to the commenter, activities conducted in the Sevier B military operating area include flight ingress and egress to restricted airspace over the UTTR-DPG land mass, weapons testing, and air-to-air combat training. Furthermore, the "UTTR has the largest overland special use airspace . . . within the continental United States." The commenter said that without the full use of the UTTR, Hill AFB has the potential to become just another Air Force base and be subject to closure under the Base Closure and Realignment Act. The commenter said that the UTTR is important to the vitality of Hill AFB, primarily because the UTTR has the largest overland active combat-ready training zone in the continental United States. (0198e)

**Response:**

This comment was based on the applicant's ER. In the DEIS, the NRC staff followed NEPA requirements and considered impacts on socioeconomic and community resources as a result of potential impacts from the proposed PFSF on local military operations. The NRC staff did not identify any impact on the operations at Dugway Proving Ground, Hill AFB, Tooele Army Depot, Deseret Chemical Depot, or the UTTR from the presence of the proposed PFSF. The NRC staff also did not identify any socioeconomic or national security impacts on nearby military operations from the proposed PFSF. See Section G.3.13 for more detail.

On November 4, 1999, the NRC staff met with USAF representatives at the Pentagon, in Arlington, Virginia. The NRC staff discussed the ongoing safety and environmental review for the proposed PFSF. The meeting focused on the potential impacts of the proposed PFSF on activities at the UTTR. The USAF discussed, in a general way, the types of flight operations that take place closest to the proposed PFSF. The NRC staff again met with the USAF on November 17, 1999, at Hill AFB, in Ogden, Utah. Representatives of the Army (from Dugway) and the USAF agreed that officers from Hill AFB would represent the U.S. military interests at the meeting. The USAF provided a detailed discussion of the military use of the air space over the proposed PFSF. The USAF also provided an overview of military operations, the type of equipment used, some specific accidents that occurred at the UTTR, and the impact of any possible air space restrictions. The NRC staff updated Chapter 10, "Agencies Consulted," of the FEIS. See discussion in Section G.3.13.4. Deputy Assistant Secretary Thomas W.L. McCall, Jr., acknowledged in a letter submitted on September 19, 2000, that the USAF would not need to institute overflight restrictions or change operations of the UTTR in response to the proposed PFSF. Therefore, the NRC staff concluded that the proposed PFSF would not have any impact on the operations of the UTTR, such that it would affect the usefulness of the UTTR.

**G.3.8.2 Clarity of the Document****G.3.8.2.1 Use of Plain English****Comment Summary:**

Several commenters expressed concern that the DEIS is not written in plain or common language, making it difficult for the average person to understand. (0039, 0077, 0179, 0236, GR-20, GR-22, SL1-07, SL1-39, SL3-57) Commenters provided the following specific comments:

- One commenter stated that the DEIS gave lengthy and difficult to understand descriptions without providing concise conclusions. (GR-20)
- Two commenters stated that NUREG-1555 requires that the DEIS be written in plain language. (GR-11, SL1-07)
- One commenter expressed concern that Section 5.7.2, "Radiological Impacts," is written for technical experts and may be difficult for the public to understand. (0236)
- The same commenter noted that the analytical approach taken in Section 5.7.2, "Radiological Impacts," is too difficult to read for the public, and that the entire section seems written for peer experts. The commenter added that it may very well be accurate, but the public is not used to such terms as " $3.60 \times 10^{-2}$  LCF." The commenter asked that the NRC consider the unresolved differences of opinion between radiation safety specialists at the NRC and the EPA on appropriate radiation standards for [the proposed] Yucca Mountain [repository] and whether to set standards in terms of dose or risk. The commenter asserted that much more needs to be done to explain these differences to the public. (0236)

- One commenter found the use of measurements such as metric tons misleading, since the reader initially did not know if a metric ton was heavier than a regular ton. (SL3-57)
- One commenter suggested that references to the NRC publication, *Transporting Spent Fuel, Protection Provided Against Severe Highway and Railroad Accidents*, (NUREG/BR-0111, March 1987) would provide the public with a better understanding of the transportation risk and suggested using the following language:

“Current NRC regulations require that shipping casks meet certain performance standards. The performance standards include normal operating conditions and hypothetical accident conditions a cask must be capable of withstanding without exceeding specified acceptance criteria that (1) limit the releases of radioactive material and radiation levels outside the cask and (2) assure that the spent fuel will remain subcritical (that is will not undergo a self-sustaining nuclear reaction).”  
(0179)

Several commenters discussed the length of time and effort that it took to read and analyze the DEIS (GR-11, GR-20, SL1-07, SL2-12, SL3-46, SL3-48), and provided the following specific comments:

- One commenter suggested that the DEIS should be made available in summary form, since the entire volume is often too difficult to comprehend. (SL3-48)
- One commenter stated that the DEIS is not well designed because it does not clearly state which agency is responsible for writing which section, and this is confusing to the public. (SL2-12)

#### **Response:**

The NRC staff notes the comments about document readability and shares the commenters' belief that the DEIS should be written in plain language. The NRC staff believes the DEIS is written in plain language. However, the NRC recognizes that the highly technical aspects of both the proposed project and the assessment of potential impacts may be difficult for some people to comprehend. As a result, the DEIS includes several summary tables of the conclusions reached. Table 6.1, “Summary of Significance Levels of the Combined Potential Impacts for Skull Valley Alternatives Addressed in this FEIS,” provides a summary of the level of impact to each resource area from the proposed action. Table 9.1, “Summary and Comparison of Potential Environmental Impacts,” provides a brief description of each alternative's impact to each resource area. In addition, during the preparation of the EIS, the NRC staff attempted to move the most technical aspects of the work into the various appendices to the report, making the information available to the interested reader without interrupting the readability of the main report.

In response to the comments and in keeping with the goal of writing to a general audience, a technical editor reviewed a draft of the FEIS to ensure that the language in the document responds to the needs of most readers. The results of this technical editorial review were incorporated into this FEIS.

In preparing the DEIS, the NRC staff attempted to write to as broad and diverse an audience as practicable. For example, the Executive Summary, Section 5.7.2, “Radiological Impacts,” and Appendix D, “Transportation Risks Analysis,” present the radiological impacts of transportation in three levels of detail and complexity. In several places in the FEIS, including Sections 3.7, “Background Radiological Characteristics,” and 5.7.2, “Radiological Impacts,” the NRC staff attempted to provide background information on radiation dose assessment terminology and probabilistic risk assessment. For example, latent cancer fatalities are defined in Section 3.7, “Background Radiological Characteristics,” of the FEIS. Nevertheless, the NRC staff acknowledges that FEIS Section 5, “Transportation Impacts of the Proposed Action,” involves complicated technical issues that do not easily lend themselves to meaningful plain language explanations. The NRC staff attempted to present these matters in plain language and in the clearest manner possible. The commenter did not

provide specific examples of why Section 5.7.2, “Radiological Impacts,” was too difficult to read, therefore, the NRC staff cannot respond further to this comment. The text box in Section 5.7.2, “Radiological Impact,” provides an explanation of the meaning of LCF in the impact analysis.

The difference between the NRC and the EPA regarding standards for the proposed permanent geologic repository at Yucca Mountain primarily concerns the need for a separate groundwater standard that would be applied to a permanent geologic repository disposal site. This issue does not have relevance to storage sites such as the proposed PFSF, and it is not mentioned in the FEIS because it is beyond the scope of the environmental review.

Great care has been taken throughout this FEIS to include both the metric units and the English units of measure for all numerical data. The term “metric tons uranium” or MTU is a standard measurement within the nuclear industry, and, therefore, English units were omitted. To prevent confusion in this FEIS, the NRC staff revised the “List of Acronyms and Abbreviations” to include a definition of the English equivalent of an MTU. The NRC staff has also defined “MTU” in English units upon its first use in the document (see the FEIS Executive Summary and Section 1.2, “The Proposed Action”).

The NRC staff revised Appendix D, “Transportation Risks Analysis,” of the FEIS to incorporate additional clarifying language and information from the NRC publication “Transporting Spent Fuel, Protection Provided Against Severe Highway and Railroad Accidents” (NUREG/BR-0111, March 1987).

Regarding the question about which Federal agency prepared which portions of the DEIS, the document was prepared as a collaborative effort. Each Cooperating Agency (i.e., the NRC, the BIA, the BLM, and the STB) contributed to the development of the DEIS and reviewed the contributions of the other agencies. While the NRC staff prepared the radiological impact analyses presented in Sections 4.7, “Human Health Impacts,” and 5.7, “Human Health Impacts of SNF Transportation,” of this FEIS, other agencies’ staff prepared sections on subjects within their areas of expertise.

The length of the DEIS is directly related to the complexity of the proposed action and the significant amount of public interaction. The proposed project requires that the FEIS cover all aspects of the proposed action and its potential impacts. However, the FEIS includes an Executive Summary to summarize the findings of the document and to reduce the amount of detailed or technical discussion contained elsewhere in the FEIS.

#### **G.3.8.2.2 Acronyms, Abbreviations, and Index**

##### **Comment Summary:**

One commenter praised the inclusion of a list of acronyms and abbreviations and an index and table of contents. (SL2-12)

##### **Response:**

The NRC and the Cooperating Agencies included a list of acronyms, abbreviations, and an index of the table of contents to ease the use of the FEIS, and the agencies appreciate the comment.

### G.3.8.3 Errors

#### G.3.8.3.1 Typographical Errors (General)

##### Comment Summary:

One commenter noted the following typographical errors in the document. (0163)

- The commenter stated that, “Desert Peak (page 3-58, Section 3.8.2, “Scenic Qualities,” line 21),” should read, “Deseret Peak.” (0163)
- The commenter stated that there appears to be a typographical error in the calculated dose rate at the OCA boundary. Assuming a proposed PFSF array of 4,000 HI-STORM storage casks, the dose rate is 2.80 E-3 mrem/hr (SAR page 7.3-13), not the 0.00283 mrem/hr shown (page 4-43, Section 4.7.2.1, “Estimated Dose to the General Public,” line 21). (0163)
- The commenter noted that on page xxxiii of the Executive Summary, line 10, ITP (as an acronym for Intermodal Transfer Point) should be replaced with ITF (Intermodal Transfer Facility). (0163)
- The commenter noted that the reference to a construction period of 9 months (page 4-32, Section 4.5.1.8, “Economic Structure,” line 26) appears to be a typographical error, because the same chapter (page 4-35, Section 4.5.1.6, “Transportation and Traffic,” line 29) references a 19-month construction period. However, the commenter noted that the correct estimated time period for Phase 1 of construction is actually 18 months, referencing ER Section 4.1.7.1, “Construction Phase 1.” (0163)

##### Response:

The typographical errors noted in the comments above have been corrected in this FEIS.

#### G.3.8.3.2 Editorial Changes

##### Comment Summary:

A few commenters suggested the following minor editorial changes to the document. (0145, 0163)

- One commenter suggested that the term, “nerve gas incinerator,” (Appendix F, Exhibit F.39. Executive Summary, page F-41) be referred to as a “chemical warfare agent incinerator” throughout the document. (0145)
- One commenter stated that Skull Valley Road is a State road. However, Figure 4.2 (page 4-52) suggests that the project would not be visible from any “State highway.” (0163)

##### Response:

The phrase “nerve gas incinerator” is not used anywhere in this FEIS, except in Appendix F. The information presented in Appendix F was developed and used by the applicant to support its site-selection process. The data sheets on display in Appendix F document the information generated by the applicant, and, therefore, do not require the change as suggested in the comment.

The erroneous entry in Figure 4.2 has been corrected in the FEIS to indicate that the proposed PFSF would be visible from a State highway.

### G.3.8.3.3 General Errors

#### Comment Summary:

A few commenters state that the DEIS presents false or inaccurate information. (GR-11, SL1-15)

- One commenter stated that information provided at a June 1998 hearing differs from that included in the DEIS. The commenter said that a map provided by the NRC shows the site is located approximately 54 miles from Salt Lake City, Utah. However, new documentation states that the proposed site is 75 miles from Salt Lake City. (SL1-15)

#### Response:

The NRC staff apologizes for any information that may have been miscommunicated at the earlier public meetings on this project. As to the claimed inaccuracies in distances, the discrepancies appear to be related to the Salt Lake City location from which the distances were measured. That is, different distances can be obtained if the measurement is taken from the center of the city or from the city limits. The distance obtained from U.S. Geological Survey maps shows a direct distance of 58 miles from the center of the proposed site to the State Capitol building in Salt Lake City. By highway, this distance is 75 miles.

### G.3.8.3.4 Inconsistencies in the DEIS

#### Comment Summary:

A few commenters suggested that there are additional inconsistencies in the DEIS. (0096, 0163)  
Specifically:

- One commenter stated that the statement made on page 1-6, lines 11-12 (regarding environmental acceptability of at-reactor storage), seems to be inconsistent with the statement made on page xli, lines 14-44. (0096)
- The same commenter noted that the statement on page 2-32, lines 4-5 (regarding shipment between existing reactor sites), seems to be saying something different from what is said on page xli, lines 38-41 (regarding the lack of significant environmental impacts from at-reactor storage). (0096)
- The same commenter stated that variation of frequency and population density is available to the public, contrary to what is written in the DEIS (page D-7, lines 2-3). (0096)
- One commenter noted that the statement that the proposed new rail line “would cross 32 arroyos ... at which drainage culverts designed to the 100-year flood would be installed,” (page 2-14, Section 2.1.1.3, “New Rail Line,” line 35) is inconsistent with the statement that appears later in the DEIS on page 5-6, line 8, that 110 culverts would need to be installed for the proposed rail line. The commenter also stated that the applicant would provide sufficient culverts for the proposed rail line to maintain the existing drainage and to allow passage of the 100-year flood. (0163)
- The same commenter noted that the DEIS stated that under current DOE plans, removal of SNF from nuclear power plants would not begin until 2010 (page 6-43, Section 6.7, “Potential Impacts of the No Action Alternative,” line 29). The commenter stated that DOE’s statements consistently refer to a start for SNF removal in 2010 “at the earliest.” The commenter stated that the DEIS correctly described DOE’s announced policy on page 8-2, line 46. However, the commenter noted, on page 8-7, line 9, the DEIS again omitted the qualifier “at the earliest.” (0163)

**Response:**

There is no inconsistency with the text on page xli (regarding the environmental acceptability of at-reactor storage) and page 1-6 (regarding the purpose and need for the proposed PFSF) as claimed in the comment. The text on page 1-6, Section 1.3, "Need for the Proposed Action," states that the proposed PFSF would provide an "alternative" for the storage of SNF. The commenter has apparently misinterpreted this purpose and need as suggesting the proposed PFSF would provide a "replacement" for other storage methods and locations. The conclusions of this EIS show that the proposed PFSF, as well as at-reactor storage options, are both viable alternatives.

The text on page xli (regarding the lack of significant environmental impacts from at-reactor storage) is not inconsistent with the text on page 2-32 (regarding the shipment of SNF between existing reactor sites) as claimed in the comment. The two statements are not related. The basis for the claimed inconsistency is unclear from the comment.

Regarding the comment about the variation of frequency and population density as discussed in Appendix D, the original comment noted that such information is available from the local sheriff's office and/or the local emergency planning committees. The commenter misunderstood the type of unavailable data being described in Appendix D. The NRC staff acknowledges that specific local population data described in the comment are available (from such sources as the Bureau of Census, local sheriff's offices, etc.), but it is not just the raw population data that are of interest in Appendix D. The referenced statement in Appendix D discusses modeling assumptions and states that information is not available to link specific accident frequencies (i.e., the subset of each accident within an accident severity category; see Table D.3, "Spent Fuel Severity and Release Fractions Used in this Study to Calculate Accident Consequences and Risks," in this FEIS) with the densities of the populations in zones in which they might occur.

Regarding the comment on the rail line crossing the 32 arroyos, the information in the DEIS was taken from the most recent "Plan of Development" submitted by the applicant to the BLM for the rail line. This plan is still under development and is subject to change. The inconsistency noted in the comment is related to the fact that multiple culverts are proposed at some arroyo crossings. Therefore, there is no one-to-one correspondence between the number of proposed culverts and the number of arroyos. As noted, the applicant has committed to provide sufficient culverts for the proposed rail line to maintain the existing drainage and to allow passage of the 100-year flood.

Regarding the comment on the availability of a permanent geologic repository, the text in this FEIS has been changed to include the phrase "at the earliest," as suggested in the comment, for DOE's schedule to open a permanent repository by 2010.

**G.3.8.3.5 Inconsistencies in References****Comment Summary:**

One commenter suggested that the reference to Table 7.4-2 of the SAR (page 4-44, Section 4.7.2.2, "Estimated Dose to Occupational Personnel," line 16) of the DEIS should be deleted since it applies to doses from operations involving TranStor casks. The commenter noted that the table, which related to TranStor operations, has been deleted from the SAR. (0163)

The commenter stated that on page 2-8, Section 2.1.1.2, "Facility Description," line 12, the statement that the Canister Transfer Building is "75 ft" high is incorrect. The commenter suggested that it is 90 ft high, referencing the applicant's SAR Figure 4.7-1, "Canister Transfer Building," Sheet 2 of 3. (0163)

The commenter stated that on page 2-10, Section 2.1.1.2, "Facility Description," line 12, the statement that the "Canister Transfer Building would be heated electrically, while propane tanks located near each of the other three buildings to provide space heating for those structures" is incorrect. The

commenter stated that according to the applicant's SAR, Sections 4.3.12, "Gas Reactor Licensees," and 8.2.4, "Explosion," all of the proposed PFSF buildings, including the Canister Transfer Building, will be heated with propane. The commenter added that additional electric baseboard heaters will be used in the offices located in the Canister Transfer Building. (0163)

The commenter noted that the statement that the light poles at the proposed PFSF would be 120 ft high (page 4-22, Section 4.4.2.2, "Wildlife," line 42) is incorrect. The commenter stated that the light poles would be 130 ft high, as stated in ER Section 4.2.8.2, "Scenic Resources." (0163)

**Response:**

The NRC staff revised the text in this FEIS to include the corrections to the factual and typographical errors noted by the commenter and described in the comments.

**G.3.8.3.6 Executive Summary and Chapter 1 Errors**

**Comment Summary:**

Several commenters stated that Florida Power & Light Company has replaced Illinois Power Company as a member of the applicant reactor licensees and this change should be made throughout the document. (0163, 0198, 0259)

One commenter said that the statement, "SNF reprocessing never materialized" (page 1-6, Section 1.3, "Need for the Proposed Action," of the DEIS), is incorrect. The commenter stated that the reprocessing of SNF from U.S. commercial reactors took place for a period of time at the West Valley facility. (0163)

One commenter noted that the sidebar box on page xxxiv does not include, "unknown impacts," although they are mentioned several pages later (page xxxv, "Potential Impacts," lines 16-19). (0096)

The same commenter stated that Table 1.2, "Critical Elements Identified by BLM and Considered in this DEIS," (page 1-17, line 18) is incorrect. The commenter stated that eagles have nested in the area and that riparian species would therefore be affected by the proposed rail corridor. (0096)

**Response:**

The NRC and the Cooperating Agencies have revised the FEIS to reflect new applicant member reactor licensees. Florida Power & Light Company has been added, and Illinois Power Company removed. Figure 1.3, "Reactors Which Are Owned by the PFS Companies," has been revised to show the location of applicant member reactors and Table 1.1, "Site-Specific Reactor Information for PFS Member Utilities," now shows the characteristics of these reactors.

The NRC staff acknowledges that reprocessing of commercial nuclear fuel did occur at a facility in West Valley, New York, from 1966 to 1972. However, large scale reprocessing by U.S. commercial reactors never materialized as expected. Instead, the once-through fuel cycle became the practice of U.S. commercial nuclear plant operators. The FEIS text in Section 1.3, "Need for the Proposed Action," has been amended to acknowledge this activity.

The NRC "standards" (included in NUREG-1437, which this FEIS uses) do not include the category "unknown." Therefore, the sidebar box on page xxxiv is correct.

The statement in Table 1.2, "Critical Elements Identified by BLM and Considered in this DEIS," is not in error. The proposed rail corridor does not cross any riparian area, or wetlands, as explained in Section 3.4.2.2 of the FEIS. The sections of the FEIS addressing wetlands, Sections 4.4.1.3, 4.4.2.3, 5.4.1.3, and 5.4.2.3, present the results of the analysis of the impacts of the proposed action on



wetlands. As summarized in Table 9.1, “Summary and Comparison of Potential Environmental Impacts,” the cooperating Federal agencies predict that those impacts would be small. The use of the project area by birds (including eagles) is described in Section 3.4, “Ecological Resources,” of the FEIS. The specific use of Skull Valley by bald eagles is reported in Section 3.4.3.2, “Wildlife.” While bald eagles hunt in the valley during the winter, the closest nest location is over 120 km (70 miles) to the east.

### **G.3.8.3.7 Chapter 2 Errors**

#### **Comment Summary:**

One commenter stated that the title for the second column of Table 2.1, “Anticipated Peak Workforce Requirements at the Proposed PFSF and New Rail Corridor,” on page 2-5, should be changed to “Construction Workers During Operations” to make clear that these numbers do not include the operating staff of the proposed PFSF. (0163)

One commenter noted the Reservation’s eastern boundary, as shown in Figure 2.13, “Proposed Location of an Intermodal Transfer Facility in Skull Valley,” is not consistent with those shown in other chapters of the DEIS. (0077)

One commenter indicated that the statements, “movement of the transfer cask (with the SNF canister inside) from a position above the shipping cask to above the storage cask would occur on the second floor of the Canister Transfer Building,” and “canister would never be lifted more than 25 cm (10 inches) above the second floor” (page 2-19, Section 2.1.2.1, “Transportation of Spent Fuel to the Proposed PFSF,” lines 32-35) are incorrect. The commenter stated that there is no second floor of the Canister Transfer Building, and the transfer cask and canister are hoisted approximately 19 ft above the building floor during the canister transfer operation, using a single failure-proof crane. (0163)

The commenter noted that Figure 2.16, “Alternative Route for a New Road in the Western Portion of Skull Valley,” on page 2-45, Section 2.2.5, “No-Action Alternatives,” appears to be a duplicate of Figure 2.16, “Alternative Route for a New Road in the Western Portion of Skull Valley,” on page 2-44. (0163)

#### **Response:**

Regarding the comment on Table 2.1, “Anticipated Peak Workforce Requirements at the Proposed PFSF and New Rail Corridor,” the NRC staff incorporated corrections contained in the comment into this FEIS.

Regarding the comment about the eastern boundary of the Reservation, the NRC staff reviewed and revised all of the figures in the FEIS to show the accurate shape and location of the Reservation boundary.

Regarding the comment on the movement of the transfer cask, the NRC staff incorporated the corrections contained in the comment into the FEIS.

The duplication of Figure 2.16, “Alternative Route for a New Road in the Western Portion of Skull Valley,” at the end of Chapter 2, “Alternatives Including the Proposed Action,” in the DEIS was a misprint that is corrected in this FEIS.

**G.3.8.3.8 Chapter 3 Errors****Comment Summary:**

One commenter stated that the lands within the 8 km (5 miles) radius of the proposed PFSF are open for recreational purposes, contrary to what is stated in the DEIS (page 3-39, lines 10-11). (0096)

Two commenters stated that the maps in Chapter 3, “Potentially Affected Environment in Skull Valley, Utah,” do not show enough of the features referenced in the text. (0096, 0166) Specifically, one commenter asked why Indian Hickman Creek is not shown in Figure 3.8, “Location of Major Springs in Skull Valley,” yet it is mentioned on page 3-9 (lines 37-40). (0096)

**Response:**

The NRC staff revised and clarified FEIS to indicate that there are no “designated” recreational lands within the radius of the proposed PFSF that are open for recreational purposes.

Based on the current scale of Figure 3.8, Indian Hickman Creek would not be visible in the figure and cannot be added.

The NRC staff updated the figures in the FEIS to include key features, to the extent possible. Specifically, Figure 2.1, “Location of the Proposed Site for the PFSF on the Reservation,” has been revised to show Indian Hickman Creek.

**G.3.8.3.9 Chapter 4 Errors****Comment Summary:**

One commenter stated that Figure 4.1, “Estimated Water Use During Construction of the Proposed PFSF,” (on page 4-8, Section 4.2.1.3, “Groundwater”) indicates that construction Phase 1, period 2, lasts 35 weeks, whereas Section 4.5.5, of the applicant’s ER identifies this interval as being 7 months, or 30 weeks. The commenter also noted that Figure 4.1, “Estimated Water Use During Construction of the Proposed PFSF,” indicates that construction Phase 1, period 3, lasts 30 weeks, whereas Section 4.5.5, of the applicant’s ER identifies this interval as being 9 months, or approximately 39 weeks. The commenter suggested that the different durations may affect the cumulative water usage calculated by the NRC on this graph. (0163)

The commenter stated that Table 4.6, “Estimated Probabilities of Fatal and Nonfatal Occupational Injuries for the Construction and Operation of the Proposed PFSF,” (page 4-40, Section 4.7.1, “Non-Radiological Impacts at the Proposed Site (Site A)”) identifies the duration of construction Phase 1 as lasting 2 years, and the duration of Phases 2 and 3 as lasting 10 years each. The commenter suggested that this should be corrected to show that Phase 1 is 1.5 years, and Phases 2 and 3 are only 5 years each in duration (Sections 4.1.7.1, 4.1.7.2, and 4.1.7.3 of the applicant’s ER). The commenter suggested that since the DEIS multiplied the probability of fatal and non-fatal injuries per year by the number of years of each phase, correction of the duration of each phase will significantly reduce the probability of fatal and non-fatal injuries, also shown in Table 4.6. The commenter also pointed out that the use of the incorrect durations occurs in several other places. (0163)

**Response:**

The NRC staff corrected Figure 4.1, “Estimated Water Use During Construction of the Proposed PFSF,” as suggested in the comment. While the total volume of water used for the duration of the project changes, it is not a significant change and does not affect the NRC and the Cooperating Agencies’ conclusions.

The NRC staff incorporated the corrections suggested in the comment on the construction schedule from 10 years to 5 years and the impact to workers, described in Section 4.7.1, “Non-Radiological Impacts at the Proposed Site (Site A),” during the construction period. The resulting implications of the change in schedule on worker injuries and fatalities have been documented in Section 4.7.1.1, Table 4.6, Section 6.1.7, and Tables 6.2 and 6.3. These changes do not affect any of the EIS conclusions.

#### **G.3.8.3.10 Appendix C Errors**

##### **Comment Summary:**

One commenter stated that the header for Section C.3.5 (page C-7, line 28) of Appendix C, “Rail Routes to the Proposed PFSF Site,” should be, “Route to Skull Valley from Pocatello, Idaho,” rather than, “from Black Rock, Utah.” (0169)

##### **Response:**

The NRC staff made the change suggested in the comment regarding Section C.3.5 in this FEIS.

#### **G.3.8.3.11 Appendix D Errors**

##### **Comment Summary:**

The commenter stated that on page D-4, line 36, “0.13 Sv/h” should be “0.13 mSv/h.” The commenter explained that 13 mrem is equal to 0.13 mSv, and 13 mrem/h is the appropriate dose rate at 1 meter from the shipping cask. (0169)

##### **Response:**

The NRC staff incorporated the change suggested in the comment regarding the dose rate on page D-4 of Appendix D, “Transportation Risk Analysis,” into this FEIS.

#### **G.3.8.3.12 Appendix F Errors**

##### **Comment Summary:**

One commenter stated that testing done by an independent contractor hired by the Skull Valley Band showed that there was no chemical contamination in the area of the sheep kill incident (Appendix F, Exhibit F.39, pages F-42-F-43). (0145)

The commenter argued that the information regarding operations at the Dugway Proving Ground has been misrepresented in Appendix F, “Site Selection Evaluation Forms.” The commenter noted that the DEIS does not reference any Department of Army sources of information about the activities in the area of the proposed site. (0145) Specifically, the commenter provided the following information:

- The commenter stated that the last sentence, page F-42 is incorrect. It states, “...operations at Dugway Proving Ground have been reduced somewhat with the encouragement of the State of Utah...” The commenter stated that the testing (of chemical and biological defense systems) mission conducted by Dugway Proving Ground (through its West Desert Test Center) has increased substantially over the last 12-18 months, and is projected to continue to increase over the next several years. The commenter also noted that the State of Utah’s DEQ works closely with Dugway Proving Ground’s Directorate of Environmental Programs to ensure that environmental compliance and permitting efforts meet all Federal and State requirements for all environmental media on the installation. The commenter stated that the State of Utah has been supportive of Dugway Proving Ground’s mission to serve the nation. However, the commenter

also noted that over the last several years, Federal funding to support Dugway Proving Ground's base operations (e.g., housing, maintenance, facility upgrades, community services, etc.) has declined, not keeping pace with the increase in workload at its West Desert Test Center. (0145)

- The commenter also noted that Dugway Proving Ground has not conducted outdoor testing of chemical or biological warfare agents since 1969, and the attendant risk referred to in this paragraph is, therefore, insignificant. (0145)
- The commenter also noted that the statement in the lead paragraph (Appendix F, Exhibit F.39, page F-44) is incorrect. The commenter stated that only chemical and biological defense system testing is conducted; Dugway Proving Ground does not operate a biological or chemical weapons laboratory. (0145)
- The commenter also noted that Dugway Proving Ground is not located immediately next to the Reservation as stated in this paragraph (Appendix F, "Site Selection/Evaluating Forms," Exhibit F.39, page F-44), but rather "nine miles south of the Reservation," as stated on the DEIS map, Figure 1.1-1, "Regional Location of Skull Valley in Utah," page 1-2 and on page F-46. (0145)
- The commenter stated that Dugway Proving Ground is not a town nor is it open to free public access; it is a U.S. military installation. The commenter explained that housing at the base is not available to the general public but only to military, government, and contract employees of the U.S. Army specifically working on Dugway Proving Ground 4, contrary to what is stated in the DEIS, referencing Appendix F, "Site Selection/Evaluation Forms," Exhibit F. 39, page F-15. (0145)
- The commenter noted that Appendix F, "Site Selection/Evaluation Forms," Exhibit F.39, page F-46, makes several incorrect statements. First, the commenter stated that residents of Dugway Proving Ground are employees of the U.S. Army or one of its contractors. The commenter also stated that it is likely that only a very limited number of residents would be available for employment at the proposed PFSF. Second, the commenter stated that the use of the facilities is limited to people who reside or work on the installation. Third, the commenter explained that employees conduct chemical and biological defensive testing, not testing of chemical and biological weapons. The commenter clarified that it is an assumption that this work is far more dangerous than (working with) SNF. (0145)

**Response:**

The information presented in Appendix F, "Site Selection/Evaluation Forms," was developed and used by the applicant to support its site-selection process. The data sheets on display in Appendix F document the information generated by the applicant in 1996 and, therefore, do not require any changes. Prior to the publication of the DEIS, the NRC staff consulted with representatives of Hill AFB and Dugway Proving Ground to ensure and confirm that the information contained in the body of the DEIS was complete. The NRC staff revised Chapter 10, "Agencies Consulted," to include these military official consultations.

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### **G.3.9 Geology, Minerals, and Soils**

#### **G.3.9.1 Lack of Subsurface Investigations and Geologic Features Information**

##### **Comment Summary:**

One commenter stated that the applicant has not demonstrated the suitability of the proposed site because the license application and SAR do not adequately address the site and subsurface investigations necessary to determine geologic conditions, potential seismicity, ground motion, soil stability, and foundation loading. (0198a)

One commenter said that the SAR Section 2.6, which defines geologic features, is not acceptable because the discussions, geologic maps, profiles of the site stratigraphy, structural geology, geologic history, and engineering geology are not complete, and are not supported by investigations sufficiently detailed to obtain a clear representation of the site geology. The commenter stated that the maps do not provide the requisite detail to evaluate the assumed geologic conditions stated in the text. For example, the commenter said that only 25 borings were taken across the site, and from this a single generalized geologic profile in an obtuse angle across the canister fuel storage facility was presented. (The commenter cited SAR Figure 2.6-5.) The commenter stated that the geologic profile cannot be correlated with surface topography, geologic deposition soil characteristics, or seismic profiling completed for the site. The commenter said that details missing include the interrelationship of the subsurface conditions with the geologic history of the site. (0198a)

##### **Response:**

The NRC staff acknowledges the comments regarding inadequate information in the SAR. However, the NRC staff evaluated geologic and other site characteristic information provided in the license application and SAR and found it acceptable.

The staff notes that the applicant amended its license application to include additional geologic and seismic information. The additional information included site and subsurface data necessary to adequately characterize seismic, geologic, and soil conditions. The NRC staff concluded that the breadth and depth of geological and geophysical investigation represented a “comprehensive technical foundation of geological knowledge” and “the applicant has sufficiently documented these investigations in the SAR and subsequent documents.” The NRC staff documented its evaluation in Chapter 2, “Site Characteristics,” of the SER, as updated.

#### **G.3.9.2 Accuracy and Completeness of Soil Data**

##### **Comment Summary:**

One commenter said that the organic content of test pit soils was misrepresented at 20 percent to 30 percent, and that it is actually between 0.05 percent and 0.55 percent. The commenter also said that moisture content in the soil was more important than the organic content, and that the NRC should provide the moisture content in the FEIS. The commenter questioned the relevance of the organic content of soils to the proposal before the NRC. The commenter further stated that the DEIS data are incomplete because the DEIS should include a figure that shows the locations of test pits and borings, topography, faults and their type, and springs. The commenter also said that supporting documents such as the SAR are not publicly available, making review of the DEIS “nearly impossible.” (0039, 0077, GR-11)

##### **Response:**

The NRC acknowledges the comment regarding organic content of test pit soils, but noted that Section 3.1.3 of the EIS, “Soils,” states that the organic content of the soils is “low (not more than 20

to 30 percent) to non-existent,” and summarizes the results of laboratory testing of soils at the proposed site. The moisture content of the soils is also presented in Section 3.1.3 of the DEIS. The presence of soils and the organic content are included to support the ecological analysis.

The NRC acknowledges the comment about the completeness of data in the DEIS and the level of detail regarding the location of topography, faults, and other items. However, it is the position of the NRC that the level of information regarding topography, faults, and other items in the EIS is appropriate. The information is consistent with the defined purpose of the EIS and reflects the NRC safety findings on the site characteristics provided with the application. The level of information regarding site characteristics in Chapter 3, “Potentially Affected Environment in Skull Valley, Utah,” is intended to support the analysis and findings of Chapters 4 through 9 of the FEIS.

Although the SAR is not a part of the EIS, it is available to the public. For more detailed discussion of the public availability of relevant documents, see Section G.3.7.8.

### **G.3.9.3 Seismic Setting**

#### **G.3.9.3.1 Seismic Analysis of the Proposed PFSF**

##### **Comment Summary:**

Several commenters stated that the DEIS does not provide enough detailed analysis about the risks associated with seismic events, such as earthquakes, and the ability of the proposed PFSF to withstand the effects of an earthquake. Many of these commenters stated that the seismic risks were a reason to find an alternate location. (0012, 0024, 0027, 0039, 0042, 0063, 0096, 0103, 0112, 0134, 0140, 0174, 0198, 0198h, 0200, 0201, 0224, 0229, GR-05, GR-21, SL1-01, SL1-02, SL1-34, SL1-39, SL2-02, SL2-19, SL3-02, SL3-18, SL3-52, SL3-55)

Several commenters stated there were errors, discrepancies, or a lack of information in the characterization of seismic features. (0039, 0077, 0083, 0089, 0103, 0112, SL1-07, SL2-02, SL3-52)

One commenter expressed concern about the accuracy of the seismic information used in the site screening analysis in Appendix F, “Site Selection/Evaluation Forms,” of the DEIS. The commenter said that 86 percent of the 38 exhibits in Appendix F had “unknown” as the evaluation results. The commenter also stated that another site, the Mescalero Reservation in New Mexico, was rejected because a capable fault is present on site. The commenter thought that the same situation should apply to the proposed site. (0039, SL3-52)

Another commenter stated that at Tooele, Utah, northeast of the proposed site, the probabilistic ground motion values for PGA are 0.16 ge with a 10 percent probability of exceedance in 50 years and 0.36 ge with a 2 percent probability of exceedance in 50 years. The commenter said that the EIS should include the seismic criteria used to design the site and the rail line. (0089)

One commenter noted that the proposed PFSF may not be designed to withstand the type of seismic event that could occur in the area (0198) and that the applicant's evaluation of seismic hazards was not sufficient to establish design parameters. (0198h)

One commenter noted that the DEIS does not discuss the possibility of soil liquefaction during a seismic event. This commenter also stated that the small amount of text and the small-scale map were inadequate to conclude that the seismic activity would not present a significant hazard. (0112)

Several commenters commented on the adequacy of the seismic evaluation for determining the seismic risks of the site. One commenter said that only 3 of the 25 test pits were characterized. (GR-11) Another commenter suggested that a similar level of trenching and seismic evaluation should be conducted as is performed for zoning and building approval under Utah law. (0112) One commenter

said that the evaluation of seismic hazards was not sufficient to establish design parameters, and the applicant's characterization of subsurface foundation soils is not supported by the applicant's data. The commenter added that the Utah Geological Survey is evaluating the applicant's data, and it appears there are more faults near the proposed site than previously identified. (0198, 0198h)

One commenter stated that the DEIS said the proposed site is at least 2 miles (and 5 miles) from capable faults, when supporting documents (e.g., Appendix F, Exhibit F.3, page F-5, Initial Screening Form) show distances of 0.5 miles and 1.2 miles to the East and West faults. The commenter stated that the EIS should clearly state that the East and West faults are capable faults (as described in the SAR). The commenter stated that the proposed site is located in an area between these two faults on an up-thrown area called a horst, which indicates a high seismic risk. The commenter further said that the proposed site is 5 miles from a modern epicenter, and there are five other modern epicenters in Skull Valley. (0039, 0077, GR-11, SL3-52)

Another commenter noted that geologic and geo-seismic studies or maps are commonly available at the Utah Department of Natural Resources bookstore and university libraries in the Salt Lake City area. The commenter said that one of these, entitled "Quaternary Geologic Map of Skull Valley, Tooele County, Utah," identifies known geo-seismic faulting and related activity that the DEIS does not include, specifically an approximately 520-acre area that contains at least 20 "faults or fractures having small or undetermined displacement" (Map 150, Utah Geological Survey, by Dorothy Sack, 1993). The commenter said that of the total amount of faulting in the immediate area, over 275 acres are within the designated 820-acre OCA as delineated by Figure 2.1, "Location of the Proposed Site (i.e., Site A) for the PFSF on the Reservation," and Figure 2.11, "Alternative Site (i.e., Site B) for the Proposed PFSF on the Reservation," of the DEIS. The commenter stated that more than 20 acres of this faulting are within the 99-acre restricted-access area. The commenter further stated that a second study, "Quaternary Faults and Folds, Utah," (Suzanne Hecker, Plate 1, Bulletin 127, 1993) is also available at the bookstore and confirms the presence of Late Pleistocene faulting in Skull Valley as defined above. The commenter said that this map clearly indicates the Stansbury Fault and other inferred faulting within the OCA. Notwithstanding these faults being clearly defined in these studies as genuine seismic fractures, the commenter said that at the August 21, 2000, public meeting, a member of the NRC panel characterized them as "sand bars." (0112)

One commenter said that more than 113 recorded earthquakes and four faults have been recorded in the project area. (SL1-10) Another commenter said that there are three other faults in close proximity to the proposed site. (0103) Another commenter stated that an earthquake in the area is probable in the next 50 to 60 years. (SL1-15)

Several commenters mentioned the potential changes that could result from seismic events. One commenter said that an earthquake on the Stansbury Fault could trigger significant earthquakes in the smaller faults in Skull Valley. The commenter said that scientific studies have found that nearly two-thirds of all the historical earthquakes that ruptured the surface in the Basin and Range province (between Salt Lake City and Reno) occurred on faults that had no evidence of surface rupturing in the last 10,000 years. The commenter also said that fault zones similar to the one underlying the proposed site and parts of the railway exist in many areas of the world, including parts of the Wasatch Fault. The commenter stated that in similar zones of multiple faults, history demonstrates that a surface fault rupture can occur on any of the fault strands or, in rare cases, may cause a new fault branch to be propagated and rupture the surface in a new location. (0198, 0198h)

Another commenter noted the 50-mile proximity of the Wasatch Fault and its potential to generate strong ground motion, liquefaction, and amplified ground shaking in soft sediments, which could occur during SNF handling at the proposed PFSF. The commenter also stated that there are quaternary scarp faults in Skull Valley on the west side of the Stansbury range. (SL1-16)



One commenter said that the proposed site includes complex seismicity, capable faults and potentially unstable soils. The commenter said that the DEIS does not fully assess the impact of placing 4,000 casks over such a site. (0198a)

One commenter said that it is dangerous for the casks to be stored upright, above ground, and on unanchored concrete pads between two nearby capable faults. In the event of an earthquake, the casks could tip over. The DEIS does not specify how the casks would be righted in the short time required in the DEIS. (0039, 0077)

Two commenters stated that Figure 3.1, page 3-4, of the DEIS, "Mapped and Interpreted Surface and Subsurface Structural Features in the Immediate Area of the Proposed Site," does not include a data source reference. (0089, 0112)

**Response:**

The NRC acknowledges the comments that the DEIS should have included a full evaluation and comprehensive descriptions of the seismic design of the proposed PFSF and the seismic risk associated with the surrounding area. However, it is the position of the NRC that the level of information regarding the seismic setting and environmental impacts of a seismic event in the EIS is appropriate. The information is consistent with the defined purpose of the EIS and reflects the NRC safety findings about the detailed seismic analyses provided with the application. The purpose of the EIS is to evaluate the impacts of the proposed action on the environment. The environmental impacts resulting from natural phenomena events at the proposed PFSF, such as earthquakes, are addressed in Section 4.7.2.3 of the DEIS, "Estimated Doses from Off-Normal Operations and Accidents." The DEIS states that no credible accident, including the design basis earthquake, would cause a release of material to the environment. The license application for the proposed action and the NRC staff SER, as updated, provide the detailed information and analyses to support this finding. The license application includes the applicant's SAR and other supplemental information. Both the SAR and the NRC staff's SER as updated are publicly available.

The NRC thoroughly evaluated the site-specific characteristics of the proposed site, the seismic design of the proposed PFSF, and the ability of the proposed PFSF design to withstand a design-basis earthquake. This included information provided in the application and independent staff analysis of the seismic design. The information provided in this FEIS is only a summary of the seismic information submitted by the applicant. The NRC safety evaluation considered a significant amount of additional information. The NRC staff evaluated the application to verify that it satisfied applicable NRC safety regulations. The NRC seismic evaluation is documented in Chapter 2, "Site Characteristics," and Chapter 15, "Accident Analysis," of the SER, as updated. The specific comments on the staff's evaluation of seismic matters involve safety issues that do not directly affect the environmental impacts of the proposed PFSF, and are beyond the scope of the EIS.

The data source reference for Figure 3.1 of the DEIS, "Mapped and Interpreted Surface and Subsurface Structural Features in the Immediate Area of the Proposed Site," is a report entitled "Fault Evaluation Study and Seismic Hazard Assessment, Private Fuel Storage Facility, Skull Valley, Utah (Project No. 4790)," Final Report No. GMX-4790 (Revision 0). Geomatrix Consultants, Inc. of San Francisco, California, prepared the report in February 1999 for Stone and Webster Engineering Corporation, Denver, Colorado.

**G.3.9.3.2 Seismic Analysis of the Proposed Rail Route**

**Comment Summary:**

One commenter stated that the DEIS did not evaluate the seismic setting or hazards along the proposed rail routes and the potential for derailment, especially in the event of strong ground shaking or surface rupture. The commenter noted that the rail line would cross the East and West faults, both

of which are capable faults. The commenter stated that a seismic event along the proposed rail line could cause a derailment. The commenter said that just south of Interstate Highway 80, the proposed railway parallels segments of the Cedar Mountain Fault. The commenter stated that the size, extent, location, and nature of this fault are poorly known and that the degree of hazard the Cedar Mountain Fault presents to the railway is unknown. (0198, 0198i)

Two commenters specifically mentioned the potential for the Pass Canyon Cross Fault to affect the rail line, and requested additional descriptions of these faults in the FEIS. The commenters said that this fault shows the possibility of past movement up to 3 km. (0089, 0198)

One commenter stated that geological hazards should be thoroughly analyzed along the proposed rail line to determine the safe siting of rail lines carrying SNF. (0198)

**Response:**

The NRC determined that it is unlikely that a design basis earthquake at the rail line would subject the transportation cask to external forces greater than those predicted from the certification drop tests. The transportation cask is certified to withstand severe drop tests and not release radioactive material to the environment in accordance with transportation requirements in 10 CFR Part 71. Therefore, it is unlikely a design basis earthquake would result in a release in radioactive material from the transportation cask. Furthermore, based on the relatively small number of shipments (one to two trains per week) to the proposed PFSF, it is highly unlikely a transportation cask would be located on the rail line during a design basis earthquake. The NRC concluded that the risk posed by a seismic event at the rail line is small.

**G.3.9.3.3 Public Accessibility of Seismic Evaluation**

**Comment Summary:**

A few commenters stated that the lack of evaluation of seismic risks in the DEIS prevented agencies and the public from reviewing and commenting on the risks. These commenters said that the detailed evaluation, supporting information, and seismic design criteria included in the SAR or the SER should be included in the FEIS. (0012, 0089, 0112, 0198, SL1-01) One commenter stated that the NRC's draft SER contains errors and should not be relied on for geologic analyses. (0198)

**Response:**

The NRC staff acknowledges the commenter's concern that agencies and the public were prevented from reviewing and commenting on seismic risk. However, seismic hazards were discussed in the SAR, which was publicly available at the time the DEIS was issued. Subsequently, the NRC issued the publicly-available SER, as updated, which contains a seismic evaluation of the proposed PFSF design.

The purpose of the EIS is to evaluate impacts of the proposed action on the environment. The environmental impacts resulting from natural phenomena, such as an earthquake, are addressed in Section 4.7.2.3, "Estimated Doses from Off-Normal Operations and Accidents" of the EIS. Additionally, a summary of the NRC staff's safety evaluation of the applicant's seismic analysis was added to Section 4.7.2.3. Accordingly, the NRC staff concludes that the information in the SER is correct and the comment regarding unspecified errors in "the draft SER" cannot be addressed in the FEIS.

### G.3.9.3.4 Fault History and Ground Motion

#### Comment Summary:

One commenter presented the following questions and discussion about surface faulting and ground motions:

Surface Faulting. The commenter cited 10 CFR 72.102(b), in which the NRC regulations recognize that areas west of the Rocky Mountains may potentially be seismically active. These areas, including the proposed site, must be evaluated by the techniques set forth in 10 CFR Part 100, Appendix A, IV(b)(2), which requires the “evaluation of tectonic structures underlying the site, whether buried or expressed at the surface, with regard to their potential for causing surface displacement at or near the site.” The commenter also cited 10 CFR Part 100, Appendix A, III(g)(1), which says that the purpose of the evaluation is to define capable faults which exhibit movement “at or near the ground surface at least once within the past 35,000 years or movement of a recurring nature within the past 500,000 years.”

The commenter stated that although the applicant concluded in the SAR that there is no evidence of “fault offset of the surficial soils” (SAR, pages 2.6-35), the SAR does not provide sufficient supporting evidence to identify presence or absence of buried capable faults that have moved at least once within the past 35,000 years or repeatedly within the past 500,000 years. The commenter stated that surficial material at the site was deposited by Lake Bonneville sometime between 10,000 and 25,000 years ago, and according to the Quaternary Geologic Map of Skull Valley, Utah, additional deposits may range from 25,000 to 500,000 years old (D. Sack, Utah Geological Survey Map No. 150, 1993). The applicant conducted seismic-reflection surveys to detect subsurface geologic structure in deeper bedrock, and unconsolidated material directly overlying the bedrock, and seismic-refraction surveys to detect subsurface geologic structure in shallower unconsolidated material. The commenter referred to the applicant’s analysis, which is summarized in Appendix 2B of the SAR, and identifies buried faults in Paleozoic bedrock beneath the site in a seismic reflection survey, and the applicant’s conclusion that the faults “do not appear to extend into the overlying unconsolidated sediments” (SAR, pages 2.6-36). The commenter questioned this conclusion and stated that based on a review of the reflector profiles, several of these faults apparently displace a significant reflector above what the applicant interpreted as the top of the bedrock, and then extend upwards into the overlying unconsolidated sediments. The commenter suggested that irregular surfaces in layers in seismic-refraction profiles of overlying shallow sediments may support an interpretation of displacement in younger material during more recent times than the applicant determined.

The commenter referred to Figure 4.6 in SAR Appendix 2B and stated that the faults in the western half of seismic line 2 pose particular concern because they directly underlie the proposed site. The commenter continued, saying that other faults that might offset unconsolidated sediments appear in seismic line 3 and cross the proposed easement area. If capable, the faults in both areas might produce greater vibratory ground motion than the proposed PFSF design could withstand. Moreover, the faults beneath the proposed site might also pose a threat of surface fault rupture that the facility site and design must accommodate. Citing a recent publication, the commenter stated that regardless of the evidence showing displacement within the last 35,000 years, the Nevada Bureau of Mines recently determined that 64 percent of the surface-rupturing historical earthquakes in the Basin and Range physiographic province, which includes Skull Valley, occurred on faults with no prior evidence of Holocene movement (within the last 10,000 years). (DePolo, C.M., and Slemmons, D.B., “130,000 years vs. 10,000 year (Holocene) classification of active faults in the Basin and Range Province” (abstract), in Basin and Range Province Seismic-Hazards Summit Program and Abstracts: Reno, Nevada, Western States Seismic Policy Council, 1997, page 28.) According to the commenter, many of the earthquakes occurred on faults that had not experienced prior large earthquakes for up to 130,000 years. The Hickman Knolls Horst block, where the Reservation is located, might include similar buried faults. The commenter concluded that the applicant should extend its evaluation to determine the potential for seismic activity from earthquakes on faults in the site vicinity. (0198a)

Ground Motion. The commenter stated that the site may also be subject to ground motion that exceeds the applicant's predictions because spatial variations in ground motion amplitude and duration could result from the near surface traces of potentially capable faults (the Stansbury and Cedar Mountain faults). (The commenter references Sommerville, P.G., Smith, N.F., Graves, R.W., and Abrahamson, N.A., "Modification of empirical strong ground motion attenuation relations to include the amplitude and duration effects of rupture directivity" in 68 Seismological Research Letters (No. 1) 199 (1997).) The commenter concluded that the applicant's failure to adequately assess ground motion places undue risk on the public and the environment and fails to comply with 10 CFR 72.102(c). (0198a)

**Response:**

The purpose of the EIS is to evaluate the environmental impacts of the proposed action. Issues raised concerning the characterization of faults and ground movement are not directly related to assessing the environmental impacts of the proposed action. As a part of its safety review, the NRC staff evaluated the proposed PFSF to determine if it could withstand a design basis earthquake. The NRC staff evaluated all material in the SAR and addressed concerns regarding seismic activity and ground motion for the proposed site and vicinity. The NRC's evaluation of seismic risks is documented in Chapters 2, "Site Characteristics," and 15, "Accident Analysis," of the SER, as updated. From this analysis, the NRC staff determined that a design basis earthquake would not result in a cask tip over or in a release of radioactive material. Therefore, the NRC staff has not identified any environmental impacts from a design basis earthquake.

The environmental impacts resulting from accidents and natural occurrences, such as an earthquake, are addressed in Section 4.7.2.3, "Estimated Doses from Off-Normal Operations and Accidents" of this EIS.

**G.3.9.3.5 Floods and Waves Generated by Earthquake and Landslide**

**Comment Summary:**

One commenter said that the applicant failed to investigate information regarding floods and water waves along the lake shore that may have been generated by earthquake or landslide events, as required by 10 CFR Part 100, Appendix A, IV(c)(2), 10 CFR 72.92, and 10 CFR 72.102(b). (0198a)

**Response:**

The NRC staff has reviewed the information provided by the applicant and determined that the applicant has demonstrated compliance with the applicable regulatory requirements in 10 CFR Part 72, which governs ISFSI siting. The NRC staff's evaluation of this information is documented in Chapter 2, "Site Characteristics," of the SER, as updated.

**G.3.9.3.6 Subsurface Soils Investigation**

**Comment Summary:**

One commenter stated that the EIS should provide clearer and more complete information about subsurface soil investigations. The commenter stated that the EIS should include specific information about the location, depth, and analysis of the test pits, the cone penetrometry test, and soil borings. The commenter stated that page 3-12, line 6 of the DEIS implies that the test borings encountered groundwater at 125 ft. The commenter stated that this makes Section 3.1.3, "Soils," of the DEIS even more deficient, because it fails to provide sufficient and meaningful detail on subsurface conditions. The commenter said that soils in Section 3.1.3, page 3-3, should be described below 9 ft, and stated that the EIS should not rely on information in the SAR. (0039, 0077, SL2-02)

One commenter stated that the subsurface investigation needs further analysis concerning water levels, and referred to page 3-5, line 1 of the DEIS, which states that a series of borings of unstated depth were put in place. The commenter said that the DEIS describes soils to a depth of 9 ft, and says that the water content ranged from 9 percent to 50 percent. The commenter stated that because moisture generally increases with depth toward a water table and shallow groundwater occurs between 3 and 15 ft in almost all of Utah's intermontane valleys, the report implies that water content in soil could be 50 percent moisture at a depth of 9 ft. The commenter stated that if so, the capillary fringe or fully saturated conditions (i.e., shallow groundwater) exist at a depth of 9 ft. The commenter said that the SAR shows geotechnical lab data and soil boring logs indicating moisture contents over 40 percent at shallow depths and perched water at about 9 ft. Based on the DEIS information, the commenter concludes that there is a shallow aquifer at a depth of approximately 9 ft that must be described and discussed. Further information published by the State of Utah confirms that a shallow aquifer exists in the area of the proposed site. (0039, 0077)

One commenter stated that perhaps the most significant shortcoming in the license application and SAR is the lack of any rigorous and detailed investigation of subsurface conditions that would be appropriate for any nuclear facility. The level of investigations presented is more typical of very preliminary studies for site screening efforts and not a detailed determination of site suitability for establishing design parameters. (0198a)

One commenter stated that the DEIS should discuss unique plant organisms known as cryptogamic crusts, their ability to bind soils, and the potential impact of large truck traffic. (0112)

**Response:**

The NRC acknowledges the comments about the completeness of data in the DEIS and the level of detail regarding the subsurface soil investigations. However, it is the position of the NRC that the level of information regarding subsurface soils in the EIS is appropriate. The information is consistent with the defined purpose of the EIS and reflects the NRC safety findings on the detailed subsurface soil investigations provided with the application. The level of information regarding subsurface soil in Chapter 3, "Potentially Affected Environment in Skull Valley, Utah," is intended to support the analysis and findings of Chapters 4 through 9 of the FEIS. The NRC staff evaluated all the subsurface soil information in the application including the SAR and determined it was acceptable. The NRC thoroughly evaluated the subsurface soil characteristics of the proposed site and documented its evaluation in the SER as part of the licensing safety review.

The NRC acknowledges the comment on the test pits, however, the purpose of this data is to provide detailed profiles of near-subsurface faulting and stratigraphy for the seismic evaluation performed by the NRC staff. This information is not relevant to the environmental impacts of the proposed PFSF. The information and data used by the staff in its evaluation are discussed in Chapter 2, "Site Characteristics," of the SER as updated.

The NRC considered the comment about the need for further subsurface investigation of water levels near the site, but determined that no further investigation is required at this time. The NRC obtained the information in this FEIS to describe the occurrence, abundance, and use of groundwater at and near the site from on-site investigative activities, as well as published sources. Analytical results from a single test well on the proposed site indicate that the water table occurs at a depth of 125 ft, which is consistent with other published estimates of the groundwater level in that part of Skull Valley. The NRC agrees that the effects of groundwater withdrawal for the proposed PFSF operation are uncertain until further testing is performed (see Section 4.2.1.3 in this FEIS, "Groundwater"). The applicant has committed to perform further aquifer evaluation during construction, implement a groundwater withdrawal monitoring plan, and obtain water from off-site sources if necessary to supply the construction and operational needs for the proposed PFSF. However, the project's feasibility is not dependent upon the availability of on-site groundwater.

The NRC acknowledges the comment concerning the issues of site suitability and the level of investigation necessary to determine site suitability in the license application. However, such issues involve safety issues that do not directly affect the environmental impacts of the proposed PFSF, and are beyond the scope of the EIS, and are addressed in the NRC SER. The NRC staff also reviewed the proposed PFSF design and determined that it could be safely constructed and operated at the proposed site.

In response to the comment about cryptogamic crusts, material was added to Sections 3.4.1.1, "Vegetation," and 4.4.1, "Construction Impacts at the Preferred Site (Site A)," of this FEIS about these biological soil crusts.

#### **G.3.9.3.7 Effect of Collapsible Soils on Proposed Rail Corridor**

##### **Comment Summary:**

One commenter stated that the alluvial-fan deposits under the piedmont slope of the eastern edge of the Cedar Mountains might contain collapsible soils, which could lead to rail bed instability due to volumetric change. (0198, 0198i)

##### **Response:**

The applicant is currently conducting soil surveys for the proposed rail line. Based on these surveys, the applicant would appropriately engineer the rail line to ensure rail stability. Engineering properties of the soils on the eastern flank of the Cedar Mountains would be obtained by the applicant as part of final project design. The applicant would consider soil stability as a design issue at that time.

#### **G.3.9.4 Mineral Resources**

##### **Comment Summary:**

One commenter stated that the potential for mineral deposits exists in the southern Skull Valley, particularly on the western portion near the proposed rail line. Potential minerals include skarn/porphyry copper deposits, vein/replacement lead-zinc-silver deposits, and disseminated gold-silver deposits. The commenter said these types of minerals were discovered beneath valley fill in Nevada and Arizona. Since mining of some of these materials is typically performed using open pit mines, the construction of a rail line or other surface facilities could negatively affect the development of mineral resources. The commenter said that the FEIS should address the potential economic loss to the State and to the Skull Valley Band. (0198i)

##### **Response:**

Section 3.1.4 of this FEIS, "Mineral Resources," acknowledges the potential for mineral deposits to occur in Skull Valley. However, the lapsed claims in the valley suggest an overall lack of interest in mineral exploration and the extraction. Impacts from the unavailability of mineral resources due to construction and operation of the proposed PFSF are discussed in Sections 4.1.1, "Construction Impacts at the Preferred Site (Site A)," and 4.1.2, "Impacts During Operations at the Preferred Site," of this FEIS.

The NRC considers further analysis with regard to the potential economic impact on mineral resources to be speculative, due to the lack of information on the exact location and quantity of specific mineral resources in Skull Valley.

**G.3.9.5 Effects of Weather on Soil and Rock at the Proposed Site****Comment Summary:**

One commenter stated that the application did not discuss the geochemical effects of the environment (weather and rain water) on the physical and strength characteristics of the soil and rock at the proposed site, particularly if there is potential for geochemical weathering and leaching of soils and rocks at the proposed site. The commenter said correlations should be made with previous groundwater conditions which led to the calcareous deposition and probable cementation of the subsoils. (0198a)

**Response:**

This comment was received prior to the publication of the DEIS and was directed at the applicant's ER and license application. The FEIS updates the material supplied by the applicant and provides the discussion that is identified in the comment. Section 2.1.1.2 of the FEIS states that a soil cement would be used around the proposed storage pads. This soil cement will be specially engineered to reduce the influx of water into the foundation. Furthermore, the weathering and leaching described in the comment would occur on a relatively lengthy time scale and would not be expected to create unusual deterioration of site soil or rocks over the proposed lifetime of the facility.

## **G.3.10 Water Resources**

### **G.3.10.1 General Comments**

#### **G.3.10.1.1 Existing Conditions**

##### **Comment Summary:**

Two commenters expressed concern about the identification and characterization of water resources at the proposed site. (0039, 0198h, SL2-02) One commenter stated that water resources and the hydrologic setting need to be thoroughly and accurately characterized. (0039, SL2-02) The commenter also stated that the DEIS de-emphasized the significance of Horseshoe Springs to the region's water. (SL2-02) Another commenter said that monitoring wells are necessary in identifying and protecting water resources. (0198)

Two commenters said that maps and figures are needed to illustrate the features and water resources of the proposed site. (0039, 0051, 0077) One commenter said that page 3-9, line 42, of the DEIS stated that the stream channel feature nearest to the proposed site is 1,500 ft to the northeast. The commenter asked if this statement is referring to Indian Hickman Creek, and also asked for a clarification of line 45, which stated that the "nearest perennial surface water flow" is 10 miles to the north. The commenter said that maps should show these important "salient" features and that a clearer discussion of the features and water resources should be included in the DEIS. (0039, 0077) The commenter also said that Figure 3.3 on page 3-10 of the DEIS fails to show the BLM's ACEC, Indian Hickman Springs, and the Skull Valley Band Reservation outline. (0039, 0077) Another commenter stated that Figure 3.4 on page 3-13 of the DEIS should be updated to illustrate Castle Rock Land and Livestock, Inc.'s water rights to a well in Section 33, Township 4S, Range 8W and the BLM's rights to a surface impoundment in Section 35, Township 4S, Range 9W. (0051)

##### **Response:**

The NRC staff considered the comments and noted that Section 3.2 of this FEIS provides information on surface water and groundwater resources and Section 3.4.2.2 provides information on wetlands associated with springs. The impacts to these resources are presented and discussed in Section 4.2 for the proposed activities on the Reservation, and in Sections 5.2 and 5.4 for the proposed transportation systems in Skull Valley.

Section 3.4.2.2 of this FEIS discusses the designation of Horseshoe Springs by the BLM as an ACEC. Its location is shown on Figure 3.8. Sections 4.4.1.3 and 4.4.2.3 discuss the potential impacts to this area during the construction and operation of the proposed PFSF. Sections 5.4.1.3, 5.4.2.3, and 5.4.3.3 discuss the potential impacts to wetlands resources from construction and operation of the transportation facilities. Because Horseshoe Springs is 23 km (14 miles) from the center of the proposed PFSF, 11 km (7 miles) from the proposed Skunk Ridge rail corridor, and 16 km (10 miles) from the alternative ITF at Timpie, the NRC staff concluded that adverse impacts would be small.

Regarding the need for monitoring wells, Sections 3.2 and 3.4 of the FEIS fully characterize the water resources in the project area. Because the SNF will be shipped to Skull Valley in sealed metal cylinders (see Section 2.1.2 in this FEIS), no radioactive contaminants are expected to escape from these sealed containers and there is no need for monitoring wells as suggested in the comment. Section 2.1.5 describes the monitoring program for radioactivity at the proposed PFSF.

The figures referenced in the comment have been updated in this FEIS. Key features, such as those identified in the comment, have been highlighted to the extent possible. For example, Figure 2.1 has been revised to show the location of Indian Hickman Creek; the boundaries of the BLM's area of concern have been added to Figure 1.2; and additional information about nearby wells and water rights has been added to Figure 3.4. In addition, text has been added to Section 3.2.3 in the FEIS to



describe the characteristics and proximity of Indian Hickman Creek. The stream channel nearest to the proposed PFSF is not a perennial stream and is not Indian Hickman Creek.

### **G.3.10.2 Surface Water**

#### **G.3.10.2.1 Affected Surface Water**

##### **Comment Summary:**

One commenter stated that the applicant failed to adequately identify surface waters that may be affected if the NRC issues a Part 72 license. The commenter stated that the applicant generically indicated, in its ER in Sections 2.5-2 and 4.1-10, that there are “few perennial streams in Skull Valley and none in the vicinity of the [proposed PFSF,]” some dry washes that drain northward or northwestward in the vicinity of the proposed PFSF, and no springs occur within 5 miles of the proposed PFSF although some spring channels are located near Timpie and Delle. The commenter also referenced the ER in Section 4.3-6, in which the applicant states that “springs also occur at several locations along Skull Valley Road, surfacing at various distances from the highway ... [and] no perennial lakes or ponds are within 5 miles of the [proposed PFSF] other than a few stock ponds or small reservoirs built for irrigation purposes.” The commenter said that this discussion is inadequate to permit an assessment of surface waters that may be affected by construction, operation, and decommissioning of the site and transportation of SNF. The commenter stated that there are at least 50 springs located within 15 miles of the proposed PFSF, and there are perennial waters protected for agricultural uses located within 10 miles of the site. (0198a)

##### **Response:**

The DEIS and FEIS provide a complete description of the potentially affected water resources in Section 3.2. As described in Section 4.2, the NRC staff did not identify any significant environmental impact to surface water.

#### **G.3.10.2.2 Surface Water Quality**

##### **Comment Summary:**

A few commenters expressed concern that the proposed action will affect the surrounding surface waters. (0039, 0051, 0063, 0077, 0089, 0158, 0198a, 0198i, 0240) One commenter expressed concern that construction, operation, and maintenance of the proposed PFSF will cause degradation of water resources. (0198a) The commenters provided the following specific comments:

- One commenter said that further information is needed on downstream compliance with water quality standards. (0240) Another commenter said that page 2-26 of Section 2.1.4 of the DEIS failed to address how BMPs will be implemented to avoid and mitigate disturbance (due to construction and other traffic) to the springs located along Skull Valley Road. (0039, 0077) Another commenter expressed concern that construction of the proposed PFSF and access road, widening Skull Valley Road, or building a rail spur will generate a number of radiological, chemical, or heavy metal contaminant sources from the heavy machinery, vehicles, construction materials, and chemicals, including fuel, solvents, and asphalt, that will be used during construction. These activities would present the potential for these contaminants to be released to groundwater and surface water via drainage ditches, culverts, and seepage. The commenter expressed concern that culverts will be located through the access road embankment and the applicant's access road off Skull Valley Road, “to carry the occasional runoff.” (The commenter referenced the ER, pages 4.1-10.) (0198a)
- One commenter noted that Section 6.1.2, “Water Resources,” page 6-4, line 41 of the DEIS, stated that localized channel alterations, caused by flood control berms, would constitute potential

impacts to surface water hydrology. The commenter stated that changes in channel morphology and sediment distribution might occur downstream of the proposed PFSF and the retention basin, on public lands. The commenter said that the effects of localized channel interactions and sediment distribution should be described with any associated inspection and mitigation measures. (0051) Another commenter expressed concern that the culvert systems would increase wet season flows, increase erosion, increase siltation in drainages, provide a conduit for the transportation of contaminants, and introduce noxious or invasive undesirable plant species. Therefore, the commenter stated that additional study is needed to minimize these effects. (0089)

- One commenter stated that the EIS must address the nature and character of the water courses present at the proposed PFSF and along the proposed rail line. The commenter noted that a stream alteration permit must be obtained for any alteration of natural streams. (0198i)
- One commenter asked where the DEIS discussed the impacts to the Horseshoe Springs ACEC caused by the construction and operation of the proposed rail line. (0077) Another commenter said that the DEIS should consider the potential impacts of the construction, operation, and decommissioning of the proposed action on the Great Salt Lake. (0158)
- Another commenter said the proposed action could cause potential damage to the watershed, which is a vital source of Utah's water reservoir, and stated that radiation leakage has already occurred in the Colorado River. (0063)

#### **Response:**

The NRC and the Cooperating Agencies concluded that mitigation measures required by the NRC, Cooperating Agencies, and other Federal agencies and State permitting authorities, including the applicant's BMPs, would reduce any short- or long-term adverse environmental impacts associated with the proposed action to acceptable levels. Other than stormwater runoff and septic discharge, there are no expected releases to the groundwater or surface water from the proposed PFSF.

Potential impacts to surface water bodies were discussed in a number of places throughout the Environmental Consequences section of the DEIS (Section 4.2, "Water Resources"). The DEIS also contained information on mitigation measures that would be implemented by the applicant (Sections 2.1.4, "Best Management Practices," 4.3.4, "Mitigation Measures," 9.1, "Introduction," and 9.4.2, "Mitigation Measures"), Federal and State permits that must be obtained (Section 1.6, "Federal, Tribal and State Authorities, Regulations, and Permits"), and BMPs that would be implemented to minimize the potential impacts to surface water bodies (Table 2-7, "Best management practices as proposed by PFS," and Section 9.4.2, "Mitigation Measures"). Impacts to the wetlands along Skull Valley Road that may be caused by increased road traffic and heavy-haul trucks are considered to be small. Discussion of those impacts has been added to Section 5.4.2.3, "Wetlands," of this FEIS.

The types of localized channel alterations, as identified in the comment, are acknowledged to have the potential to cause impacts to surface water morphology; however, their impacts have been determined to be "small to moderate" along the proposed rail corridor, and "small" elsewhere. The primary source of such impacts would be from flood conditions. The potential for erosion and sedimentation is evaluated in Sections 4.2.1.1, 4.2.2.2, 5.2.1.2, and 5.2.2.2 of the FEIS. The culverts for the proposed rail line would be designed to minimize any changes to stream channels. In addition, these culverts would be designed to carry flows from the 100-year flood. The mitigation measures that will be required of the applicant as a condition of the license and lease (see Section 9.4.2, "Conditions 5A and 5D," in this FEIS) will minimize the impacts. Noxious or invasive undesirable plant species along the rail corridor would be controlled by the use of herbicides as discussed in Section 5.4.2.1 of the FEIS.

With regard to the comment about water courses, there are no such features on the proposed site of the ITF near Timpie. The proposed drainage culverts for the new rail line would be designed so as to

minimize any changes to existing drainage channels at the foot of the Cedar Mountains. The culverts would be designed for a 100-year flood event. The stream alteration permit for the rail line is discussed in Section 1.6.2.1 of this FEIS.

As discussed in Section 2.1.1.3 in this FEIS, the proposed rail line from Skunk Ridge (near Low, Utah) would be located on the western side of Skull Valley. Section 5.4 of the FEIS discusses the potential impacts to Horseshoe Springs. Horseshoe Springs is located on the eastern side of Skull Valley (see Figure 1.2 in this FEIS). The closest approach of the proposed rail line to Horseshoe Springs is over 7 miles; hence, there would be no potential for impacts to Horseshoe Springs from either the construction or the operation of the rail line.

Information about the Great Salt Lake and the potential for impacts to it and the species (particularly migratory birds) that use it from construction, operation, and decommissioning of the proposed PFSF, has been added to Sections 3.4.1.2 and 5.4.2.2 of this FEIS. Potential impacts are predicted to be small.

As discussed in Sections 4.2 and 5.2, the potential impacts from radiation (emanating from the SNF inside sealed metal canisters) would be limited to workers and persons located along the transportation routes. The type of damage suggested in the comments would only arise in the event of an accident that resulted in the release of radioactive materials. As discussed in the NRC's SER, the staff investigated such events and found that the large-scale dispersion of radioactive materials (from an accident) is a not a credible event. Therefore, there is no basis for the concern expressed in the comment about impacts to the watershed and/or Utah's water reservoir.

### **G.3.10.2.3 Water Supply and Water Rights**

#### **Comment Summary:**

One commenter expressed concern that water rights and the Reservation's water supply must be consistently and fully discussed. The commenter said that water resources, such as Indian Hickman Springs and Indian Hickman Creek Canyon, are inconsistently characterized in the "Socioeconomic and Community Resources" Section and "Aquatic Resources" Section on page 3-26. The commenter also stated that these water resources are not discussed in all appropriate sections of the DEIS, and stated that the inconsistencies, contradictions, and deceptions must be resolved before the EIS is approved. (0039, 0077)

The commenter said that inconsistent facts throughout the DEIS negate the contention that local water resources legally and feasibly meet the consumptive needs of the proposed action. Specifically, the commenter said that the statement on page 3-12, line 40 of the DEIS that "no surface water in Skull Valley provides private or public drinking water" is deceptive because it failed to recognize that the Reservation is supplied water by Indian Hickman Creek. The commenter noted that the Creek exists due to springs located on non-Reservation land. The commenter stated that on page 3-35, line 9, the DEIS stated that surface water is piped from Indian Hickman Canyon (USGS, 1985 topo series) to serve the Reservation. The commenter asked if this statement on page 3-35 meant that Indian Hickman Creek is a water source for the Skull Valley Band or others. The commenter also asked how the water supply from the pipeline compares to the Skull Valley Band's dependence on well water. (0039, 0077)

In addition, the commenter stated that the Reservation boundary would show that Indian Hickman Creek (page 3-9, line 37 and page 3-26, line 5 of the DEIS) does not originate on the Reservation and is therefore subject to adjudication, rather than indiscriminate unquantifiable use as proposed in the DEIS. The commenter stated that indiscriminate transfer of water rights is prohibited by the Utah Department of Natural Resources. The commenter stated that during the scoping process one Skull Valley Band member stated that the water piped from the mountain, perhaps from Indian Hickman Spring, is dirty and indicated that the water may be used for consumptive purposes. The commenter

also said that page 3-25, line 9 of the DEIS stated that this “stream water is delivered to the irrigable lands through an existing pipeline.” (0039, 0077)

The commenter questioned the statements on page 3-9, lines 37-46 of the DEIS, about the occurrence and proximity of perennial streams and stream channels. The commenter said that the DEIS noted that Indian Hickman Creek is the stream nearest to the proposed site and has flow rates up to 3.1 cubic ft per second from April to June. The commenter asked if Indian Hickman Creek is a perennial stream with flow between June and April, and noted that if Indian Hickman Creek “feeds the Reservation’s water supply reservoir,” then it is an important water resource that must be thoroughly discussed. The commenter also asked about the location of the pipeline and reservoir. (0039, 0077)

The commenter stated that the DEIS should fully discuss every condition, occurrence, and other aspect of water resources (specifically Indian Hickman Canyon), and how the project would affect these resources. (0039, 0077)

#### **Response:**

Section 3.2.3 of the FEIS has been revised to include a more complete discussion of the water rights of the Skull Valley Band. Water rights of the Skull Valley Band were created in 1917 and 1918 when the Reservation was established. The rights provide for water to irrigate practicably irrigable acreage, maintain fisheries, and supply domestic, municipal, and industrial needs. The Skull Valley Band has sovereignty over the use of its water. The applicant’s request to use water rights owned by the Skull Valley Band is subject to review and approval by the BIA as part of its review of the proposed lease. As described in Section 2.1.1.2 of this FEIS, PFS plans to use groundwater and commercial offsite water sources for construction and operation of the facility. The applicant has not proposed to use any water from Indian Hickman Creek.

The Skull Valley Band uses a well to provide water for domestic uses. Some water from Indian Hickman Creek is diverted to a small irrigation storage reservoir [less than 5 acre-ft or 1.63 million gallons (6,170 m<sup>3</sup>)] and about 3 acres of land are irrigated with this water. Section 3.2.3 of the FEIS has been revised to include additional discussion on Indian Hickman Creek. The FEIS concluded that construction and operation of the proposed PFSF would not affect Indian Hickman Creek.

#### **G.3.10.2.4 Storm Water Permits and Monitoring**

##### **Comment Summary:**

A few commenters expressed concern that the detention basin is a potential source of surface or groundwater contamination. (0051, 0089, 0198) Commenters provided the following specific comments:

- One commenter disagreed with the statement on page 4-10 of the DEIS that the proposed PFSF will be a zero release facility. The commenter said that page 4-10 specifically identified that water from the detention basin will infiltrate into the ground. (0198) Another commenter asked what the contingency plan is if the philosophy of “start clean/stay clean” cannot be maintained for the life of the proposed PFSF. (0096)
- One commenter stated that any discharge to waters of the State requires permits. (0198) The commenter stated that the EIS must show compliance with Utah’s Groundwater Discharge Permit requirement since the detention basin proposed by the applicant at the north end of the storage pad is designed to leach into groundwater (according to ER 4.2-4), and since the State of Utah has jurisdiction over all groundwater within the State. The commenter stated that leaching from the basin into the groundwater would be unacceptable. (0198h) The commenter said that if there were any spills of either radiological or non-radiological contaminants, the detention basin would collect them. The commenter expressed concern that the design of the detention basin would not

effectively protect groundwater from contamination. The commenter added that a groundwater permit would include groundwater protection criteria, which would determine the basin design. (0198)

- Referring to the ER at 4.2-2, the same commenter said the applicant cannot support the argument that “[s]urface runoff is uncontaminated and will not adversely affect vegetation or wildlife.” The commenter said the applicant failed to address the adverse impacts as a potential result of contaminated ground or surface waters, including contaminated puddles and ponds, on various species; and did not indicate an intent to sample the detention basin or prevent the detention basin from draining in the event contaminants are present. The commenter said the applicant did not address any waterborne radioactive, chemical, or heavy metal contaminants that may be absorbed by wildlife, aquatic organisms, or vegetation. (0198a, 0198b) The same commenter stated that the applicant should use liners and water quality monitoring for the cask pads and the stormwater detention basin. The commenter said that on page 4-12, the DEIS indicated that the applicant would sample and analyze water from the basin to determine if contaminants are present. The commenter stated this is not an accurate description of what the applicant proposed, based on page 4.2-8 of PFS/ER2000, which discusses that sampling and analysis would be done when free standing water is present. The commenter also said that there is no indication in the DEIS (page 2-10) of where any water pumped from the detention basin would be collected or discharged. (0198)
- Another commenter asked if the stormwater collection and detention basin and water will be monitored for radioactivity. (0089)
- One commenter noted that Section 4.2.2.4, “Groundwater,” page 4-12, line 23, stated that the applicant would sample and analyze water from the basin when water is present to determine if contaminants are present. However, the commenter noted that this effort is not mentioned in Section 6.3 of the ER “(Proposed Operational Monitoring Programs).” The commenter suggested that Section 4.2.2.4 be updated to include a list of contaminants of concern and analytical methods to be used. (0051)
- Another commenter stated that constructing the detention basin (page 4-13, Section 4.2.4, lines 18-24 of the DEIS) prior to constructing the storage pads and other structures and facilities on-site would mitigate the potential impacts to surface water during construction as recommended by the DEIS. (0163)

#### **Response:**

In response to the comments, the NRC staff revised Section 4.2.2.1 regarding a "zero release" facility. The term "zero release" refers only to the proposed PFSF's ability to retain all radioactive materials (i.e., SNF) without their release. The term does not apply to effluent (such as stormwater) that would be discharged from the proposed PFSF. This FEIS has been revised to avoid any inferences about the lack of gaseous and/or liquid discharges (which would accompany the proposed project). As discussed in Section 2.1.2.1 of the DEIS, the start clean/stay clean philosophy means that the proposed PFSF would be a radiological contamination-free site. Because of operational safeguards, as well as stringent design standards for the proposed PFSF and the casks that will be stored there, contamination at the proposed PFSF should be low. The storage pad area would not be contaminated as a result of any normal, off-normal, or accident events because the canisters are surveyed for contamination before they are loaded into storage casks and the canisters are welded shut. Portable monitors will be used to perform airborne monitoring during canister handling operations.

The NRC and the Cooperating Agencies appreciate the comments about the requirements of State of Utah water discharge permits, however State regulations and design specifications regarding stormwater retention basins do not apply on the Reservation. The EPA is the responsible agency for

surface water or groundwater discharges. The applicable permit requirements are described in Section 1.6.2 of the FEIS.

Because the average rainfall at the site is only about 26 cm (10 in) per year, relatively small volumes of water would be expected across the site. Water drainage from the site may soak into the ground before it reaches the proposed detention basin. To clarify perceived discrepancies between the DEIS and ER, Section 4.2.2.4 in this FEIS has been revised to state that the applicant would sample and analyze water from the proposed detention basin when freestanding water is present to determine if radiological contaminants are present. The applicant's sampling plan was described in Section 4.2.4 of the applicant's ER.

Water resource degradation due to construction, operation, and maintenance of the PFSF was analyzed and found to cause little adverse impacts. Section 4.2 of the FEIS describes the analysis of the impacts of constructing and operating the proposed PFSF and includes information related to contaminants and the uses of the detention basin.

As stated in Section 4.2.2.4 of the FEIS, there would be no significant amounts of water collected in the proposed detention basin, except after severe storms. Also, no contaminants are expected to be found in the stormwater in the basin. Any stormwater collected in the detention basin would be expected to evaporate and/or infiltrate and migrate northward from the storage pad area and would probably dissipate in the soils above the water table. The depth to groundwater in this portion of Skull Valley is about 125 ft; therefore, there is only a very small potential for any interaction between the limited amount of water in the basin and the local groundwater. Based upon the absence of any likely impact to groundwater, there does not appear to be a need for a detention basin liner, as recommended in the comment. The final determination of stormwater control measures is subject to EPA review under stormwater permit requirements.

In the event freestanding water collects in the detention basin, the applicant proposes to pump it out after confirming that the water is not contaminated. The water would be pumped to the north of the proposed storage pads. This would allow the water to flow in a generally northward direction, away from the proposed PFSF and along the same pathways that would exist if the proposed PFSF or detention basin were never constructed.

The NRC staff acknowledges the comment supporting the timing of the detention basin construction. No response is required.

### **G.3.10.2.5 Impacts to the Great Salt Lake**

#### **Comment Summary:**

One commenter stated that the Great Salt Lake is adjacent to the proposed ITF and transportation routes. In addition, the commenter stated that the water drainage from the area of the proposed PFSF goes to the Great Salt Lake. The commenter stated that the impact of any spill or other discharge to the Great Salt Lake or into the drainages which discharge into the Great Salt Lake must be evaluated to meet the requirements of 10 CFR 72.100, defining potential effects of the proposed PFSF on the region, and NEPA. Also, the commenter stated that the potential impact on the environment of the transportation of SNF and use of a transfer station in the vicinity of the Great Salt Lake must be evaluated to meet the requirements of 10 CFR 72.108. (0198b)

#### **Response:**

The impacts to the Great Salt Lake from a proposed ITF are found in Section 5.2 of the FEIS. Since there was virtually no potential to cause environmental impacts to the immediate area near the proposed ITF, the NRC staff concluded that no impact on the Great Salt Lake was likely. The requirements of 10 CFR 72.108 address the evaluation of the potential impact of the transportation of

SNF. The evaluation of the environmental impacts of the ITF transportation option are evaluated in Chapter 5 of the EIS.

### G.3.10.3 Water Use

#### G.3.10.3.1 Facility Water Use

##### Comment Summary:

Several commenters expressed concern about the amount of available water required to operate the proposed PFSF. (0039, 0042, 0077, 0112, 0134, 0163, 0198a, 0198h, 0198i, 0201, 0215, GR1-11, SL1-11, SL1-21, SL1-39, SL2-02, SL3-46, SL3-55) Commenters provided the following specific comments:

- Several commenters said that the DEIS does not adequately characterize the water sources, the importance of water, the issue of water rights, and fires. (0042, 0077, 0112, 0198i, 0201, SL1-11, SL1-39, SL2-02, SL3-46, SL3-55)
- One commenter said the DEIS portrays water resources as adequate, yet the DEIS admits the uncertainties, and shows no data on which a water-plentiful scenario is based. (0039, 0077)
- One commenter said the applicant does not specify if the 1,500 gallons-per-day (gpd) estimate is a daily average or a peak usage estimate during construction, construction/operation, or decommissioning. (0198a)
- One commenter stated that clarification on water usage is needed: Are 10 gpm (as stated on line 42, Section 4.2.2.3) needed for operation, 1,500 gpd (as stated on page 4-12, line 29), or 1,900 gpd (as stated in the SAR)? The last two statements implied that 1,500 to 1,800 gpd is all that is required for operations. (0039, 0077)
- One commenter stated that several water usage estimates are missing from the DEIS: estimates from the cement batch plant and plant wash-down, from decommissioning, and the worst-case water usage requirements for revegetation plans. (0215)
- One commenter stated that water use during Phases 2 and 3 was not addressed in the DEIS. (GR-11)
- Another commenter asked how the fire flow requirements were determined and if the proposed PFSF will comply with Tooele County fire flow requirements and the Uniform Fire Code. The same commenter said that well test logs should be provided. (0112)
- One commenter pointed out several inconsistencies between the DEIS and the applicant's ER. Section 2.2.4.2 of the DEIS stated that "[p]otable water would be provided for the [ITF] in tanks transported from the site." However, Section 4.5.2 of the applicant's ER stated that an on-site storage tank at the proposed ITF would be refilled periodically by a local commercial supplier of drinking water. Section 2.2.4.2 of the DEIS stated that "Construction of the ITF would require a peak daily water use of 132 m<sup>3</sup>/day (35,000 gpd)." However, Section 4.5.2 of the applicant's ER calculated the peak water usage for construction of the ITF to be 21,200 gpd. Regarding the proposed PFSF, Section 4.2.2.4 stated that "the quantity of water that would be used by workers is estimated to be about 6 m<sup>3</sup>/day (1,500 gpd)." However, Section 4.5.4 of the applicant's ER indicated that during Phase 1 construction, the volume of water required for worker use is 3,300 gpd. During operations, including concurrent Phase 2 and Phase 3 construction, the amount of water use would decrease to 1,800 gpd. (0163)

- Regarding Federal water rights, one commenter indicated that there are many technical and legal analyses required to identify agricultural water needs. If the water rights of the Reservation are established, then the water use must be changed from irrigation to industrial uses. (0198h) The same commenter said that the applicant merely assumes that it would be able to drill wells for its water needs, which are estimated at 1,500 gpd, referring to the ER at 4.2-4. The commenter said that the applicant must show that it has the legal authority to drill such wells and that its water appropriations do not interfere with or impair existing water rights. Furthermore, the commenter said, the applicant did not specify whether the 1,500 gpd is a daily average or a peak usage estimate or whether that quantity of water would be required throughout the life of the proposed PFSF. (0198a)

**Response:**

The concerns about water availability and use are noted. Figure 4.1, which shows anticipated water use for the facility during both construction and operation, has been updated for the FEIS. On-site well water use is indicated, as is the amount of water that will be imported from off-site. The applicant has reached a proprietary agreement with a local water vendor in the area to provide and transport the necessary water to the proposed site. In the event that the proposed new on-site water wells do not provide adequate water quantity or quality, additional water would be purchased from this same local vendor.

The applicant has stated that there is sufficient water available locally. Within a 15-mile radius of Low (i.e., Skunk Ridge), there are three wells, each with appropriate water rights and pumping capacity to withdraw up to 400,000 gpd. Less than half of this amount is normally withdrawn from these wells on a daily basis.

The numerical values for water use during operation of the proposed PFSF were stated in Section 4.2 in the DEIS. The 1,500 gpd value referenced in the comment is for worker use (e.g., potable water, toilet facilities). The applicant would use the remainder of the water during operations for construction of the concrete storage casks, which would be manufactured on-site and on an as-needed basis. Note also that the 10 gpm value referenced in the comment is the maximum pumping rate proposed for the new groundwater wells and that groundwater might never actually be extracted at this rate. The text in Section 4.2.2.4 in this FEIS was revised to state that, during the operational period of the proposed PFSF, the quantity of water used by workers would be about 5.5 cubic meters per day (14,400 gpd). All uses of water at the proposed PFSF are described in Section 2.1.1.2 of this FEIS, which also provides data on water use. (Estimates for specific operations, such as batch plant and wash-down, were included in these figures.) The NRC staff concluded that this small change in water use does not alter the conclusion that the impacts to groundwater would be small. Section 4.2.1.2 of the FEIS has been updated to address water use during construction Phases 2 and 3. The water use during decommissioning, which includes revegetation, was addressed in Section 4.9.2 of the FEIS.

Regarding the proposed ITF, the NRC staff revised the text in Section 2.2.4.2 in this FEIS to reflect the changes noted in the comments. The NRC staff acknowledges the use of an on-site water storage tank and water distribution system at the proposed ITF location. The tank would be refilled periodically by a local commercial drinking water supplier. The text in Section 2.2.4.2 in this FEIS was also revised to state that the peak water usage during the construction of the proposed ITF would be about 80 cubic meters per day (21,200 gpd).

The NRC safety review as reflected in the SER addressed the safety aspects of the proposed PFSF and specifically included the consideration of fire protection measures. The proposed PFSF would comply with all applicable laws and regulations regarding fire flow requirements. The on-site storage tanks would be designed to contain adequate volumes of water for fire protection. The water use description in Section 2.1.1.2 includes the amount of water needed to fill these tanks.



Text has been added to Section 3.2 of this FEIS to discuss water rights; however, an assessment of the issues associated with the assignment, use, or trading of water rights is beyond the scope of this EIS. The proposed wells would be drilled on the Reservation and would be under the control of the BIA and the Skull Valley Band, but not the State.

#### **G.3.10.4 Groundwater**

##### **G.3.10.4.1 Groundwater Characterization**

###### **General Comments**

###### **Comment Summary:**

A few commenters addressed groundwater characteristics and said that the DEIS should provide correct information and supporting documentation. (0039, 0051, 0077, 0198, GR-11)

Two commenters said that conclusions regarding groundwater are faulty and could be adversely affected due to incorrect well depths, questionable pump test data, a very large radius of influence, and testing an unused portion of the aquifer. (0039, 0051, 0077, GR-11)

One commenter said the DEIS should justify assumptions and include concise and accurate basic information to assure reviewers that the information is correct. (0039)

Other commenters said the DEIS incorrectly presents information and failed to provide adequate supporting data. (0039, 0077, 0215, GR-11, SL2-16) One commenter stated that in addition to the requirements of 10 CFR 72.24(d), 72.011 (b) and 72.108, for a site located over an aquifer which is a source of well water, NUREG-1567, pages 2-10, requires the applicant to survey groundwater users and well locations, static water levels, well pumping rates, and aquifer drawdown. Also, the SAR requires a discussion of the future projected amount of water withdrawals. (0198a)

###### **Response:**

In response to the comments about groundwater, the NRC staff revised the information in Section 3.2 of this FEIS to clarify and update the types of data suggested in the comments. This update includes information on Indian Hickman Creek, nearby springs, and nearby wells (see the revised Figure 3.4). Additional updated information about the groundwater setting at the proposed location of the ITF near Timpie has been added to Sections 5.2.1.4 and 5.2.2.2 of this FEIS, which discuss the impacts to groundwater as a result of the transportation facilities. Section 4.2 of this FEIS discusses the potential impacts to groundwater at the proposed PFSF. These sections address the parameters identified by the commenters to the extent that appropriate information is currently available.

###### **Depth to Groundwater**

###### **Comment Summary:**

A commenter said that well depths listed in the DEIS on page 3-14, lines 1 and 2, are incorrect according to both the DEIS's own data and publicly available data. The commenter said the depths differ by over 200 vertical ft. The commenter said the groundwater is found as shallow as 0-12 ft below the surface. (Section 5.2.1.4, page 5-8, line 28). The commenter said that groundwater at the proposed ITF is very shallow (only about 12 ft deep) because documented groundwater levels nearby are shallow (20 ft below land surface at the Delle Auto Truck Stop in Delle and 3 to 8 ft below grade at the Teddy Bear Truck Stop in Rowley). (0039, 0077, GR-11)

Another commenter said that the applicant maintained that "[d]iscussion of potential contamination of groundwater is not applicable since the depth to groundwater at the site is substantially removed from

any activity at the site's finished grade." (SAR 2.5-5.) The commenter said that to support its statement, the applicant generically described the strata at the site, the depth to groundwater at approximately 100 to 127 ft, and the low general permeability and groundwater velocity. However, the commenter stated that the applicant did not support its statements with any calculations based on specific factors, or the identification of the potential contaminants or direct pathways to groundwater. (0198a)

One commenter disagreed with the stated fluctuations and stated that wells surrounding the proposed site can be 600 ft deep. (GR-11) Another commenter said the statement, "Anecdotal information from the Skull Valley Band indicates annual groundwater fluctuations in their community well over 33 meters per year" provided another argument for better groundwater characterization. (0051) Two commenters stated that the anecdotal information is unreliable without proper citation of data origin. (0039, 0077, 0215)

One commenter requested further discussion regarding the inexplicable 100-foot annual vertical gradient experienced in one of the Skull Valley Band's wells. The commenter asked if this unusual condition affects water availability for the proposed PFSF and the Skull Valley Band, how this condition will affect the proposal, and whether the applicant intends to use this supply for the project. The commenter wanted the EIS to identify the well, its depth to groundwater, its capacity, the seasonal nature of its fluctuations, and the effect on water availability. The commenter also requested discussion regarding the shallow aquifer, which is located at about 9 ft below the surface. (0039, 0077)

**Response:**

The NRC staff obtained information describing the occurrence, abundance, and use of groundwater at or near the site on the Reservation from on-site investigative activities, as well as published sources. The results of the investigation performed on-site are consistent with published information on the occurrence of groundwater at the site. A single well pumping test was used to estimate well yield and aquifer properties at the site. The water table elevation level in that well was at a depth of 125 ft. That depth was consistent with other published estimates of groundwater level in that part of Skull Valley. The NRC staff revised the text of Section 5.2.1.4 in this FEIS to state that the depth to groundwater at the proposed ITF site near Timpie is approximately 7m (21 ft). The reference to anecdotal information mentioned in the DEIS concerning water level fluctuations did not include critical or clarifying information, and was not included in the actual analysis.

**Location of Wells****Comment Summary:**

One commenter stated that maps and figures are missing from Sections 2.4, "Surface Hydrology," and 2.5, "Subsurface Hydrology," of the SAR, and the proposed location of new on-site wells which would supply water for construction is also missing. (0051) Another commenter said the figures in the DEIS of the site and surrounding wells are unclear. (GR-11) The same commenter pointed out an inconsistency in the DEIS regarding the nearest well from the proposed site. Page 4-7 stated that the nearest well is 2.5 miles away, yet an earlier section, on page 3-12, stated the nearest well is 2.0 miles away. The commenter stated that this must be corrected and resolved because a difference of 0.5 miles, or 2,640 ft, is significant relative to the reported radius of influence of 7,000 ft for a pumping well. (0039, 0077)

**Response:**

The well nearest to the proposed PFSF is found at the nearest residence; hence the correct distance to the nearest well is 2.0 miles. The NRC staff revised the text in this FEIS to correct the error noted in the comment. The map and data presented in Figure 3.4 of this FEIS have been revised to provide

the information requested in the comment. The NRC staff addressed any information that may have been missing from the applicant's SAR in its preparation of the SER, which is not part of the EIS.

### **Radius of Influence**

#### **Comment Summary:**

A commenter considered hydraulic conductivity of the permeable material and examined the geometrics, and stated that the calculation of this 7,000-foot radius of influence could not be derived from the data presented in the DEIS, SER, and SAR. The 7,000-foot radius of influence is too great. (GR-11) The commenter also said the 7,000-foot radius of influence is inconsistent with data reported in the DEIS, which states that the hydraulic conductivity is 0.144 ft per day, the screened interval is 100 ft, and there is a low-to-moderate assumed pumping rate of 10 gpm. The commenter stated that such a large estimate for the radius of influence is indicative of a lack of understanding of the local water resources. (0039, 0077)

#### **Response:**

The NRC staff acknowledges that there is some uncertainty in the potential radius of influence that would be created from the anticipated groundwater withdrawals for the operation of the proposed PFSF. The applicant acknowledged the necessity to perform additional testing to determine the adequacy of the on-site groundwater supply and to obtain an alternative supply if site testing shows the supply to be inadequate. A mandatory mitigation measure would be required by the NRC and the Cooperating Agencies that would grant licenses or approvals for this project. Condition 5B in Section 9.4.2 of this FEIS states that "PFS shall develop a monitoring program to determine if the wells nearest the proposed PFSF are adversely impacted from groundwater withdrawal associated with the construction and operation of the proposed PFSF."

### **Specificity of Data**

#### **Comment Summary:**

One commenter expressed concern that information (e.g., hydraulic conductivity, radius of influence, etc.) in the DEIS is based on regional and not site-specific data. The commenter said these parameters should be measured and determined by the State. (GR-11) Another commenter said it is unclear why no local data were obtained to estimate hydraulic gradient, conductivity, storativity (sic), and average linear groundwater velocity at the site. The commenter said all cited data (SER, page 2-25) appears to have been gleaned from regional studies, which are also not directly referenced in the text. (0051) One commenter questioned the validity of using a storage coefficient whose values range by an order of magnitude (page 4-9, line 1). (0039, 0077)

#### **Response:**

As noted in the comment, the analyses in this EIS use regional data, which are the best currently available information for characterizing the site. The data presented in the EIS (as extracted from data used in the NRC's SER) are appropriate for use in the analyses in Sections 4.2 and 5.2 in this FEIS. The NRC staff does not consider the types of site-specific data recommended in the comment to be essential input to these analyses.

The analysis of the potential radius of influence for the proposed on-site well used a published range of storage coefficients because site-specific aquifer properties have not yet been determined. The resulting analysis showed that for the conditions modeled, the range of storage coefficient had an effect of varying the radius of influence between 1,300 and 7,000 feet. Use of the larger radius of influence is conservative, and is included in the discussion in Section 4.2.1.3 of the DEIS.

**Accuracy and Level of Data Detail****Comment Summary:**

One commenter requested that the agencies develop and/or make available certain groundwater information in the FEIS, including the on-site test well location; any construction logs and pumping test data; the groundwater flow regimes at and around the site with a sufficient number of wells and observations to account for seasonal variations of hydraulic heads; and a calibrated numerical groundwater flow model. (0051)

One commenter said that Figure 3.4 of the DEIS did not identify the data or source of the well information. Specifically, the commenter said that well number 2 has data; depth to water in well number 3 is not 90 ft; depth to water in well number 4 is also reported in State documents; well number 9, the nearest well, has no data, yet the document repeatedly states that impacts to the nearest well are expected to be small. Also, the figure describing water rights showed information that is not publicly available and is not reliable without proper citation of the data's origin. The commenter said that the source and date of information collected should be shown on Figure 3.4. (0039, 0077)

**Response:**

The NRC staff revised Figure 3.4, "Locations of water wells within 8 km (5 miles) of the proposed PFSF" (showing well locations and well data) in this FEIS, in response to the comments, primarily to reflect water rights. The type of information and level of detail identified in the comment is contained in the applicant's SAR and is evaluated in the staff's safety findings in the SER. Further, the staff did not rely on the identified information to conduct its environmental analysis set forth in the FEIS. The staff did rely on more general, regional water resource data. See the response to the following comment.

**Currency of Data****Comment Summary:**

Two commenters suggested that the groundwater assessment is flawed since it is based on an outdated 1968 hydrology study (Hood Wadell study of 1968). (0215, SL2-16)

One commenter said the poor characterization of groundwater and the outdated 1968 data will lead to bad decisions, resulting in groundwater contamination, and affecting/damaging supply habitats of the Great Salt Lake and critical habitats of the international migratory wetlands. (SL2-16)

**Response:**

Regarding the use of groundwater data from a 1968 study, the Hood and Waddell study referenced in the DEIS still contains the most comprehensive discussion of groundwater conditions in Skull Valley. According to the applicant, a regional study published in 1981 showed virtually no change from the previous analyses of Hood and Waddell. The applicant also reported that recent conversations with K.M. Waddell at the U.S. Geological Survey's Salt Lake Office confirmed that no further, comprehensive groundwater studies exist for Skull Valley.

**Characterization of Springs****Comment Summary:**

Some commenters expressed concern that springs are not adequately characterized and the impact on them is not assessed. (0039, 0047, 0077, 0089, 0198h, SL1-26) One commenter stated that the

local springs are mischaracterized in the DEIS on page 3-11, line 40. The commenter stated that the springs in Skull Valley occur along faults, not at the toes of the alluvial aprons. (0039, 0077)

**Response:**

In response to the comment, the text in Section 3.2.2 of this FEIS has been revised to more fully describe the occurrence of springs in and around Skull Valley along faults, as well as toes of the alluvial aprons. Section 3.4.2.2 of the FEIS provides information about wetlands that are associated with springs, and the potential impacts of the proposed action on those wetlands are discussed in Sections 4.4.1.3 and 5.4.1.3. Section 1.6.2.1 describes the status of wetlands, perennial or seasonal springs delineation at the proposed PFSF.

**Groundwater Quality**

**Comment Summary:**

One commenter said the groundwater affected by the proposed PFSF will most likely be classified as Class IA – Pristine Groundwater, although it is not yet classified. (0198)

**Response:**

Regardless of the classification of the groundwater, the NRC and the Cooperating Agencies concluded that the impact to groundwater would be small.

**G.3.10.4.2 Groundwater Contamination**

**General Comments**

**Comment Summary:**

Many commenters expressed concern that the proposed action would result in groundwater contamination. (0039, 0047, 0051, 0077, 0089, 0198, 0198h, 0215, 0229, GR-11, SL1-26, SL2-13, SL2-16, SL3-21, SL3-54) Commenters stated that groundwater could be affected by radiation, runoff from the cask storage area, hazardous waste, the digging of multiple wells, and the lack of liners and monitoring for the detention basin. (0198, SL2-13, SL3-21, SL3-54)

**Response:**

The NRC staff analyzed water resource degradation due to construction, operation, and maintenance of the proposed PFSF and found that adverse impacts would be small. FEIS Section 4.2 describes the analysis of the impacts to groundwater of constructing and operating the proposed PFSF. Section 4.2.2.4 includes information related to monitoring. Even though no contamination is expected to occur, PFS would monitor for radiological contaminants if free standing water is present in the detention basin. Further, there is no regulatory requirement to install a liner in the detention basin.

**Contamination at PFSF Site**

**Comment Summary:**

One commenter stated that the applicant failed to assess adequately the health, safety, and environmental effects from the construction, operation, and decommissioning of the proposed PFSF and the potential impacts of transportation of SNF on groundwater, as required by 10 CFR 72.24(d), 72.100(b) and 72.108. Specifically, the commenter expressed concerns about potential groundwater impacts from the sanitary wastewater system and the stormwater detention basin. (0198a, 0198b)

The commenter stated that the applicant's ER and SAR did not describe the proposed PFSF's wastewater system. (ER 3.3-4, 5 and SAR 4.3-3.) In addition to the sanitation system providing a direct pathway to groundwater for chemical, heavy metal, and radiological contaminants that are collected or accidentally drained into the sewage system, it also will be a pathway for contaminants from employee hand washing, laundry, restrooms, showers, cafeteria, and laboratory waste streams. Furthermore, drain sumps used to catch and collect water that drips from shipping casks in the canister transfer building will be discharged into the sanitary system. (SAR 7.5-4.) (0198a) The commenter stated that it is impossible based on the information provided in the DEIS to determine whether the soil leach field, which would receive all of the proposed PFSF's wastewater, is adequate, and added that the adequacy of septic tank(s) and drains from the process system also needs to be determined. The commenter said the EIS must show the locations of drains and analyze the effect on groundwater and down-gradient resources, and how water quality requirements will be met. (0198, 0198h) The commenter asked what contaminants and quantities would be going down the drain: truck, cask or equipment washdown wastewater; storm runoff; or non-radiological pollution? (0198)

The commenter also stated that under routine operations and from effluent run-off, including rain water and snow melt, the storage pads will likely transport various radiological, heavy metal, and chemical contaminants to the unlined detention basin, which will act as a direct pathway to groundwater. Furthermore, the commenter stated that during heavy rains or flood events the detention basin may overflow and contaminate perennial and intermittent surface streams. (0198a) The same commenter said that contaminated runoff from each of the pads could infiltrate directly into the groundwater. (0198)

**Response:**

Section 2.1.1.2 of the DEIS described how a sanitary drainage system, using underground pipes, would be installed to serve the proposed buildings and to transmit liquid wastes to the underground septic system. The NRC staff added text to Sections 2.1.1.2 and 2.1.3 in this FEIS to describe the design for the process area drains. That is, drain sumps would be provided in the cask load/unload bay of the Canister Transfer Building. These sumps would catch and collect any water that drips from the shipping casks (e.g., from rainfall or melting snow) onto the floor. Water collected in these drain sumps would be sampled and analyzed to verify it is not radioactively contaminated prior to its release. In the event contaminated water is detected, it would be collected in a suitable container, solidified by the addition of an agent (such as cement) so that it qualifies as solid waste, staged in a low-level waste holding cell while awaiting shipment off-site, and transported to a licensed low-level waste disposal facility.

All drains, except those in the Canister Transfer Building, would be connected to the proposed sanitary drainage system. This drainage system would feed into the two separate septic systems that are being proposed. The two septic systems would be expected to process less than 5,000 gpd and would require registration with the EPA as described in Section 1.6.2.1 of the FEIS. Information on impacts to sanitary waste is included in Section 4.5 of this FEIS.

While it is true that any water collected in the detention basin would seep into the ground, the anticipated small volume of this water would not significantly affect groundwater resources. That is, the proposed site receives only about 26 cm (10 in) of rainfall annually. Water drainage from the site may soak into the ground before it ever reaches the proposed detention basin. In the event freestanding water collects in the detention basin, the applicant proposes to pump it out after confirming that the water is not contaminated. The water would be pumped to the north of the proposed storage pads. This would allow the water to flow in a generally northward direction, away from the proposed PFSF and along the same pathways that would exist if the facility or detention basin were never constructed. Information regarding impacts to the environment of the detention basin is presented in Section 4.2 of this FEIS.

**Off-site Contamination****Comment Summary:**

One commenter stated that the applicant failed to discuss the impact of groundwater contamination on down-gradient hydrological resources. As the applicant generally indicated, referencing ER 2.5-8 to 10, recharge to the groundwater in Skull Valley watershed is from precipitation mainly collected from the Stansbury, Onaqui, and Cedar Mountains. (Hood, J.W. and Waddell, K.M., Hydrologic Reconnaissance of Skull Valley Tooele County, Utah: Utah Department of Natural Resources Technical Publication No. 18, 1968.) The commenter said that this document reports that groundwater generally flows from the recharge areas along both sides of the valley (base of the mountains) toward the middle axis of Skull Valley. The commenter stated that the proposed site and Skull Valley Road are located within the Skull Valley watershed. Groundwater at the site moves northwest, toward the axis of Skull Valley. North of the Reservation, the groundwater then flows north, then northeast, where it discharges through evapotranspiration or surface flow and under flow to the Great Salt Lake. (Id. at 57.) The commenter stated that, in generically discussing groundwater characteristics, the applicant failed to discuss the environmental effects and impact from groundwater contamination on the more than 30 wells used for irrigation and stock watering located down gradient of the proposed PFSF. The commenter also stated that the applicant failed to discuss the impact on the approximately 50 springs that are located within 15 miles of the proposed site. (0198a)

The commenter added that the applicant failed to discuss the impact of groundwater contamination on the down-gradient Timpie Springs Waterfowl Management Area (Timpie Spring) and the Great Salt Lake. These areas provide wetlands and habitat for aquatic wildlife and shorebirds. The commenter stated that Timpie Springs and the Great Salt Lake, like all ground and surfacewater resources in the area, are critical to Utah's ecosystem. The commenter stated that potential accidents involving casks being transported along the rail route that parallels the Great Salt Lake and Timpie Springs into Rowley Junction would have serious effects on these areas, as would contamination of ground and surfacewater along the corridor route from the proposed site. (0198a)

**Response:**

The comments about off-site contamination were directed at the applicant's ER and not at the EIS. The EIS updates that document and other licensing information provided by the applicant. The NRC staff agrees that the Timpie Springs Waterfowl Management Area and the Great Salt Lake provide wetlands and habitat for aquatic wildlife and shorebirds. The lake supports between 2 and 5 million shorebirds and hundreds of thousands of waterfowl during spring and fall migration. Because of its importance to migratory birds, the lake was designated a part of the Western Hemisphere Shorebird Reserve Network in 1992. The lake and its marshes provide a resting and staging area for birds, as well as an abundance of brine shrimp and brine flies that serve as food for them. The potential for transportation accidents severe enough to damage a cask and release radioactive material is discussed in Section 5.7.2 of the FEIS. The NRC staff used consistently conservative assumptions to analyze those potential impacts and concluded that annual and cumulative radiological impacts of transporting SNF to the proposed PFSF would be small. Also, the NRC staff concluded in its SER that the proposed PFSF would meet all Federal safety standards during normal, unusual, and accident conditions. The casks used would be impervious to a range of disturbance, from floods, to explosions, to missile attacks, making contamination via groundwater of the Great Salt Lake unlikely. Additional information about the Great Salt Lake and the potential for impacts to it has been added to Sections 3.2.1.2 and 5.2.1.4 of this FEIS.

Sections 4.2 and 5.2 of this FEIS discuss the potential impacts to groundwater from contaminants. The NRC staff concluded that the impacts would be small at the proposed site, rail line, and proposed ITF.

## Contamination at Transportation Facilities

### Comment Summary:

One commenter also said that the applicant did not assess the potential for groundwater contamination at the proposed ITF at Rowley Junction or along the transportation route. The commenter stated that the applicant estimated the groundwater depth at about 120 to 127 ft. (ER at 2.5-11.) The commenter said that the applicant then assumed groundwater along the proposed rail spur is also at a depth of over 100 ft and that “it is unlikely that the railroad spur will have any impact on hydrological resources.” (ER at 4.4-4.) The commenter stated that groundwater depths range from less than 10 ft to over 30 ft at various points along Skull Valley Road, at the proposed location for the rail spur or at the expansion of Skull Valley Road (Exhibit 13, Map: Shallow Groundwater and Related Hazards). In addition, the commenter stated that the proposed ITF at Rowley Junction is adjacent to a protected wetland area where groundwater is encountered at less than 10 ft (Exhibit 13). Furthermore, the commenter said that while the applicant described the subterranean strata, the low permeability, and the low groundwater velocity at the site, (ER at 2.5.5), the applicant did not discuss these factors along the transportation route or at the proposed ITF. (0198a) Another commenter said that Section 5.2.1.4, pages 5-8, line 28, reads that the groundwater table is at 125 ft below the ground surface. However, this is the groundwater elevation at the proposed site, not at the rail line locations. The section should be corrected and the required size of the fuel spill that would impact groundwater should be re-evaluated. (0051)

### Response:

In response to the comment, the text in Section 5.1.2.4 of the FEIS has been revised to avoid the inference that the depth to groundwater at the ITF location is 120-125 feet. The expected depth to groundwater at the ITF location would be approximately 21 feet, as reflected in the FEIS. The EIS analyzed the groundwater impacts due to construction and operation of a rail spur. Sections 5.2.1 and 5.2.2 of the FEIS present the results of the analysis of the construction and operation impacts for the proposed ITF. The text in these sections has been revised in this FEIS to indicate that the Best Management Practices Plan specified as a mitigation measure (see Section 9.4.2) would be required for the proposed rail route at the proposed ITF, and that such a plan would minimize the potential for adverse impacts to groundwater.

### G.3.10.4.3 Groundwater Analysis

#### General Comments

#### Comment Summary:

Several commenters addressed the analysis and impacts from groundwater extraction for construction and operation of the proposed PFSF. (0039, 0051, 0077, 0112, 0215, GR-11, SL1-07, SL3-46) Commenters expressed concern about finding the amount of water necessary to operate the proposed PFSF, since drilling has not yet occurred and the source and availability of groundwater are uncertain. The commenters said additional study is warranted to validate current conditions, support the estimates of groundwater availability, and ascertain the impacts of groundwater withdrawal from the proposed site on the Reservation. (0051, 0215, GR-11, SL1-07, SL3-46)

#### Response:

The NRC staff and the Cooperating Agencies agree with the commenters that it is important to prevent impacts to groundwater. The potential impacts to groundwater are described in the Sections 4.2 and 5.2 of the FEIS. As described in those sections, the proposed action has only a small potential to affect groundwater. Because of the uncertainties in the analysis of impacts to adjacent water wells, the NRC staff and the Cooperating Agencies proposed that the applicant be required to



implement a monitoring program to identify any potential adverse effect to nearby wells. This program would allow PFS to take appropriate corrective actions. Condition 5B in Section 9.4.2 in the FEIS describes this proposed requirement. See the following comment that addresses groundwater availability.

### **Groundwater Capacity**

#### **Comment Summary:**

Several commenters expressed concern about the characterization of the groundwater production capacity at the proposed PFSF. One commenter concluded that adequate water may not be found within a reasonable proximity anywhere in the region. (0112) One commenter said the DEIS is contradictory: page 4-11, line 42 implied that the applicant's studies or analysis verified that groundwater is sufficient for facility operations, whereas page 4-7, line 32 states "there is some uncertainty as to the availability of sufficient groundwater quality." (0039, 0077)

One commenter questioned the method (Section 4.2.1.3, page 4-7) that used to determine on-site well production capacity. Specifically, the commenter stated that the DEIS relied on only a single observation well and did not identify parameter values used to calculate drawdown (i.e., flow rates used in calculations, duration of the pump test, and flow rates the aquifer is capable of producing). (0039, 0077)

The same commenter said that Section 4.2.1.3 of the DEIS only provides assumptions based on a single observation well, and does not identify the parameter values used to calculate drawdown, such as flow rates used in the calculations, duration of the pump test, or flow rates the aquifer is capable of producing. (0077)

One commenter questioned the legitimacy of extrapolating from a 25-foot screen test well to a full-scale production well. The commenter said that production test wells should be drilled and the pumping test analyzed to assess impacts of groundwater withdrawal from the proposed site or the Reservation. The commenter specifically stated that a full-scale production well should be drilled to the correct depth before issuing the FEIS. Only then, the commenter added, can it be stated with some level of confidence if owners of existing wells, as listed in Figure 3.4, would be affected from the withdrawal of groundwater, because direct aquifer recharge is likely non-existent at the proposed site. The commenter also said commercial contractors, as mentioned in Executive Summary, page xxxv, should be identified and the source of water disclosed. (0051)

#### **Response:**

Section 2.1.1.2 of the FEIS describes how the majority of the water would be supplied from off-site private sources in the event that local well supplies are inadequate in quantity or quality. This water would be transported to the facility by tanker trucks. Table 2.3 of the FEIS shows that, during construction, the amounts of water to be supplied by new on-site wells (to be drilled only on the Reservation) would be small. Section 4.2.1.3 of the FEIS acknowledges that there is some uncertainty (such as single observation wells, draw down parameters, and flow rates, as identified in the comment) as to the availability of sufficient groundwater on site to meet the expected construction and operational needs of the proposed PFSF. As for the comment on the inconsistency in the DEIS, the statements as cited are in Section 4.2.1.3 (with respect to operation) and Section 4.2.2.3 (with respect to construction) and thus, they are not contradictory. In the event these new on-site wells prove to be inadequate, water from additional off-site sources would be used. Therefore, the applicant would not rely on any on-site water sources, which is consistent with minimizing site and local impacts.

Regarding the availability of water in the vicinity of the proposed project, the applicant contacted local commercial water vendors. Within a 15-mile radius of Low (i.e., Skunk Ridge), there are three wells,

each with the appropriate water rights and pumping capacity to withdraw up to 400,000 gpd. The daily withdrawals from each of these wells is less than half of this amount. The planned maximum daily use of water at the proposed PFSF is 1,800 gpd as stated in Section 4.2.2.4 of this FEIS. Thus, adequate water supplies are located near the proposed PFSF.

### Groundwater Withdrawal and Characterization of the Aquifer

#### Comment Summary:

Several commenters addressed the impacts of groundwater withdrawal and the characterization of the aquifer at the proposed PFSF. (0039, 0047, 0051, 0077, 0089, 0112, 0166, 0215) Some commenters stated that a drawdown might adversely affect existing water resources and doubted that the aquifer is capable of yielding 7 gpm capacity. (0039, 0047, 0051, 0077, 0089, 0112, 0166, SL3-54) A few commenters stated that the DEIS did not address the impacts to groundwater. (GR-11, SL2-13, SL3-21) One commenter stated that the impact of water withdrawal on the natural environment has not been determined. (0047) Several commenters addressed specific issues involving aquifer characterization:

- One commenter stated that, in addition to the requirements of 10 CFR 72.24(d), 72.011 (b) and 72.108, for a site located over an aquifer which is a source of well water, NUREG-1567, *Standard Review Plan for Spent Fuel Dry Storage Facilities*, page 2-10, requires the applicant to survey groundwater users and well locations, static water levels, well pumping rates, and aquifer drawdown. Also required in the SAR is a discussion of the future projected amount of water withdrawals. (Id. page 2-13.) The commenter stated that well water is used as a source of potable water by users near the vicinity of the proposed site, including Castle Rock, *et al.*, owners of nine homes along Skull Valley Road, and Ohngo Gaudadeh Deva. The applicant stated that “[l]ocalized drawdown of the valley aquifer will occur in the vicinity of the wells, the extent of which cannot be estimated until the wells are drilled.” (The commenter cited SAR at 2.5-5.) The commenter stated that this statement is inadequate to comply with the regulations as implemented by NUREG-1567. The commenter stated that the applicant has failed to adequately discuss or evaluate the effect of its water usage on other well users and on the aquifer. (ER at 4.2-4.) The applicant implies that it plans to draw water from on-site wells. The commenter said the applicant should provide an estimate based on an estimated pump rate and local hydrological data. The commenter also said the applicant failed to discuss water needs, the impact of water usage, and water rights at the proposed ITF. (0198a)
- Two commenters said that the statement that hydraulic conductivity of the water-bearing zone was determined from a well test (page 3-12, line 20) conflicts with the statement in the Executive Summary, page xxxv, line 18, which says “until test wells are drilled and their production capacity is checked” the impact on local water resources caused by drawdown is “unknown.” The DEIS described water production only in terms of what is needed, not what the aquifer will support. (0039, 0077, 0166)
- One commenter expressed concern that the characterization of the groundwater occurrence, availability, and potential impacts on page 4-7, line 20 were erroneous and contradictory. The commenter said that line 32 stated that there is uncertainty associated with the availability of water while other parts of the DEIS say that the availability of water and the impact on groundwater are unknown. (0039, 0077) One commenter stated that no reference is given in Section 4.2.1.3, page 4-7, line 20 for the analysis provided by the applicant that drawdown is not expected to extend beyond 2.1 km from the pump well. The commenter also stated that the statement, “The planned groundwater withdrawals for the proposed PFSF would not adversely impact other groundwater users in Skull Valley during construction and operation or after decommissioning of the site” (Section 6.3.2, page 6-33), conflicts with Section 9.4.1, page 9-4, where it is stated that “until test wells are drilled and their production capacity checked, certainty of the impact to groundwater is unknown.” (0051)

**Response:**

The NRC staff acknowledges the comment regarding groundwater withdrawal and the characterization of the aquifer in Skull Valley. The analysis of the impacts to adjacent water supplies was based on the information available at the time the DEIS was prepared. Locations of groundwater wells (as registered with the State of Utah) were determined and displayed on a map indicating the water rights associated with each well (see Figure 3.4 in this FEIS). On-reservation groundwater and surface water use was shown and discussed in Section 3.2.3 of the DEIS. A local water table map was not prepared because subsurface investigations encountered the water table at only one location on the site.

The expected rate of groundwater withdrawal and total project water use was discussed in Sections 2.1.1.2, 4.2.1.2, 4.2.1.3, 4.2.2.3, and 4.2.2.4 in the DEIS and updated in the FEIS as appropriate. Because of the uncertainties in the analysis of impacts to adjacent water wells, the NRC staff and the Cooperating Agencies propose that the applicant be required to implement a monitoring program to identify any potential adverse effect to nearby wells and to take appropriate corrective actions. Condition 5B in Section 9.4.2 in the FEIS describes the proposed requirement. If the tests show that groundwater capacity is insufficient or the quality of water is unacceptable, the applicant would obtain water from sources off-site but still on the Reservation. It should be noted that determination of the adequacy of on-site or nearby aquifer characteristics is not a prerequisite to NRC approval of the PFSF, since the applicant can rely on off-site water sources.

In response to the comment that the DEIS treated the subject of well testing inconsistently, the staff has revised the Water Resources section of the executive summary of the FEIS to state that although some limited well testing has been conducted, the Cooperating Agencies propose that PFS be required to implement a monitoring program to determine the impacts of withdrawing groundwater as set forth above. Further, the text was revised to reflect the fact that the impact on local water resources caused by drawdown is “uncertain” instead of “unknown,” and that the staff used a large and reasonable radius of influence (assuming adequate supply) to evaluate impacts on local water resources.

In response to the comment about the reference for a drawdown analysis discussed in Section 4.2.1.3 of the DEIS. The analysis applicable to the comment was documented in a calculation performed by PFS [Stone and Webster Engineering Corporation (SWEC) 1999 Calc. No. 0599602-G(B) 15, Rev. 0, Determination of Aquifer Permeability from Constant Head Test and Estimation of Radius of Influence for the Proposed Water Well], and a reference to this calculation has been added to the EIS.

**Drawdown of Aquifer****Comment Summary:**

- One commenter said that the DEIS did not evaluate the effect that the drawdown of localized aquifers has on ephemeral springs and other water resources. This should be addressed in the FEIS. (0047)
- One commenter said that the mitigation requirement for using an alternate water source if neighboring groundwater users are affected by drawdown (Section 4.2.4, “Mitigation Measures,” page 4-13, line 26) is inadequate, because it does not provide for a quantitative analysis of aquifer characteristics. (0051) Another commenter stated that the DEIS should provide clarification as to whether monitoring of groundwater is voluntary, as suggested by page 4-13, lines 33-36 of the DEIS, or mandatory under Federal and State statutes and regulations. (0096)

**Response:**

As described in Section 3.2.2 of the DEIS, the water table at the site occurs at an elevation of approximately 1326 m above sea level. The nearest spring at an equivalent or lower ground surface elevation noted on the Skull Valley topographic map is approximately 10 miles to the north, and the Horseshoe Springs are 14.5 miles north of the site. The source of water for these springs has not been documented, however the presence of the springs along the outcrop of the Springline Fault suggests up welling of groundwater recharged from the Stansbury Mountains or from the alluvial fans. These springs are well beyond the influence of pumping from any new on-site well. As discussed in Section 9.4.2 of the FEIS, based on the environmental review, the NRC and the Cooperating Agencies have proposed that a number of mitigation measures be required of the applicant to reduce the impacts associated with the proposed action. One of the measures (see Condition 5B) states that prior to initiating construction, the applicant shall develop a monitoring program to allow a determination as to whether the wells nearest the proposed PFSF are adversely impacted from groundwater withdrawal associated with the construction and operation of the proposed PFSF.

**Alternate Groundwater Sources****Comment Summary:**

- One commenter said the DEIS does not specify where water will be obtained if new wells are not sufficiently productive. (0039, 0077) Two commenters expressed concern about where water trucks would be travelling from to reach the proposed PFSF. (0077, SL3-46)

**Response:**

If the tests show that the quantity or quality of the groundwater obtained from the new wells is unacceptable, the water would be supplied from off-site private sources. The agreement between the applicant and specific private vendors is beyond the scope of this EIS.

**Impact of Precipitation Interception on Groundwater Recharge****Comment Summary:**

- One commenter expressed concern over the effect of large impermeable surfaces on groundwater recharge. (0215)

**Response:**

The NRC staff disagrees with the comment that impermeable surfaces would preclude groundwater recharge. Precipitation that accumulates on impermeable sources would become runoff and collect in the detention basin. Water in the detention basin would either infiltrate into the ground or accumulate in the detention basin. Freestanding water in the detention basin would be pumped to the north of the proposed storage pads. This would allow the water to flow in the same pathways that would exist if the proposed PFSF detention basin were never constructed.

**G.3.10.5 Flooding****G.3.10.5.1 Probable Maximum Flood (PMF)****Comment Summary:**

Three commenters specifically indicated that the analysis and documentation of the PMF was inadequate. (0051, 0089, 0198h) The comments included:

- The applicant's license application fails to estimate the PMF as required by 10 CFR 72.98. Design structures important to safety are inadequate to address the PMF. (0198a)
- The PMF analysis was not available in the SER so it cannot be verified. (0051)
- One commenter stated that the drainage area is closer to 240 square miles, not the 26 square miles that was used to compute the PMF for the portion of the area that cuts across the access road east of the proposed PFSF. Wetter-than-average conditions which would occur during a PMF event would fill the large depressions south of the access road and water running off from the southern end of Skull Valley would only drain through the depression near the northeast corner of the area, causing flooding. (0198a, 0198h)
- From the information available in the SAR and ER, the following questions arise: Why was the PMF generated for drainage basin "A" based on a general, low-intensity cyclonical storm? Were "worst case" trajectories for storm movements in both basins modeled in order to maximize the combined "time of concentration" at the facility location? What are the watershed eccentricities for both basins, respectively? Since snowmelt from the Stansbury Mountains may constitute an important contribution to the PMF, have optimum snow cover and maximum melting rates been considered? Was the PMF, as calculated at the proposed facility, based on combined routing of drainage basins "A" and "B" PMFs by the ACE Hydraulic Engineering Center's River Analysis System (HEC-RAS) software, or on the larger PMF for drainage basin "B" (102,000 cubic ft per second) only?" (0051)
- One commenter stated that the data, the method of analysis, the assumptions, and the quantitative results of the analysis as it relates to the effects of the PMF on the proposed PFSF should be documented in Section 4.2.2.2. (0089)

**Response:**

Section 2.1.1.2 in the FEIS references the SER analysis regarding the PMF. The NRC staff evaluated the PMF, and, as set forth in the SER, the staff concluded that the design for the proposed PFSF satisfied all requirements for a PMF, including 10 CFR 72.98. Specific details regarding the design and construction of the earthen diversion berms to be built around the uphill sides of the storage area are given in the applicant's SAR and the NRC's SER. There is no need to provide PMF analysis details in the EIS because these details involve safety issues that do not directly affect the environmental impacts of the proposed PFSF, and are beyond the scope of the EIS. A general description of the flooding impact analysis is summarized in Section 4.2.2.2 of the FEIS.

The comment about the drainage areas, in square miles, appears to be directed at an early version of the applicant's license submittal. In subsequent submittals, the basins were divided into drainage basin "A" of 270 square miles and drainage basin "B" of 64 square miles. The PMF analysis was later performed using the wetter-than-average conditions, as well as many other conservative assumptions that significantly affected the resulting peak flood discharge computations.

In response to the comment regarding modeling assumptions, the NRC staff analyzed drainage basin "A" for both the general, low-intensity storm and the high-intensity thunderstorm. The large basin size, in conjunction with the length of concentration, yielded a larger PMF (most conservative flood peak discharge) with the general storm. The general storm yielded the worst case flood hydrograph. The NRC staff generated the PMF hydrograph using the specific hydrologic parameters of the proposed site and waste management system and HEC-1. The NRC staff evaluated the watershed using several "times of concentration." The PMF peak discharges reported in the SER are based on the most conservative time of concentration. The effect of the direction or "trajectory" of the storm was not considered, because the NRC staff considered storm trajectory impacts for an extended low-intensity general storm minimal, if not negligible.

Snowmelt was not integrated into the PMF analysis. Based upon the regional and seasonal precipitation patterns, the probability of a “major” snow pack and a PMF occurring simultaneously is low. The analysis assumptions were found to be consistent with NRC guidance.

The PMFs for each basin were computed independently. The worst case storm for drainage basin “A” is a general storm while the worst case storm for drainage basin “B” is a thunderstorm. The characteristics of the two basins are considerably different as exemplified by the tributary areas, basin slopes, basin shapes, relief, and times of concentration. Combining the two “worst case” peak discharges provides the highest water surface elevation (most conservative) for structure design. A comprehensive watershed analysis (drainage basins “A” and “B” combined) was not performed because the flow of the two basins does not join until downstream of the proposed site and the times of concentration vary significantly.

The DEIS acknowledges, in Section 4.2.2.2 that a PMF could result in the development of a drainage swale through natural flow and erosion processes upslope of the berm outside of the proposed PFSF. The applicant’s proposed design includes flow routing and energy dissipating features in the design of the flood diversion berm that would mitigate this potential impact.

### **G.3.10.5.2 100-Year Flood Analysis**

#### **Comment Summary:**

One commenter stated the 100-year flood event was inadequately characterized in the DEIS, and that the applicant’s initial screening form (page F-5 of the DEIS, Exhibit F.3) cites the DOE as a resource for flooding analysis. The appropriate implementing agency, not the DOE, must evaluate flooding. (0039, 0077)

Another commenter expressed concerns about drainage features being designed for the 100-year storm event and not for the PMF because the earthen berms will not protect the proposed PFSF from flooding during a PMF and the proposed PFSF will be isolated. The commenter indicated that supporting documentation is needed to support the statement on DEIS page xxxv, line 24 that downstream flooding potential will not increase because of the presence of the proposed PFSF. (0051)

After reviewing the drainage characteristics for drainage basin “B” (Section 2.1.1.2, “Facility Description,” page 2-9, lines 24 and 46 and Section 4.2.1.1, “Surface Water,” page 4-5, line 26), one commenter stated that the western flood protection berm should be extended to the north, and that a “funnel and gate” system should be provided at the northern end of the berm for any diverted water to enter the northern drainage basin. The commenter asked if any unsaturated zone modeling had been conducted (based on site-specific data) to assess soil infiltration rates and the soil’s water-retention characteristics. The commenter said that Section 4.2.2.4, “Groundwater,” page 4-12, line 34 of the DEIS, which said that soil characteristics have a relatively low infiltration capacity, is not supported by a quantitative analysis. The commenter said that an infiltration model needs to show that pooling of surface water would not adversely affect operation of the proposed PFSF. (0051)

The same commenter questioned the rationale for designing the detention basin and associated drainage features for the 100-year storm event. The commenter expressed concern that the 100-year storm event is likely to be met or exceeded 2.33 times, or once in about 43 years. The commenter questioned why a single design is considered adequate for economic analysis regarding flood mitigation and storm drainage at the proposed PFSF, especially in light of the statement on page 2-23, line 8 that the applicant intends to store SNF at the proposed PFSF for up to 40 years. (0051)

**Response:**

Appendix F displays copies of the information sheets available to the applicant in 1996 when the applicant was trying to select a location for the proposed PFSF. The information in Appendix F was neither developed for nor used as input to the analyses contained in this FEIS. The analyses conducted for the SER fully characterized the potential for flooding at the proposed site and has determined the proposed flood protection designs to be adequate and appropriate.

As shown in Figure 2.2 and described in Sections 2.1.1.2 and 4.2.2.2, the proposed PFSF will be designed to divert surface water runoff and flood waters during a maximum credible flooding event, or PMF. This is a flood of greater severity than the 100-year flood.

Regarding flood protection, the commenters incorrectly juxtaposed two design features of the proposed PFSF (see Section 2.1.1.2). The proposed PFSF itself would be protected on the south and west sides by earthen flood protection berms designed to withstand the PMF. The other on-site drainage features (e.g., the detention basin) would be designed to accommodate waters from the 100-year storm event, and not the PMF as suggested in the comment. The earthen berms would adequately protect the proposed PFSF from the PMF and would ensure that floodwaters would not rise above the level of the storage pads and therefore not affect operation of the proposed PFSF. However, even if the proposed PFSF were to become isolated as noted in the comment, the safety of the SNF in storage casks would not be jeopardized by such a temporary event.

A discussion of potential downstream flooding effects is presented in Section 4.2.2.1 of the DEIS. The analysis indicates that because the area of the proposed PFSF is only 0.02 percent of the total watershed area, even without collection of the runoff in the detention basin (which would be designed with capacity for a 100-year storm) there would be at most a 0.02 percent increase in downstream water volume, which the NRC staff concluded is an insignificant incremental difference.

In reference to the comment that infiltration rates and the water-retention characteristics of the soil may contribute to the pooling of floodwaters, the flood analysis in the SER, using the most conservative approach, assumed no infiltration. The analysis determined that the highest elevation of standing water from the maximum flood conditions would not reach the storage pads and would not adversely affect operation of the proposed PFSF.

**G.3.10.5.3 Flood Potential and Control****Comment Summary:**

Several commenters addressed the potential for flooding and its control. (0039, 0047, 0051, 0077, 0198i, 0215) Two commenters stated the EIS must better address the flood potential and method for managing any floods from the greater watershed along the proposed rail route, storage sites, and the proposed ITF. (0198i, 0215) Commenters provided the following specific comments:

- Any flood control impoundments may require plan approval by the State Engineer. (0198i)
- Flooding, including debris flows, debris floods, and stream floods, is not an extremely rare event in the Skull Valley area. It could pose hazards to operation of the rail spur. In the early 1980s, debris flows moved down from the piedmont of the Stansbury Mountains and crossed Skull Valley Road near Iosepa. (0051, 0198i)
- Under “unusually high” precipitation, Skull Valley Road is not safe or suited in its current condition to support the reportedly proposed 172 percent increase in the road’s use and certainly not the transportation proposed under Alternative 1 or the proposed ITF/Alternative 3. The commenter cites page 3-11, line 13 of the DEIS which stated that trucks have overturned on water-softened asphalt roads in Skull Valley. (0039, 0077)

- The proposed site was once inundated by ancient Lake Bonneville (Section 3.2, page 3-6, line 40). One commenter stated that Lake Bonneville could flood Skull Valley, thereby potentially flooding sections of the main Union Pacific railroad. This possibility should be discussed in detail, and mitigating measures ought to be considered. (0051)
- The half life of SNF is 10,000 years and flooding could potentially occur within this time in the area where SNF will be stored. (0047)
- One commenter stated a number of consequences may occur because of flooding or an inadequate berm construction and location. The access road may be flooded or washed out, preventing necessary operations personnel or emergency service providers access to the site. The applicant would not be able to cope with emergencies as required by 10 CFR 72.24(k). If the flooding is not prevented, translation motion of the storage pad and building foundations could occur, resulting in structural damage, or failure. Therefore, the applicant would not meet the requirement of 10 CFR 72.24(d)(2) that structures, systems and components provide for the prevention and mitigation of accidents caused by natural phenomena. Flooding of the proposed PFSF would also transport on-site chemical and radiological contaminants to off-site soils and ground and surface waters, thus violating 10 CFR 72.24(l). (0198a)

**Response:**

State authorities, regulators, and permits are discussed in Section 1.6 of this FEIS. As described in Section 2.1.1.2 of this FEIS, the flood protection berms would provide flood control for the proposed PFSF, but they do not include any flood control impoundments. Potential flooding of the proposed ITF is addressed in G.3.10.5.4.

The rail line would be approximately 4.5 ft above the surrounding terrain and would be subject to permit approval from ACE for drainage culverts. Embankment dressing would also ensure the proper drainage of the railbed. The applicant would construct a detention basin on the north side of the proposed PFSF as described in Section 2.1.1.2.

Regarding washouts on the proposed rail line, the NRC staff who prepared this FEIS agree that the types of hazards described in the comment could occur (see Section 5.2.2.2 in this FEIS). Washouts or other damage to the proposed rail line could interrupt the shipment of SNF to the proposed PFSF and would require repair. Because shipments could be safely delayed until repairs are completed, the NRC staff concluded that flood or debris damage would not pose a hazard to the SNF inside the shipping casks.

The comment referring to Skull Valley Road's condition is noted. The applicant has stated that the heavy-haul trucks would be designed such that improvements to Skull Valley Road would not be necessary. A heavy-haul permit from the State of Utah would be required, however, and any unsafe operating conditions would be identified and corrected prior to road use.

As discussed previously, the applicant has modeled the PMF for the proposed site, and has proposed design features to account for flood events. Details of the applicant's analysis can be found in the SER.

The EIS, in Section 3.2.1.1 acknowledges that during the Late Pleistocene Epoch the Skull Valley was inundated by Lake Bonneville. Modern-day flooding events are noted in Section 3.2.1.2. While floods could certainly occur during a 10,000-year time period, the proposed PFSF is not a permanent repository. The proposed PFSF is located at an elevation of about 1,360 m above sea level (about 4,470 ft), while the recent (in 1986) maximum level of Great Salt Lake was 1,284 m (about 4,220 ft). A major climate change in North America would be required to cause Great Salt Lake to rise 76 m (250 ft) and the process would take centuries to occur. Because the proposed PFSF is a temporary



storage facility, the NRC staff concluded that the type of flooding described in the comment is not a credible event during the limited lifetime of the proposed PFSF.

Comments concerning the potential for flood events to prevent emergency access, cause structural damage, and transport contaminants are considered to be unreasonable scenarios. The NRC staff has reviewed the flood analysis and relevant proposed engineering designs and found them acceptable. Details of this analysis can be found in the SER.

#### **G.3.10.5.4 Flooding Impacts on the ITF**

##### **Comment Summary:**

One commenter stated that the impact of flooding, inundating, or swamping on the proposed ITF needs to be considered. The rise in the elevation of the Great Salt Lake has resulted in extensive flooding events in the recent past. The elevation of the rail tracks at Rowley Junction is just 3-8 ft. higher than the Great Salt Lake's historic high in 1986, 4211.85 ft. During that time, rail tracks near the Lake were lost. This failure to identify the significance of potential flooding events to the rail route paralleling the Great Salt Lake and to the ITF violates 10 CFR 72.92. (0198a, 0198b)

One commenter stated that Section 3.2, page 3-6, line 40 fails to mention that the northern end of Skull Valley was inundated around A.D. 1700 (prehistoric high, elevation 4117 ft above mean sea level). This scenario needs to be discussed in more detail and mitigating measures need to be considered. (0051)

##### **Response:**

The potential environmental impacts from flooding at the location of the proposed ITF near Timpie was addressed in Section 5.2.1.2 of the DEIS. The proposed site is above the floodplain as defined by the Utah Department of Natural Resources. The NRC staff concluded that the site has little or no flooding potential. Stormwater would be controlled under a general permit from the State of Utah. The proposed ITF would not be subject to regulation under 10 CFR Part 72.

#### **G.3.10.5.5 Impact of Flood Control Measures**

##### **Comment Summary:**

One commenter indicated that the applicant stated that earthen berms, which serve to divert flooding, will "have little effect on the natural surface hydrology." (The commenter references the applicant's ER at 4.2-5.) However, the applicant fails to justify its conclusion that a concentration of flood water around the facility would not affect surface water or groundwater. The same commenter indicated that the earthen berms are under-designed and do not comply with 10 CFR 72.24(d)(2). The proposed PFSF is not appropriately protected from flooding. (0198a)

##### **Response:**

The NRC staff has determined that the proposed berm design is adequate to protect the proposed PFSF, even though the access road may be flooded by a PMF event (see Section 4.2.2.2 of this FEIS). The proposed berms would protect the SNF storage pads from a PMF such that the floodwaters would not rise above the level of the pads; hence, the types of foundation instability and/or transport of contaminants, as described in the comment, would not occur. The NRC staff addressed adequacy of the proposed berm design and the analysis of potential flooding at the proposed PFSF in the SER.

### **G.3.10.6 Mitigation Measures**

#### **G.3.10.6.1 Spill Prevention Control and Countermeasures Plan**

##### **Comment Summary:**

Two commenters addressed the need for an SPCC plan. One commenter stated that an SPCC plan for the transportation facilities and the proposed PFSF is missing and should be incorporated into Table 2.7. (0051) The other commenter noted that there is no requirement that the applicant develop an SPCC plan for the rail line (page 9-12, lines 32-34), because it does not involve a stationary facility. The applicant will develop an SPCC plan for the proposed ITF if the threshold requirement specified in 40 CFR Part 112 is exceeded. (0163)

##### **Response:**

In the DEIS, the NRC staff indicated that an SPCC plan would be needed. Since issuance of the DEIS, PFS determined the EPA regulations do not require an SPCC because there is no reasonable expectation, even in the absence of any oil containment or control equipment, that a discharge of oil from the proposed PFSF would reach waters of the United States. In its ER, PFS committed to developing a Best Management Practices Plan that would include a spill response procedure for appropriately responding to a spill of oil or fuel at the proposed PFSF or related transportation facilities. This procedure would address spills on site, at the rail siding, or along the rail line. To ensure that construction and operational activities will not lead to contamination of groundwater, the Cooperating Agencies have proposed that PFS be required to implement this BMP, and be required to be responsible for clean up of spills or accidents at the rail siding and along the rail line in conformance with applicable standards. See Section 9.4.2 of this FEIS.

#### **G.3.10.6.2 Groundwater Monitoring Program**

##### **Comment Summary:**

One commenter stated that the proposed PFSF should not be approved until an adequate water supply has been established. Before the FEIS is issued the commenter added that, a full-scale well should be drilled to verify that water requirements from on-site wells can be met without adversely lowering the groundwater table or altering groundwater quality. The commenter also stated that construction should not be initiated until the well water is verified, especially since the test well drilled at the proposed site (boring CTB-5) apparently did not yield more than 1.2 gpm. (SAR, page 2.6-29) (0051)

Another commenter stated that the statement regarding monitoring programs on page 2-28, lines 5-7 of the DEIS is inaccurate because water could become radioactively contaminated. (0096)

##### **Response:**

In the event that the water quantity or quality from the proposed on-site wells proves to be inadequate, Section 2.1.1.2 in this FEIS describes how water could be purchased from a local commercial vendor. Therefore, the applicant would not need to rely on any on-site water sources, which is consistent with minimizing site and local impacts. It should be noted that determination of the adequacy of on-site or nearby aquifer characteristics is not a prerequisite to NRC approval of the PFSF, since the applicant can rely on off-site water sources. Moreover, adverse impacts to groundwater near the proposed site in Skull Valley are not likely to occur because of the mitigation actions proposed to be required. The mitigation measures described in Section 9.4.2 in this FEIS (see Condition 5B) will require measurement of the same type of well parameters that could be obtained by a full-scale test well prior to construction as suggested in the comments.

Section 4.2.2 of the FEIS discusses the potential impacts during operations at the proposed site. The NRC staff concluded that the SNF containment system that would be used at the proposed PFSF is a zero radiation release system, and there would be no release of radioactive material or radioactive discharge to the detention basin or groundwater.

### **G.3.11 Air Quality**

#### **G.3.11.1 Air Quality Impacts**

##### **Comment Summary:**

One commenter stated that construction, operation, and maintenance of the proposed PFSF will cause degradation of air quality, and such impacts are inadequately discussed in the applicant's ER. (0198a)

Another commenter stated that the environmental impacts and the amount of air pollution generated by the proposed PFSF would be minimal because there is nothing released to the air. (SL2-10)

##### **Response:**

As described in the DEIS, the NRC staff concluded that the proposed project's impact to air quality would be small to moderate. The primary impact to air quality would be dust emissions from the construction activities at the proposed PFSF and the related transportation facilities. Construction activities could produce some localized impacts on air quality due to fugitive dust emissions. However, dust emissions during construction would be minimized by mechanical dust control measures, such as surface wetting. These controls would be used during the construction of both the proposed PFSF and the transportation facilities and would be applied specifically to earth moving activities, the concrete batching facility, material transfer points and stockpiles, and temporary or permanent flood protection berms. During operation, air quality would only be affected by pollutants from the burning of fossil fuels used to power the locomotives and the diesel engine for an emergency generator, and to provide heat for the buildings. Additional information on air quality impacts is provided in Sections 3.3.2, 4.3, and 5.3 of this FEIS.

#### **G.3.11.2 Permits and Requirements**

##### **Comment Summary:**

One commenter stated that because construction will include an on-site asphalt batch plant to construct storage pads, cask shielding, and concrete building(s) (as stated in the ER at 3.2-2), the proposed PFSF is subject to regulation under Section 111 of the CAA and may require a PSD permit. Specifically, the commenter stated that the batch plant is subject to Section 111 of the CAA, and to 40 CFR Part 60, Subpart I (New Source Performance Standards for Hot Mix Asphalt Facilities). The commenter added that the proposed PFSF would be considered a major stationary source of air pollution required to obtain a PSD permit, under 40 CFR 52.21(b)(1)(i)(b), 52.21(c)(iii)(aa), and 40 CFR 60.90.

The commenter also stated that if the proposed PFSF is required to obtain a PSD permit, it will also be required to obtain a Title V permit. The commenter stated that the applicant must be required to complete a more rigorous analysis of the air quality impacts associated with the proposed PFSF. (0198a)

##### **Response:**

The NRC staff acknowledges the comment but clarifies that the proposed PFSF, as described in Section 2.1.1.2, would include a concrete batch plant, not an asphalt batch plant. The portion of this comment related to permitting is addressed in Section G.3.3.1.9.

### G.3.11.3 Fugitive Dust

#### Comment Summary:

One commenter stated that the proposed construction activities for the ITF and the proposed PFSF and the rail line from Skunk Ridge (near Low, Utah) will require controlling fugitive dust. The commenter also stated that the applicant should comply as appropriate with the control of fugitive dust requirements in the Utah Administrative Code R307-205-3 and 4. (0198)

#### Response:

The NRC staff agrees that the proposed construction activities will require the control of fugitive dust, as is discussed in Sections 4.3, (for the proposed PFSF) and 5.3, (for the rail line and ITF site) of this FEIS. Sections 4.3.4 and 5.3.4 prescribe mitigation measures that could reduce the amounts of fugitive dust generated. The NRC and the Cooperating Agencies with licensing and/or approval authority for this project will require the applicant to develop a dust control program (see Condition 4 of Section 9.4.2, "Mitigation Measures," in this FEIS). The NRC staff notes the regulatory information offered by the commenter. The NRC and Cooperating Agencies conclude that the required mitigation is sufficient to reduce fugitive dust impacts to small or temporarily moderate levels as indicated in the EIS.

### G.3.11.4 Other Emissions

#### Comment Summary:

One commenter stated that the EIS should provide a better assessment of air quality impacts from the construction and operation activities at the proposed ITF, along the transportation route, and at the proposed PFSF than provided by the applicant's ER. The commenter stated that Sections 4.3.3 and 4.8-2 of the ER provided an inadequate analysis of air quality modeling techniques. The commenter further stated that the applicant failed to adequately analyze whether it will be in compliance with the NAAQS, whether it will be subject to regulation under Section III of the CAA, and whether it is a major stationary source of air pollution requiring a PSD permit. The commenter added that the applicant may need an Operating Permit in accordance with Title V of the CAA and also a State air quality approval order. The commenter asserted that the EIS must address and show how the applicant will achieve compliance with these permitting requirements. (0198h)

The same commenter stated that the applicant's air quality analysis did not satisfy the requirements of 10 CFR 51.45. The commenter said that the applicant's statement, in Section 9.1-4 of the ER, that there are "no air emission sources, including the emergency diesel generator, large enough to require a CAA, Title V permit," falls short of an adequate air quality analysis to satisfy the CAA or NEPA. The commenter also stated that the analysis of air quality impacts in Section 4.3.3 of the ER is totally inadequate. (0198a)

The commenter assumed that the applicant used EPA's SCREEN3 model to perform its air quality dispersion modeling analysis, which the commenter stated is "inappropriate because it dilutes the impact of the project by spreading the emission releases over areas where the releases will not occur and during hours of the day when construction operations will not take place." The commenter stated that the effects of terrain limit the directional flow of air, thus, the persistency factor used in converting one-hour SCREEN3 modeled concentrations into 24-hour concentrations underestimates the source's impact. The commenter recommended that the applicant complete a more refined dispersion analysis and describe the source of input information and assumptions – such as monitored hourly meteorological data sets (wind speed, direction, stability class, temperature, and mixing height), source data, background concentrations, and other contributing industrial sources – to show that there will be no potential violation of NAAQS or significant air quality impacts off the Reservation. (0198a)

One commenter stated that construction-related dust is the only form of air pollution addressed in the DEIS. The commenter stated that the FEIS should also address emissions for rubber, sulfur dioxide (SO<sub>2</sub>), and other pollutants generated by project-related traffic. (SL3-46)

Another commenter expressed concern that contamination from the incinerator's toxic emissions will eventually end up in the water and accumulate in the food supply. (SL2-14)

**Response:**

With respect to the comment that the applicant has failed to adequately analyze whether it will be in compliance with NAAQS, analysis of compliance with NAAQS is included in Sections 4.3 and 5.3 of this FEIS. Vehicular emissions of SO<sub>2</sub> come mostly from diesel vehicles, which use fuel containing more than a trace amount of sulfur. Such emissions have not produced measured ambient-air concentrations of SO<sub>2</sub> in excess of 25 percent of a NAAQS during the last three years in the area around and including Salt Lake City, as is evident from monitoring data available to the public on the EPA web site ([www.epa.gov/airsdata](http://www.epa.gov/airsdata)). Therefore, it would be expected that additional diesel vehicles in Skull Valley would not increase SO<sub>2</sub> regional concentrations by appreciable amounts. With respect to the comment that an air quality analysis adequate to satisfy the CAA and NEPA is not provided by the applicant's submittal, the FEIS presents an analysis of the air quality environmental impacts, and the NRC staff has determined that they would be small to moderate. Regulatory issues, such as requirements for permits, are addressed in Section 1.6 of the FEIS and Section G.3.3.

With respect to the use of the SCREEN3 atmospheric dispersion model, it was not used for the analysis in this FEIS. The EPA-recommended Industrial Source Complex Short-Term (ISCST3) air dispersion model was used.

With respect to the comment that "the effects of terrain limit the directional flow of air," the terrain in the area around the proposed PFSF appears to be flat. Larger scale topographic features, such as the surrounding mountains and the general slope of the valley floor, influence, but do not limit, the flow of air on a much larger spatial scale. It is not clear how this is relevant to the spatial scales applicable to the dispersion modeling.

With respect to the comment that a more rigorous analysis is required, the NRC performed such an analysis (e.g., incorporating hourly meteorological data) for this FEIS. The analysis included hourly meteorological data for eight years at the Salt Lake City International Airport, and for two additional years of available (hourly) data from a location a few miles southeast of the proposed site and in a similar topographic setting. Background concentrations are found in Table 3.3, "Summary of Air Quality for the Skull Valley Area for 1995-1999" of this FEIS. Moreover, other contributing sources in the region were included in the analysis. For additional information on impacts to air quality, see Sections 4.3 and 5.3, of this FEIS.

With respect to the comment that construction-related dust is the only form of air pollution addressed in the DEIS, other pollutants are discussed. However, fugitive dust from site construction would be the greatest source of airborne particulate matter. Very fine particulate matter from tire rubber, brake linings, etc. is a byproduct of traffic. However, in a remote location like Skull Valley, which includes no large traffic-congestion areas, such traffic-related emissions would be small.

With respect to the comment about potential toxic emissions from an incinerator, the proposed PFSF will not include an incinerator and no incineration of toxic waste is proposed by the applicant.

Comments regarding air quality and permitting of air emissions are also addressed in Section G.3.3.1.9 of this FEIS.

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## **G.3.12 Ecological Resources**

### **G.3.12.1 General Comments**

#### **G.3.12.1.1 Species and Ecosystems**

##### **Comment Summary:**

One commenter stated that the applicant has not estimated potential impacts to ecosystems and “important species.” The commenter stated that in the ER the applicant discussed, to a limited extent, the anticipated short-term impacts on mammals, raptors, snakes, fish, and a few plant species that may be found within the vicinity of the proposed site, Skull Valley Road, or the proposed ITF. The commenter stated that the applicant did not discuss and acknowledge the importance of the variety of species found in the Skull Valley ecological system, including aquatic organisms, or the collective impact of the proposed action on the ecological system as a whole. The commenter stated that the applicant did not discuss the impact of additional traffic, fugitive dust, radiation, and other pollutants on various species. The commenter stated that the applicant failed to assess the individual and collective impacts on each species, especially since the impacts on wetland species, aquatic organisms, plants, fish, and birds are vastly different. (0198a)

##### **Response:**

This comment is based on the applicant’s ER. The DEIS provided updated information and other licensing information from that same time period. Sections 3.4, 4.4, 5.4, and 9.4.2 of the DEIS addressed the issues mentioned in this comment.

Section 3.4 of this FEIS describes the ecological resources of Skull Valley near the proposed and alternative sites for the proposed PFSF, the potential transportation corridors, and the proposed ITF near Timpie. This section includes descriptions of species that may be individually or cumulatively affected by the proposed action or alternatives. Section 3.4 emphasizes plant and animal species, biodiversity, and species and ecosystems of special concern to the FWS, the BLM, and the UDWR.

The potential impacts of site preparation, construction, and operation of the proposed PFSF on ecological resources are evaluated and discussed in Section 4.4 of this FEIS. Since the existing drainages near the proposed site are ephemeral and support no permanent aquatic communities, construction activities would have negligible direct and indirect impacts on aquatic biota, and thus, they are not considered in Section 4.4. The potential impacts on ecological resources of site preparation, construction, and operation of facilities for transporting SNF to the proposed PFSF are evaluated and discussed in Section 5.4 of this FEIS. Mitigation measures to limit impacts during construction, operation, and transportation are identified in Section 9.4.2 of this FEIS. The impacts of decommissioning the proposed PFSF are discussed in Section 4.9.4 of this FEIS.

Several surveys have been conducted since the initial version of the ER was prepared (e.g., as referenced in Chapter 12 of this FEIS: Kass 1998a, 1998b; Stone and Webster 1998). Sections 4.4 and 5.4 of this FEIS discuss the predicted ecological impacts of the proposal and include mitigation measures to reduce or avoid impacts. To provide current data on which to design monitoring programs, additional surveys would be conducted prior to initiating construction.

The NRC staff concluded that the FEIS adequately assesses and presents the potential impacts of the proposed PFSF on important species and ecosystems.



**G.3.12.1.2 Habitats****Comment Summary:**

One commenter stated that the applicant must identify the potential impacts to the following geographical areas and associated species:

- Horseshoe Springs Wildlife Management Area (“Horseshoe Springs”). The commenter stated that Horseshoe Springs is located approximately 9.5 miles south of Timpie Junction (Rowley Junction) and approximately 1,100 feet west of Skull Valley Road, according to the ER 4.3-3. The BLM has designated Horseshoe Springs a wetland/riparian area and restricts disturbing activities, including new road construction or new right-of-ways, within 1,200 feet. (0198a)
- Timpie Springs Waterfowl Management Area. The commenter stated that the proposed ITF is located within the Timpie Springs Waterfowl Management Area. (0198a)
- Great Salt Lake. The commenter stated that the applicant failed to assess the impact on the Great Salt Lake and its dependent species. The Great Salt Lake is just north of Timpie Springs Waterfowl Management Area, near the proposed ITF. In addition, the Great Salt Lake is only 21.7 miles northeast of the proposed site and the likely eastern transportation routes will closely follow the southern and eastern shorelines of the Great Salt Lake. According to Utah Administrative Code (R317-2-6-6 [Standards of Quality for Waters of the State]), the Great Salt Lake is a unique body of water that has no outlet and is, therefore, a sensitive ecosystem. The greater Great Salt Lake Wetland Ecosystem supports 75 percent of Utah’s vital wetlands. In addition, the Great Salt Lake is a western hemisphere shorebird reserve. (0198a)
- Salt Mountain Springs. The commenter stated that Salt Mountain Springs is approximately 300 ft. west of Skull Valley Road. The commenter stated that the applicant indicated that the speckled dace, a State-protected indigenous fish, is known to inhabit one of the springs in the area. The commenter stated the applicant plans to implement sediment and erosion control measures to prevent any impacts, but does not discuss impacts from other sources (e.g., radiation or other pollution). The commenter stated that the applicant did not discuss the various species that depend on the fragile wetland. (0198a)

**Response:**

This comment was based on the applicant’s ER. The DEIS provided updated information on this topic and addressed the issues mentioned in this comment. This FEIS addresses the issues in Sections 3.4, 4.4, 5.4, and 5.7.

- Horseshoe Springs is described in this FEIS in Section 3.4.2.2. Potential impacts to it and its species, as presented in DEIS Sections 4.4.1.3, 4.4.2.3, 5.4.1.3, and 5.4.2.3, would be small.
- The proposed ITF would be located near the Timpie Springs Waterfowl Management Area in a highly disturbed area with no unique ecological communities, as discussed in Section 3.4.1.1 of this FEIS. Construction impacts of the proposed ITF near Timpie Springs would be small, as described in Section 5.4.1 of this FEIS.
- The NRC staff agrees that the Great Salt Lake is important habitat for migratory birds. The lake supports between two and five million shorebirds and hundreds of thousands of waterfowl during spring and fall migration (USGS 2000). Because of its importance to migratory birds, the lake was designated a part of the Western Hemisphere Shorebird Reserve Network in 1992. The lake and its marshes provide a resting and staging area for the birds, and an abundance of brine shrimp and brine flies that serve as food for them.

- The NRC staff added additional information about the Great Salt Lake to Sections 3.4.1.2 and 5.4.2.2 of the FEIS. The NRC staff concluded that the impacts to the Great Salt Lake are small.
- The potential for transportation accidents severe enough to damage a cask and release radioactive material is discussed in Section 5.7.2, "Radiological Impacts," of this FEIS. Because of the consistently conservative assumptions used to analyze those potential impacts, the NRC staff concluded that annual and cumulative radiological impacts of transporting SNF to the proposed PFSF are small. Also, the NRC staff concluded in its SER, as updated, that the proposed PFSF would meet all applicable NRC safety standards during normal, unusual, and accident conditions (NRC/SER 2000). Therefore, no credible accident would contaminate the Great Salt Lake or affect its ecosystem either directly or via groundwater contamination. This information has been added to Section 5.4.2.2 of this FEIS.
- Salt Mountain Springs is part of the Kanaka Lake and Springs complex indicated on Figure 3.8 of this FEIS. Wetlands in Skull Valley are discussed in Section 3.4.2.2 of the FEIS. The use of the area by the speckled dace is discussed in Section 3.4.3.2 of the FEIS. Even if the heavy-haul truck alternative was selected for transporting casks to the proposed PFSF, the NRC staff concluded there would be no impacts to that species from radiation or other pollution.

### G.3.12.1.3 Biological Surveys

#### Comment Summary:

One commenter stated that Section 2.3, pages 1-21, of the applicant's ER addressed ecological impacts to the environment by generically describing the "known" species within the vicinity of the proposed site, while to a very limited extent, identifying some of the species near Skull Valley Road and the proposed ITF at Rowley Junction. The commenter stated that unless surveys are conducted and plans are prepared now, it is impossible to determine (1) if the proposed action adversely affects the ecological system as required by 10 CFR 72.100(b) and 72.108, (2) if prevention or mitigation plans may be effectively implemented, or (3) if the proposed transportation routes and proposed site are even feasible, given various ecological impacts. (0198a)

#### Response:

This comment is based on the applicant's ER. Several surveys have been conducted since the initial version of the ER was prepared (e.g., as referenced in Chapter 12 in this FEIS: Kass 1998a, 1998b; Stone and Webster 1998). Sections 4.4 and 5.4 of the EIS discuss the predicted ecological impacts of the proposal, which the NRC staff has determined be small. The FEIS also includes mitigation measures to further reduce or avoid impacts. To provide current data for designing and implementing monitoring programs, the NRC staff and Cooperating Agencies propose PFS be required to perform additional surveys prior to initiating construction (see Condition 2A, FEIS Section 9.4.2).

### G.3.12.1.4 Herbicide Use

#### Comment Summary:

Two commenters stated that page 4-20, Section 4.4.2.1, of the DEIS indicated that herbicides may be used to assist in maintaining the restricted-access area free of vegetation. The commenters indicated that the FEIS should address pesticide use not only in the context of non-target vegetation, but also with respect to other natural resources, including wildlife and water resources. (0047, 0089)

Two commenters asserted that the DEIS stated that prior to construction, a plan to control noxious weeds during construction and operation of the proposed PFSF and related rail facilities would be developed. The commenters stated that this plan should be included in the EIS and made available to the public and agencies for evaluation. (0047, 0089)

**Response:**

There are no plans to use pesticides for the proposed project. However, herbicides are expected to be used for the proposed project. As stated in Section 4.4.2.1, the applicant has indicated that any herbicides used will be applied according to EPA's regulations and requirements. Thus, the impacts to wildlife and water resources would be small. To clarify this matter, information has been added to the FEIS in Sections 4.4.2.2 and 5.4.2.2.

Section 9.4 in the FEIS states that the plan for monitoring and controlling exotic and noxious weeds during construction and operation of the proposed PFSF would be coordinated with the BIA and the BLM. The revegetation plan for the rail line would comply with the latest BLM guidelines on revegetation in effect at that time for details such as soil preparation, type of seed mix, fertilizing, time of year to plant, and watering frequency. The revegetation plan for the proposed site would comply with current BIA and Skull Valley Band guidelines for revegetation in effect at the time of implementation. BLM guidelines such as the Interagency Forage and Conservation Planning Guide for Utah, EC 438, are publicly available, and if the proposed action is approved, the project-specific revegetation plans will also be publicly available.

**G.3.12.2 Vegetation****G.3.12.2.1 Native Plants and Vegetation****Comment Summary:**

Several commenters expressed concern about the potential effects to the native plants, some rare plants and other vegetation in the area of construction and operation of the proposed PFSF. (0047, 0050, 0096, SL1-26)

- One commenter, in reviewing page 4-18 of the DEIS, expressed concern specifically about the impact of non-native species. The commenter stated that there is no analysis of the impacts of crested wheatgrass, a non-native species, and questioned how protective of the environment it would be if the crested wheatgrass spreads outside the area where it is planted and competes with the native vegetation. (0096)
- Two commenters also expressed concern about the culvert system installed for the rail line increasing wet season flows, increasing erosion, silting in the drainages, and providing a conduit for the transport of contaminants and noxious or invasive undesirable plant species in those sensitive areas. (0047, 0089)

**Response:**

Various sections of the DEIS contain information on native plants and vegetation. In Section 3.4.1.1, the DEIS noted that much of Skull Valley has been invaded by a non-native exotic grass species known as cheatgrass. Specifically, the document stated that "due to numerous large fires (primarily caused by lightning), cheatgrass has invaded and replaced the natural vegetation in much of Skull Valley." Section 4.4 of the DEIS discussed impacts of the construction and operation of the proposed PFSF on vegetation. Also, Section 5.4.1.1, which discussed the impacts of the proposed transportation alternatives, stated that "no unique habitats would be cleared for either the ITF near Timpie or the Skunk Ridge rail corridor." For a number of reasons (see Section 4.4.1.2 of this FEIS), BIA has determined that PFS should revegetate the proposed site with crested wheatgrass, a non-native species. While revegetation with native species would have a small positive impact on vegetation, planting a fire barrier with crested wheatgrass would result in replacing one dominant non-native species (cheatgrass) with another (crested wheatgrass). Planting crested wheatgrass would have a small impact because it is no more invasive than the cheatgrass currently located in the area, and crested wheatgrass provides some protection from fire.

The proposed rail line from Skunk Ridge (near Low, Utah) may require the installation of 110 culverts crossing approximately 32 arroyos (see Section 1.6.2.1). The use of BMP's during construction would control erosion and siltation during construction. Impacts to surface waters, and the potential for the culvert to act as a conduit for the transport of sediment and noxious or undesirable plant species, would be small. The reference by the commenter to "contaminants" is unclear, although particulates or total suspended/dissolved solids may be considered as contaminants. During operations, the potential for culverts to act as conduits for contaminants and undesirable species is also considered to be small because the applicant's culvert design includes criteria that specify flow velocity thresholds that require rip-rap to be placed at culvert outlets. It is recognized that streams along the proposed rail line need to be protected. The new rail line would be designed such that natural drainages would be preserved. A CWA Section 404 permit from the ACE may be required prior to construction (see Section 1.6.2.1 of this FEIS). Additionally, maintenance of culverts would be required to ensure they function at design levels.

### **G.3.12.2.2 Revegetation**

#### **Comment Summary:**

One commenter stated that clearing and grubbing activities prior to railroad construction will destroy as much as 776 acres of vegetation. (The commenter references ER Rev. I at 4.4-3.) This vegetation provides habitat for a variety of wildlife species. The commenter indicated that the applicant claimed it will be able to revegetate a significant amount (621 acres) of vegetation destroyed during construction, with a permanent loss of 155 acres of vegetation. However, the commenter stated that the area of habitat destruction is located in a sensitive, slow growing, xeric environment. Such areas, notoriously sensitive to environmental impacts, are difficult to restore. The ER is inadequate because it fails to demonstrate how the applicant plans to carry out revegetation of 621 acres in such a sensitive and slow growing environment. Any discussion of revegetation efforts must also show where and how the applicant will obtain access to needed water. (0198c)

#### **Response:**

This comment refers to information in the applicant's ER. The DEIS addressed the issues mentioned in this comment. This FEIS addresses these issues in Sections 4.4.5 and 5.4.4.

The NRC staff agrees with the statement that habitat restoration in a xeric environment can be difficult. After construction is completed, disturbed areas near the proposed PFSF and along the rail corridor would be revegetated. As discussed in Section 4.4.5.1 of the EIS, native species are preferred for revegetation and should be used where feasible. However, as noted in that section, the major concern is to maintain ecologically functioning perennial plant communities. Thus, species used in revegetation should be selected for ease of establishment, seedling vigor, and persistence in the community. Also, as discussed in Section 5.4.4 of the EIS, planting a mixture of primarily native species along the corridor would have a beneficial impact on the local ecosystems and biodiversity.

The applicant and the BIA have consulted and determined that crested wheatgrass would be an appropriate species to use for revegetation (see Section 4.4.5.1 of the EIS).

The applicant would develop a revegetation plan for the proposed site that considers all these issues in consultation with the Skull Valley Band and the BIA. The applicant would also develop a plan for revegetating the rail corridor during construction, in consultation with the BLM. The plans would include monitoring during the life of the proposed PFSF to ensure successful vegetation establishment. To date, the BIA and the BLM have not required irrigation for revegetation plans in similar environments. Sections 4.4.5 and 5.4.4 of the EIS discuss mitigation measures to ensure successful revegetation.

### G.3.12.3 Wildlife

#### G.3.12.3.1 Impacts on Habitats

##### Comment Summary:

Several commenters expressed concern that habitats important for wildlife would be affected. (0047, 0089, 0158, 0198, 0198h, 0198i, SL1-15, SL2-14, SL2-16). Commenters provided the following specific concerns:

- One commenter stated that the applicant failed to adequately assess the potential impacts and effects from the construction, operation, and decommissioning of the proposed PFSF and SNF transportation on species and specific habitats in the region as required by 10 CFR 72.100(b), 10 CFR 72.108, and NEPA. The commenter said that the applicant has not conducted surveys and studies to acquire the necessary information to make an adequate assessment. (0198a) The same commenter stated that certain areas are important wildlife habitats and must be managed in a way that protects, improves, and maintains critical habitats. (0198i) The commenter also stated that the nearby Horseshoe Springs (managed as a wildlife use area by the BLM) and Timpie Springs (managed as a wildlife management area by the UDWR) areas represent important wetlands for migratory birds and should be protected. The commenter stated that these areas act as extensions of the much larger Greater Great Salt Lake Wetland Ecosystem. (0198h, 0198i)
- One commenter disagreed with the statement in the DEIS on page xxxiv that the proposed site would not occupy land with unique habitats or wetlands. (SL1-15)
- Several commenters expressed concern for wetlands and the Great Salt Lake, which serve as important refuges and habitats for migratory birds. (0047, 0198, 0198a, 0198i, SL1-15, SL2-14, SL2-16) Several commenters were concerned that the DEIS did not consider the potential impacts of the construction, operation, and decommissioning of the proposed PFSF on the Great Salt Lake, especially on the shore and migratory bird populations and wetlands habitat, including the Timpie Springs Waterfowl Management Area (Timpie Springs). The commenters were concerned about potential contamination, particularly from accidents, of important wetlands habitat or the surface and groundwater that flow to these wetlands. (0158, 0198a, 0198h, SL2-16) One commenter asserted that the DEIS would have to encompass the entire Western Hemisphere to capture the proposed PFSF's effects because the Great Salt Lake is an internationally known migratory route for thousands of bird species. The commenter said that a disaster would affect the food chain worldwide. (SL1-15)
- One commenter stated that the BLM must ensure that the rail spur and transportation of high level nuclear waste are consistent with each of the specific RMPs. Activities that could increase the use of Skull Valley Road and affect Horseshoe Springs should not be allowed. Otherwise, the Pony Express RMP, Wildlife and Fisheries Program Decision must be amended. (0198i)
- Two commenters expressed concern that project construction would result in the temporary loss of 776 acres of habitat and the permanent loss of 155 acres of habitat and that construction of the rail line would fragment Wildlife Habitat Areas. (0047, 0089) One commenter stated that the facility poses a threat to habitat of the loggerhead shrike, the burrowing owl, and the Skull Valley pocket gopher. (0050)
- One commenter expressed concern that proposed on-site drainage to a 3-hectare storm water collection and detention basin would be mistaken for a wetland habitat or source of water. (Section 2.1.1.2, page 2-9) The commenter asked what measures have been taken to ensure this would not occur. (0089)

- One commenter suggested that State and Federal resource agencies be consulted for training of on-site personnel who are responsible for ensuring construction activities do not disturb sensitive ecological and cultural resources. The commenter stated that input from State and Federal resource agencies is critical since migratory birds are expected in the area. (0047)

**Response:**

Some of the comments regarding important species are based on the applicant's ER. This FEIS addresses these issues in Sections 3.4 and 5.

The ecological resources of Skull Valley, in general, and those in the vicinity of the proposed PFSF, proposed ITF near Timpie, and rail corridor, in particular, are described in Section 3.4 of the FEIS. That section describes plant and animal species, biodiversity, and ecosystems of special concern to the FWS, the BLM, and the UDWR that may be individually or cumulatively affected by the proposed action or alternatives. The proposed and alternate sites for the proposed PFSF, ITF, and rail corridor are undeveloped rangeland that is dominated by vegetation common throughout the valley.

Comments on the adequacy of the applicant's surveys and analysis were based on the applicant's ER. Several surveys have been conducted since the initial version of the ER was prepared (e.g., Kass 1998a, 1998b; Stone and Webster 1998). The NRC staff reviewed the analysis in the DEIS and concluded the DEIS adequately addressed the types of deficiencies identified in the comment. Specifically, Section 4.4 of this FEIS addresses the potential ecological impacts at the proposed site on the Reservation, and Section 5.4 addresses the potential impacts of the proposed transportation facilities. The proposed ITF would be located near the Timpie Springs Waterfowl Management Area in a highly disturbed area with no unique ecological communities, as discussed in Section 3.4.1.1 of the FEIS. There are no credible accidents or operational activities that would affect Timpie Springs. Thus, as described in Sections 5.4.1.1 and 5.4.1.2 of the FEIS, impacts of the potential ITF on Timpie Springs would be small. As noted in the mitigation measures that are proposed to be required in Section 9.4.2 (see Condition 2), additional surveys must be conducted to provide current data on which to design monitoring programs and to fulfill the conditions of the Federal licenses and approvals required for this project.

Regarding unique habitats or wetlands on the proposed site, the NRC staff concluded that the statement in the EIS is correct that the proposed site would not occupy any unique habitats or wetlands.

The NRC staff agrees that Great Salt Lake is important habitat for migratory birds. The lake supports between two and five million shorebirds and hundreds of thousands of waterfowl during the spring and fall migrations [USGS (<http://www.dutslc.wr.usgs.gov/greatsaltlake/index.html>), accessed October 11, 2000]. Because of its importance to migratory birds, the lake was designated a part of the Western Hemisphere Shorebird Reserve Network in 1992. The lake and its marshes provide a resting and staging area for the birds, as well as an abundance of brine shrimp and brine flies that serve as food.

The NRC staff concluded in its SER, as updated, that the proposed PFSF would meet all Federal safety standards during normal, unusual, and accident conditions. No credible accident would contaminate Great Salt Lake or affect its ecosystem either directly or via groundwater contamination. Information has been added to Sections 3.4.1.2 and 5.4.2.2 of the FEIS about the Great Salt Lake and the NRC staff's conclusions about construction, operation, and decommissioning of the proposed PFSF.

Impacts of construction and operation of the proposed rail corridor on natural resources are summarized in Section 5.4 of this FEIS. These impacts would be small. In addition, Section 5.4.4.2 presents mitigation measures that include curtailing or restricting construction activities during certain periods of the year. These measures will help to avoid affecting mating, nesting success, or raising young of sensitive species. The impacts of habitat loss, including habitat loss for those species listed

in the comments, are discussed in Sections 4.4.1.2 and 5.4.1.2 of the FEIS. Because the amount of habitat lost would be only a very small part of the total habitat available in Skull Valley, the impact would be small.

Since there would be no construction on Skull Valley Road itself, there would be no impact from construction on Horseshoe Springs and, therefore, no need to revise the Horseshoe Springs HMP. The projected increase in traffic on Skull Valley Road is discussed in Sections 4.5.1.6, 4.5.2.6, and 5.5.2.2 of the FEIS, while the potential impacts of that increase on wildlife are considered in Sections 4.4.2.2 and 5.4.2.2. The largest increase in traffic would occur during Phase 1 of construction. Roaming animals may need to adjust their movements and migration patterns during that time due to the increase in traffic in the area. During the operation of the proposed PFSF, because construction activities for the most part would be completed, minor impacts to wildlife from on-site transportation would be expected. Because the proposed ITF would be located at the northern end of Skull Valley, most of the impacts of traffic associated with it would be on Interstate 80 and not Skull Valley Road. Sections 5.5.1.2 and 5.5.2.2 of the FEIS discuss the impacts of the ITF on transportation and traffic with respect to construction and operation, respectively. Overall the impacts of increased road traffic on wildlife are predicted to be small, and no specific measures to avoid or mitigate them are necessary.

Section 1.5.3 of the FEIS discusses the need for the BLM to amend the *Transportation and Utility Corridor Decision 1* of the Pony Express RMP prior to granting a right-of-way for a rail corridor on the west side of Skull Valley. The amendment would add an exception to the RMP decision to allow the construction and use of the proposed rail line outside the corridors established in the RMP. As stated in Section 5.4.1.1 of the FEIS, wildlife in Skull Valley do not exclusively use any portion of the valley, and there are no clearly defined migration or seasonal use patterns for wildlife in Skull Valley. The presence of the proposed rail line would not significantly contribute to habitat fragmentation, segregation, or interruption of habitat connectivity. If the physical presence of the railroad helps to keep the wild horse herd within the Cedar Mountains Wild Horse Herd Management Area, this would result in a slight beneficial impact to the wild horses.

No wetlands occur on either the proposed or alternate site for the proposed PFSF. As described in Section 2.1.1.2 of this FEIS, standing water is expected to quickly evaporate from the stormwater detention basin. Therefore, there is no potential for this basin to develop the characteristics of a wetland. The NRC staff concurs that State (as appropriate) and Federal resource agencies should be consulted and included in the proposed training. Additional text has been added to Condition 7 of the proposed mitigation measures (see Section 9.4.2 in this FEIS).

### **G.3.12.3.2 Impacts on Wildlife**

#### **Comment Summary:**

Several commenters stated that the proposed PFSF poses potential impacts to wildlife. (0047, 0050, 0089, 0198h, 0215) Commenters expressed the following specific concerns:

- Two commenters expressed concern regarding the increase in daily use of Skull Valley Road, which is likely to result in an increase in wildlife mortality and disrupt wildlife movement in the valley. (0047, 0089)
- One commenter stated that the potential wildlife impacts are underestimated and may also go undetected under the current proposal without an adequate monitoring plan. The commenter stated that the effectiveness of the methods needs to be studied for stress, winter impacts, migration impacts, nesting impacts, radiological impacts, and population surveys. (0215)

Several commenters expressed concern about the direct and indirect effects related to the construction of the rail line. (0047, 0089, 0198a, 0198c, 0198i) Commenters provided the following specific comments:

- Two commenters stated that the proposed rail line corridor has not yet been surveyed for wildlife resources, and that a survey should be completed prior to initiating construction and results included in the FEIS for review. (0047, 0089)
- Several commenters stated that the proposed construction of a new rail line in Skull Valley would cross undeveloped public lands that comprise the Great Basin Ecosystem and affect wildlife. The commenters asserted the rail line should not be allowed to disturb these areas that have already been designated as important wildlife habitat. Several commenters expressed concern that the rail line will fragment and dramatically decrease wildlife habitat and affect resident and migratory birds. The commenters stated that the rail line will act as an artificial barrier to the traditional range of some wildlife, cutting off winter feeding range for wild horses, and disrupting other established wildlife migration patterns for mule deer and pronghorn antelope. (0047, 0089, 0198i)
- One commenter expressed concern that some wildlife species would be permanently driven out of the area, either because of destruction of habitat or from noise and other activities associated with construction, operation, and maintenance of the railroad, and that noise levels from construction and operation of the railroad may also disrupt mating and breeding activities. (0198c, 0198i) The same commenter stated that while the applicant indicated in its ER that construction activities will "temporarily disturb resident wildlife species" (ER at 4.1-4), there was no discussion of the long-term impacts to the overall ecological system in Skull Valley since there would be ongoing construction for more than 20 years. (ER 4.1-4 to 5.) (0198a)

**Response:**

The potential impacts to wildlife of the proposed PFSF are described in Sections 4.4 and 5.5 of the FEIS. The NRC staff concluded that the impacts to wildlife would be small. The mitigation measures proposed to be required described in Section 9.4.2 of this FEIS include surveying for sensitive species immediately before construction and notifying the appropriate Federal agency (BIA or BLM) with management responsibility if any are identified. This would allow PFS, in coordination with BIA or BLM, to then implement measures to reduce impacts to wildlife and its habitat. These mitigation measures would be required as part of the license and approval process by the NRC and the Cooperating Agencies.

As discussed in the FEIS, the impacts on ecological resources from the slight increase in traffic on Skull Valley Road would be small. The projected increase in traffic on Skull Valley Road is discussed in Sections 4.5.1.6, 4.5.2.6, and 5.5.2.2 of the FEIS, while the potential impacts of that increase on wildlife are considered in Sections 4.4.2.2 and 5.4.2.2. The largest increase in traffic would occur during Phase 1 (approximately 18 months) of construction. An increase in traffic in the area during construction may result in accidental killing of animals crossing roadways but is not expected to affect movement and migration patterns of animals living in the area. During the operation of the proposed PFSF, because construction activities for the most part would be completed, minor impacts from on-site transportation would be expected. Overall the impacts of increased road traffic on wildlife are predicted to be small, and no specific measures to avoid or mitigate them are necessary.

The NRC staff reviewed the issue of the potential impacts of operation of the proposed PFSF to wildlife and concluded that the potential wildlife impacts are not underestimated. Those impacts are reported in Section 4.4 of this FEIS. Mitigation measures, including a monitoring program, are presented in Section 4.4.5.2 of this FEIS. One of those measures would require the applicant, in cooperation with the BIA and the Skull Valley Band, to develop an adequate monitoring program that would be implemented during operation of the proposed PFSF. This program would detect impacts



on wildlife. Methods to be used to discourage wildlife from remaining near the storage casks would be determined as part of the monitoring program.

The potential impacts of construction and operation of the proposed rail line on wildlife are described in Section 5.4 of this FEIS. The NRC staff concluded that the impacts to wildlife would be small. Noise impacts from operation of the trains carrying SNF on the proposed rail line are addressed in Section 5.8.1 and, as discussed there, are expected to be minimal and to diminish substantially with distance from the rail line. The results of ecological surveys are described in Section 3.4.3 in this FEIS. Additional surveys would be conducted along the proposed rail line before initiating construction. (See Section 9.4.2 of the FEIS.) Section 5.4.4.2 contains mitigation measures that include curtailing or restricting construction activities during certain periods of the year to avoid affecting mating, nesting success, or raising of young.

As stated in Section 5.4.1.1 of the FEIS, wildlife in Skull Valley do not exclusively use any portion of the valley. Therefore, the presence of the proposed rail line would not significantly contribute to habitat fragmentation, segregation, or interruption of habitat connectivity. Also, because there are no clearly defined migration or seasonal use patterns for the wildlife in Skull Valley, the new rail line would not significantly affect the movement of wildlife. Some wildlife may avoid the area, but the impact is expected to be small.

The NRC staff evaluated the impacts of the proposed PFSF on the wild horse population and added the results to Sections 5.4.1.2 and 5.4.2.2 of the FEIS. There are currently about 350 wild horses in the Cedar Mountains Wild Horse Herd Management Area, managed by the BLM. The BLM's management goals are to keep the horses within the management area and maintain an appropriate number of horses based on the amount of available vegetation. Based on the proposed location of the right-of-way and the projected speed of the trains, there would be no direct impacts to horses from the proposed PFSF. In fact, the physical presence of the railroad may help to keep the horses up on the mountain within the herd management area, so there may be a slight beneficial impact to horses from the proposed PFSF.

Regarding the comment on ongoing construction activities, while there will be movement of casks to the proposed PFSF and intermittent activity associated with building new storage pads and assembling storage casks, there will not be constant construction activities for the life of the proposed PFSF. Initial construction would continue for about 18 months, as described in Section 2.1.1.2 of this FEIS. Phase 1 of the project would include construction of the major buildings, the storage pads in the southeastern quadrant of the restricted-access area, the access road, a new rail siding, and a new rail line. This phase would involve most of the clearing that would be needed for the proposed PFSF. Section 4.4.1 of this FEIS describes the impacts of construction of the main facility on the overall ecological system in Skull Valley, including wildlife. This assessment includes the impacts of all the clearing that would be needed for the proposed PFSF. While there will be some impacts during construction of the proposed PFSF and a rail line, the NRC staff concluded that these impacts would be small and proposed that certain mitigation measures be required to minimize those impacts. See Section 9.4.2 of this FEIS. Following the initial construction, some construction would also occur after operation begins (Phases 2 and 3 construction). During Phases 2 and 3 of construction, impacts on wildlife would be lower because construction activities (construction of additional storage pads) would be limited to the previously disturbed restricted area. Thus, the NRC staff concludes that the long-term impacts to the overall ecological system in Skull Valley from construction are adequately considered in the FEIS.

### **G.3.12.3.3 Radiation Effects on Wildlife**

#### **Comment Summary:**

Several commenters expressed concern about potential radiological exposure to wildlife near the proposed PFSF. (0047, 0089, 0163, 0198h)

- One commenter stated that the longer the SNF is stored in this location, the higher the potential for unanticipated release of radioactivity. The commenter asserted that the project has the potential to permanently contaminate an environment of worldwide significance to migratory birds. The commenter stated that if the project is approved, there should be a specified time frame and firm commitment to move the SNF away from an area of such importance to migratory birds. (0047)
- One commenter expressed concern over the potential impacts resulting from bioaccumulation of radionuclides in the raptor population from accidental contamination of the raptors' prey sources. (0198h)
- One commenter asserted that there is a discrepancy between the DEIS and the applicant's ER, as follows. In the DEIS on page 4-22, the calculations show the radiological dose potentially received by animals perched on the top surface of the HI-STORM storage cask 100 percent of the time for one year would be well below 1 Sv/yr (100 rem/yr). As set forth in ER Section 4.2.9.2.2, a bird perching on top of a HI-STORM storage cask 100 percent of the time for one year would receive 2 x 44.7 rem or a total of 89.4 rem. (0163)
- One commenter expressed concern about the precautions that will be taken to protect wildlife, particularly avian species, from radiation exposure. The commenter referenced Section 3.7 of the DEIS, "Background Radiological Characteristics," which indicated that the natural sources of radiation at the proposed site are equivalent to 84 mrem/yr, which is approximately 1.5 times the national average annual effective dose equivalent of ionizing radiation to a member of the U.S. population, and Appendix D (page D-10, Section D.3.2, "Radiological Impacts," third full paragraph), which stated that, during transport, each SNF cask is assumed to have a dose rate of 13 mrem/hr at a distance of 3 ft. (0089)

**Response:**

Potential radiological exposure to wildlife from the proposed PFSF are discussed in Section 4.4.2.2 of the FEIS. As discussed below, the impacts from that exposure are expected to be small.

As discussed in Section 1.2 of the FEIS, the proposed action includes shipping the SNF to a permanent repository prior to the completion of facility decommissioning after the end of the licensed life of the proposed PFSF. For a discussion on the term of the license requested by PFS, and the requirements for removing SNF from the proposed PFSF should the NRC grant the application, see Section G.3.4 of this Appendix.

As discussed in Section 5.7.2 of this FEIS, no credible accident would release radioactive material and contaminate the Great Salt Lake or affect its ecosystem either directly or via groundwater contamination. Thus, radioactive contamination of the Great Salt Lake or its tributary waters and associated wetlands would be unlikely.

Because there would be no releases of radioactive liquid or gaseous effluents from the proposed PFSF (PFS/RAI1 1999), accumulation of radiation in wildlife from feeding on insects and other invertebrates living around the storage casks is not possible. Information has been added to Section 4.4.2.2 of this FEIS to clarify this issue.

As stated in Section 4.4.2.2 of the FEIS, the NRC has no standard for radiation doses to wildlife, but the applicant has established a radiation dose criterion of 100 rem/yr (1 Sv/yr) (based on a review of International Atomic Energy Agency (IAEA) studies), which is the lowest dose rate at which harmful effects of chronic irradiation have been reliably observed in sensitive species (PFS/RAI1 1999). In addition, the PFS criterion is set at a dose lower than that specified in the IAEA studies. In view of the above, NRC staff believes the PFS criterion may reasonably be applied in considering doses to wildlife from the proposed PFSF.

The natural radiation in the area, .0084 Sv/yr (0.084 rem/yr), is much less than 1 percent of the 100 rem/yr criterion. As discussed in Section 4.4.2.2 of this FEIS, under a maximum exposure scenario of 24 hours a day for 365 days a year, doses to wildlife at the fence around the northern boundary of the restricted-access area would be no more than 0.05 Sv/yr (5 rem/yr) for the HI-STORM cask system (PFS/ER 2000). Adding the background value of .0084 Sv/yr (0.084 rem/yr) to the 0.05 Sv/yr (5 rem/yr) from that system would result in a value below 6 rem/yr, well below the applicant's radiation dose criterion of 1 Sv/yr (100 rem/yr).

The dose of 0.438 Sv/yr (43.8 rem) presented in Section 4.4.2.2 of the DEIS was based on a bird perched on a single cask and included consideration of the radiation field for a single cask as described in Table 2.6 in this FEIS. The calculation offered in the comment more correctly accounts for the radiation field of the multiple casks in the proposed storage array. As noted in the comment, this revised dose would still be below levels of concern. In addition, mitigation measures would require the applicant, in cooperation with the BIA and the Skull Valley Band, to develop an adequate wildlife monitoring program that would be implemented during operation of the proposed PFSF. Methods to be used to induce wildlife to stay away from the storage casks would be determined as part of the monitoring program. The dose in Section 4.4.2.2 of this FEIS has been revised to reflect the theoretical dose to a perching bird from multiple casks.

### **G.3.12.4 Wetlands**

#### **G.3.12.4.1 Wetlands Identification**

##### **Comment Summary:**

One commenter noted that the BLM has designated 48,000 acres (or 75 square miles) in Horseshoe Springs as Areas of Critical Environmental Concern. The commenter stated this is a significant issue because it involves an important percentage of wetlands and water resources. (0077, SL2-02) One commenter stated that the qualitative statement on page 3-26, line 26, of the DEIS that "wetlands are uncommon in Skull Valley" is incorrect. The commenter stated that wetlands comprise nearly ten percent of Skull Valley, and ten percent is a vitally significant percentage in the deserts of the western United States. The commenter stressed that West Coast standards differ significantly from those of the East Coast and the difference is based on the scarcity and often unavailability of water resources in the West. (0039, 0077)

One commenter asserted that the nearest wetland to the proposed ITF is in Timpie Springs, not Horseshoe Springs, as stated in the DEIS. The commenter added that the DEIS contains erroneous assumptions, such as that groundwater occurs at a depth of 125 ft. near Timpie Springs, and therefore other assumptions made in Section 5.4.1.3, page 5-16, are debatable. (0039, 0077)

##### **Response:**

The NRC staff agrees with the comment that wetlands in Skull Valley are important because of the scarcity of water resources in the West. The statement in Section 3.4.2.2 of the DEIS referred to all the lands in the United States that the BLM administers. This statement has been clarified to specify that the less than 9 percent figure refers to wetlands in all land administered by the BLM, not specifically to wetlands in Skull Valley. Furthermore, as discussed in Sections 4.4 and 5.4, neither the proposed site nor rail line would impact any wetlands.

Section 5.4.1.3 of this FEIS does not state that the nearest wetland to the location of the proposed ITF is Horseshoe Springs. The section states that Horseshoe Springs is the largest wetland area in Skull Valley. The proposed location of the ITF near Timpie is highly disturbed, with no unique ecological communities. Construction of the proposed ITF would not affect Timpie Springs. Section 2.2.4, describes the location of the proposed ITF and Section 5.4 describes the impacts of the proposed ITF.

Regarding the comment concerning the depth to groundwater at the ITF, the staff has revised the FEIS to correctly indicate that the depth to groundwater at the ITF is approximately 21 ft. See Section 5.2.1.4 of this FEIS.

#### **G.3.12.4.2 Wetlands Impacts**

##### **Comment Summary:**

A few commenters expressed concern about the potential impacts to wetlands. (0039, 0077, 0158, 0166). Commenters stated the following:

- Two commenters stated that Chapter 3 and Chapter 4 of the DEIS failed to discuss adequately the potential impacts to the wetlands and spring resources, although these areas were described as important natural resources that are part of the "Potentially Affected Environment in Skull Valley, Utah," in Chapter 3. (0039, 0077, 0158)
- Some commenters stated that the DEIS did not address impacts to the wetlands along Skull Valley Road that may be affected by increased road traffic and heavy-haulers. (0039, 0077, 0158, 0166)
- One commenter stated that the applicant failed to discuss the impact of groundwater contamination on the downgradient Timpie Springs and the Great Salt Lake. The commenter stated that these areas provide wetlands and habitat for aquatic wildlife and shorebirds. The commenter noted that the Great Salt Lake is a western hemisphere shorebird reserve and the world's largest staging area for Wilson's Phalaropes. The commenter also said that the Great Salt Lake has 75 percent of the western population of Tundra swans and also provides habitat for bald eagles (threatened species) and peregrine falcons (endangered species). (0198a)

##### **Response:**

The NRC staff agrees that wetlands and water resources are significant issues, particularly in arid regions such as Skull Valley. The BLM has designed 308 hectares (760 acres) of land surrounding Horseshoe Springs as an ACEC. This tract is located near Skull Valley Road within the much larger Horseshoe Springs WHA that covers 25,611 hectares (63,286 acres) in the northern part of Skull Valley. This FEIS presents a description of the springs and an assessment of the potential for the proposed action to affect them in Sections 3.4.2.2, 4.4.1.3, 4.4.2.3, 4.8.3, 5.4.1.3, 5.4.2.3, 6.1.4.1, and 6.3.4. As discussed in those sections, the proposed action would have only a small impact on the wetlands and water resources in the Horseshoe Springs ACEC.

Potential impacts to the wetlands along Skull Valley Road caused by increased road traffic and heavy-haul trucks are considered to be small. Discussion of those impacts has been added to Section 5.4.2.3, of this FEIS. The impacts to the Horseshoe Springs ACEC caused by constructing and operating the proposed rail spur are discussed in Sections 5.4.1.3 and 5.4.2.3, respectively.

The comment regarding Timpie Springs Waterfowl Management Area is based on the applicant's ER. The DEIS updated that document and other licensing information from that same time period. As described in Sections 4.2.1.3, 4.2.2.4, 5.2.1.4, and 5.2.2.4 of this FEIS, the proposed PFSF and transportation facilities would not result in any significant impacts to groundwater resources in Skull Valley and this would not result in any impacts to the downgradient Timpie Springs and the Great Salt Lake.

### **G.3.12.4.3 Permits and State Certification**

#### **Comment Summary:**

One commenter expressed concern that state certification was not discussed in the DEIS. The commenter noted that a Section 404 permit is required from the ACE for discharge of dredged or fill materials into waters of the United States such as inland waters, lakes, rivers, streams, wetlands, and tributaries to navigable waters, in accordance with 33 USC 1344. The commenter stated that state certification of 404 permits is required under Section 401 of the CWA (33 USC 1341) and that the state must certify that the permit will not exceed state water quality standards or otherwise violate a state requirement. The commenter stated that there has been no official delineation of wetlands by the ACE near the rail corridor, proposed PFSF, or ITF, and to adequately assess wetland impact delineation must formally occur. (0198)

The commenter stated that the applicant's analysis of other required water permits lacked specificity and did not satisfy the requirements of 10 CFR 52.45. The commenter stated that in Sections 9.1-3 and 9.2 of the ER, the applicant merely states that it "might" need a CWA Section 404 dredge and fill permit for wetlands along the Skull Valley transportation corridor, and that it will be required to consult with the state on the effects of the ITF on the neighboring Timpie Springs Wildlife Management Area. The commenter disagreed with the ER at 9.1-4, which stated that an American Indian tribe may be treated as a state under the CWA. The commenter stated that this is irrelevant to the permits because the Skull Valley Band has not applied for delegation of any CWA programs. The commenter recommended that the applicant specifically describe the wetlands affected by its operation, the point discharge sources, and the activities that may require control under a storm water permit. (0198a)

#### **Response:**

For the construction of the proposed rail line, the applicant completed a survey in October 2000 to determine if the rail line would cross jurisdictional streams or wetlands, which would require a Section 404 permit from the ACE. The initial conclusions of the survey confirmed that the proposed rail line would not cross perennial or seasonal streams, playa wetlands, or other isolated wetlands. However, two channels along the proposed rail corridor that could be considered ephemeral are still under evaluation. If either the ACE or the State of Utah determines that these channels are ephemeral, they may be jurisdictional, which would, therefore, require a permit from the agency claiming jurisdiction. Sections 1.6.2.1 and 1.6.2.3 of this FEIS have been revised to reflect this information.

### **G.3.12.5 Threatened, Endangered, and Other Species of Special Concern**

#### **G.3.12.5.1 Special Status Species**

#### **Comment Summary:**

One commenter expressed concern about the potential that endangered, threatened, and candidate endangered species (e.g., Ute ladies'-tresses, least chub, spotted frog, peregrine falcon, bald eagle and mountain plover), may be found in the rail line from Skunk Ridge (near Low, Utah), as stated in ER Rev. 1, Table 2.3-2. The commenter stated that these species, other sensitive species, and their food base may be affected by or driven out of the area by construction activities, noise levels, and operation of the railroad. The commenter also stated that project activities may also disrupt mating and breeding activities. (The commenter references ER Rev. 1 at 4.4-4.) (0198c)

The same commenter stated that the EIS must not only address impacts to endangered and threatened species but also candidate, sensitive, and high-value species. The commenter identified the threatened species as bald eagles, which are known to frequent Skull Valley, and peregrine falcons, which nest at Timpie Springs, near the proposed ITF. The commenter also indicated that the

State has listed sensitive bird species and other "high-interest" bird species in the area, including the bobolink, burrowing owl, Caspian tern, common yellow throat, ferruginous hawk, long-billed curlew, short-eared owl, and Swainson's hawk. The commenter noted that the RMP indicates it will protect candidate species such as the ferruginous hawk and Swainson's hawk during critical nesting periods. (0198i)

The same commenter stated that to demonstrate the adequacy of its ER regarding the peregrine falcon, the applicant lists the provisions in the ER 5.2.3.2.4, which concluded that the peregrine falcon nests are "not located in the vicinity" of the proposed ITF. The Timpie Springs Waterfowl Management Area is adjacent to the proposed ITF and therefore, the impact on this Federally endangered species must be addressed. The commenter recommended that the applicant address all possible impacts on Federally endangered or threatened species, including all potential behavior in accordance with Reg. Guide 4.2, at 2-4, n. 2. (0198b)

The commenter also stated that the applicant indicated, in ER at 4.1-7, that the Skull Valley pocket gopher is identified as a "high-interest" species in the State of Utah. The commenter stated that the applicant must conduct the survey now to comply with 10 CFR 72.100 and to determine the presence of Skull Valley pocket gophers and the overall impact, rather than conducting a survey of gopher mounds prior to construction to avoid surface disturbance within 100 feet of any burrow, as indicated by the applicant. (0198a, 0198b)

Two commenters concurred with the DEIS in its determination that there is presently no effect to listed endangered and threatened species. The commenters recommended that if project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination should be reconsidered. (0047, 0089)

**Response:**

Some of the comments above are based on the applicant's ER. The DEIS included updated information on the subjects of these comments. Sections 4.4.3, 5.4.1.5, and 5.4.2.5 in this FEIS address impacts to endangered, threatened, and other species of special concern at both the proposed site and along the transportation corridors. Mitigation measures are included in Sections 4.4.5, 5.4.4, and 9.4.2 of this FEIS to protect species that are identified during construction or operation of the proposed PFSF and its related transportation facilities. These species include Federally-listed threatened or endangered species and Utah or BLM endangered, threatened, or sensitive species if any are taken by construction or operation of the proposed PFSF or its related transportation facilities. Section 5.4.4.2 presents mitigation measures that include curtailing or restricting construction activities during certain periods of the year to avoid affecting nesting success or raising young of sensitive species found during wildlife surveys.

The peregrine falcon is no longer on the Federal list of threatened and endangered species, having been delisted on August 25, 1999. (See 64 Fed. Reg. 46541-46558.) This species is, however, still listed by the State as endangered. As discussed in Section 5.4.1.5 of this FEIS, the impacts of the proposed project on the peregrine falcon and other species that are found in Timpie Springs would be small.

Information on pocket gophers and the potential impacts of the proposed project on them is included in Sections 3.4.3.2, 4.4.1.2, 4.4.3.2, 5.4.1.2, and 5.4.1.5 of this FEIS. As stated in Section 3.4.3, there was no evidence of Skull Valley pocket gophers during surveys of the proposed site, rail line corridor, and the proposed ITF. Although previous surveys have been conducted, the NRC staff and the Cooperating Agencies have determined that an additional survey for pocket gopher mounds is necessary prior to initiating construction to ensure no significant impact would occur. Therefore, mitigation measures proposed to be required for pocket gophers, as specified in Sections 5.4.4.2 and 9.4.2 of this FEIS, include a requirement that the applicant complete surveys for the Skull Valley pocket gopher before initiating construction.

As noted in the comment summary, the Utah Field Office of the FWS has concurred with the “no effect” determination in the DEIS for threatened and endangered species and critical habitat. (See the FWS letter in Appendix B of this FEIS.)

Mitigation measures to further reduce impacts to threatened and endangered species are included in Section 9.4.2 of this FEIS. If project plans change in a way that may modify the “no effect” determination on such species or if additional information on their distribution becomes available, the “no effect” determination may be reconsidered and consultation with FWS will begin again.

Impacts of construction and operation of the proposed rail corridor on natural resources are summarized in Section 5.4 of this FEIS. These impacts would be small.

### **G.3.12.5.2 Plant Species**

#### **Comment Summary:**

One commenter stated that the applicant has not identified aquatic plants that may be adversely affected by the proposed action and upset the fragile wetland ecosystem. The commenter stated that the applicant, in Section 4.1-3 of the ER, indicated that “[n]o Federal or State-listed threatened or endangered plant species are known to occur within the site or access road” but acknowledged, in the ER at 4.1-4, that two “high-interest” plants, Pohl’s milkvetch and small spring parsley, may occur in the area. The commenter expressed concern that the applicant did not adequately assess plant species and impacts on those identified. (0198a)

#### **Response:**

This comment is based on the applicant’s ER. The DEIS addressed the issues identified in this comment. This FEIS discusses the issues in Sections 3.4 and 4.4. Wetlands in Skull Valley are described in Section 3.4.2.2, which includes information on wetland aquatic plants.

Vegetation in the area of the proposed project is identified in Sections 3.4.1.1 and 3.4.3.1. As discussed in Section 3.4.3.1, small spring parsley would not be expected to occur in the area of the proposed PFSF and, therefore, would not be affected by the proposed PFSF. Information on the location of Pohl’s milkvetch in relation to the proposed PFSF is found in Section 3.4.3.1. Impacts of the proposed PFSF on Pohl’s milkvetch would be small, as described in Section 4.4.3.1.

As noted above, the Utah Field Office of the FWS has concurred with the “no effect” determination for threatened and endangered species and critical habitat. (See the FWS letter in Appendix B of this FEIS.)

### **G.3.12.6 Cumulative Impacts**

#### **Comment Summary:**

Two commenters expressed concern that the analysis in the DEIS of human and wildlife health impacts for the purposes of cumulative impacts is inadequate. (0158, 0215) One commenter stated that the DEIS needs to address the full range of potential impacts along the transportation routes from the reactors to the storage facility. The commenter stated that cumulative effects to public health and wildlife from the other radiation sources along the transportation routes and in proximity to the storage site need to be evaluated and presented in the EIS (i.e., operations associated with Envirocare could contribute to cumulative impacts). (0215)

**Response:**

Section 5.7 of this FEIS presents a detailed analysis of radiation impacts along the potential rail transportation routes. The NRC staff determined from the analysis that the dose to a maximally exposed individual located close to the rail route for the entire project period to ship 4,000 casks to the proposed PFSF would be small. Impacts to wildlife would be similarly small. The cumulative impacts of radiation are discussed in Section 6.3.7 of this FEIS.

**G.3.12.7 Mitigation Measures****Comment Summary:**

Several commenters stated that efforts must be made to avoid or minimize impacts to ecological resources. (0047, 0089, 0198, 0198h, 0215) Commenters expressed the following concerns:

- Two commenters stated that measures to avoid or minimize impacts should be described. (0047, 0089) One commenter indicated that mitigation measures, particularly radionuclide contamination to wildlife or their habitat use areas, be coordinated with the State to develop mitigation strategies. (0198h)
- Two commenters strongly recommended that State and Federal resource agencies be consulted for training of on-site personnel, particularly since migratory birds (i.e., raptors) are anticipated to occur in the area. (0047, 0089)
- One commenter stated that compensatory mitigation for unavoidable construction and maintenance impacts must be planned, and urged the applicant to coordinate with the UDWR to develop acceptable mitigation strategies. (0198h)
- One commenter said that the proposed PFSF would not use spikes or cones to prevent birds from perching on top of the HI-STORM storage casks. The commenter explained that this was decided based on page 2-28, Section 2.1.5, lines 22-23 of the DEIS which states that "[i]f birds are found to be perching and/or nesting around or on the casks, devices (such as cones or spikes) would be installed to deter such bird behavior." The commenter stated that the applicant would take such action, however, only to the extent that the potential doses would be in excess of the 100 rem/year criterion established to prevent harmful effects to wildlife from radiation. The commenter noted that Section 4.2.9.2.2 of the ER, indicated that doses to birds spending one-half of their time perched on top of the HI-STORM storage casks were calculated to be 44.7 rem/year. The commenter quoted the DEIS on page 4-24, line 21, "even if a bird spent 100 percent of its life for a year on the top surface of a [HI-STORM storage] cask, the dose received would be well below the 1 Sv/yr (100 rem/yr) criterion." (0163)
- Citing the DEIS page xxxvi, one commenter stated that the applicant has proposed no biological monitoring during operation, but indicated that it will instead implement surveillance programs to prevent wildlife habitation within the storage area. The commenter stated that the impossibility of this goal was evidently recognized by agency staffs because on page xlv of the DEIS, "Mitigation Measures," the NRC staff indicated that the applicant would be required to develop an adequate wildlife monitoring program before initiating operations. The commenter agreed with the requirement, but disagreed with the timing, and stated that any monitoring plan should be subject to review in the EIS process. The commenter suggested that the requirement for biological and wildlife monitoring should include a monitoring program for vegetation and soils, to establish a baseline for these media as specified on page 2-28 of the DEIS. (0198)
- The same commenter stated that the applicant failed to propose and develop various protective or mitigation plans in conjunction with the appropriate authorities. The commenter stated that protective or mitigation measures must be identified now so they can be evaluated and the



feasibility of the proposed site determined. The commenter stated that the applicant's plans, as stated in 4.3-3 to 4 of the ER, include a mitigation plan for Horseshoe Springs and protective plan for Salt Mountain Springs developed with the BLM, and mitigation plans for Timpie Springs and protection of raptor nests developed with the UDWR. (0198a)

**Response:**

The NRC staff agrees with the commenters that efforts must be made to avoid or minimize impacts to wildlife and vegetation. Mitigation measures have been included in Sections 4.4.5, 5.4.4, and 9.4.2 of this FEIS to avoid or minimize impacts to vegetation, wildlife, and species of special concern.

The NRC staff reexamined the wildlife monitoring issue and concludes that it is appropriate that the monitoring program be developed close to the time when it would be implemented (i.e., before initiating operation). The applicant, as described in Section 2.1.5 of this FEIS, has committed to developing a wildlife monitoring program before initiating operations and implementing it during operation. This commitment has been included as one of the mitigation measures proposed to be required and included in each agency's ROD (Section 9.4.2 of this FEIS). The sentence in Section 2.1.5 of the DEIS about using spikes or cones to prevent birds from perching and/or nesting around or on casks has been deleted.

As discussed in Section 4.7.2.1 of the FEIS, there appears to be no viable mechanism by which radioactive materials would migrate off-site or even away from the casks. Thus, regular, on-going monitoring for radiation in vegetation and soils would not be necessary.

The NRC staff agrees that State and Federal resource agencies should be consulted and included in the proposed training. Additional text has been added to Condition 7 of the proposed mitigation measures (Section 9.4.2 in this FEIS) to address the concern expressed in the comment.

The comment regarding mitigation plans in the ER was addressed in the DEIS, and again in this FEIS in Section 9.4.2.

### **G.3.13 Socioeconomic and Community Resources**

#### **G.3.13.1 Reservation Socioeconomics**

##### **G.3.13.1.1 General Socioeconomic Issues on the Reservation**

###### **Comment Summary:**

Commenters expressed concern about the financial implications of the proposed PFSF for the Skull Valley Band. Specifically, commenters raised the following issues:

- One commenter questioned whether money from the lease agreement would actually result in improvements in employment, housing, and other areas. (SL1-26) Commenters asserted that the adverse environmental impacts are greater than the economic benefits to the Skull Valley Band. (0050, 0054)
- One commenter expressed concern that the applicant would go bankrupt, leaving the Skull Valley Band and Utah with financial liabilities. (0053)
- Several commenters stated that historically the Skull Valley Band has not had much economic power to improve conditions on the Reservation and they have survived on desolate land. (GR-08, SL2-06, SL2-13) One commenter asserted that members of the Skull Valley Band should take the money and move as far away from Skull Valley as possible. (SL2-01) Another commenter said that the Skull Valley Band is selling their birthright to the land, and their neighbors' birthright to their land. (GR-09)
- Other commenters asserted a lack of information on payments to the Skull Valley Band, including such issues as why the DEIS lists the estimated economic benefit to the County and State, but does not list the estimated economic benefit to the Skull Valley Band, including the lease payments, and why the DEIS does not include an economic benefit comparison among the alternatives. (0134, 0215, SL1-15, SL1-39, SL3-39)
- Several commenters stated that there were irregularities in the financial arrangements between the applicant and the Skull Valley Band. Some stated that the financial dealings of the applicant and the failure of the Cooperating Agencies to provide oversight on this process should be investigated and that Congress has been requested to do so. (0044, 0105, 0183, 0210a, 0210, GR-01, SL1-17, SL3-06) More specifically, one commenter stated that the investigation would examine the failure of the BIA to ensure that all aspects of this proposal complied with Federal law, and DOI and BIA regulations. (0210a) Several commenters stated that the NRC has not taken into account the concerns raised in Representative James Hansen's letter to the ASLB, dated June 23, 2000, concerning alleged irregular financial arrangements between the applicant and members of the Skull Valley Band. (0210)
- One commenter stated that trust funds, which exist to promote agricultural development on the Reservation, would be compromised by the proposal and that the DEIS does not adequately consider this issue. The commenter stated that the FEIS should analyze what impact the construction, operation, and decommissioning of the proposed PFSF would have on the ability of the Skull Valley Band members to utilize and/or access these funds. Additionally, the commenter suggested that the existence of these funds, as well as other potential sources of revenue that were seriously discounted by the DEIS, should also be considered in the evaluation of the project. (0158)
- Another commenter asked if law enforcement would be improved on the Reservation and by whom if the proposal is approved. (0053)

Additionally, one commenter stated that the application does not address required legal entitlements for the applicant to undertake critical activities associated with the proposed PFSF. For example, the commenter stated that the NRC must satisfy itself that the applicant is entitled to use and control the proposed site on the Reservation, which requires full disclosure of the lease between the applicant and the Skull Valley Band. The commenter stated that currently, only a portion of the lease has been released to the public and the NRC and it is unknown whether the withheld portions of the lease contain termination clauses and other substantive lease provisions. (0198h)

**Response:**

Several commenters expressed concern that the money paid to the Skull Valley Band for leasing part of the Reservation to construct the proposed PFSF would not provide economic benefit to the Skull Valley Band and would not result in better standards of living. Another commenter suggested the Band use any funds to move away. If the Skull Valley Band receives economical benefits as a result of constructing the proposed PFSF, it is the choice of the members and their leadership to decide how the funds are used and distributed.

The NRC and the Cooperating Agencies acknowledge the comments that the Skull Valley Band is surviving without economic power on desolate land, and that the Band is selling their birthright, as well as their neighbors' birthright. These comments are considered to be beyond the scope of this EIS. The Skull Valley Band has identified this proposed project as a means to provide financial resources to support activities desired by the Band, such as enhancing existing infrastructure on the Reservation, improving services to Skull Valley Band members (examples include improved housing and employment assistance), and engaging in new commercial endeavors. Further, the applicant has also indicated that it will provide training and development opportunities for Skull Valley Band members (see Section 4.5.18).

There are currently no plans to change law enforcement procedures or practices on the Reservation. The proposed PFSF would include an independent security force for facility protection. The NRC staff reviewed the applicant's physical protection plan in the SER and found the plan to be adequate.

Another commenter expressed concern that the applicant could go bankrupt leaving the Skull Valley Band and Utah with liability. To prevent this, the provisions of the proposed lease contain financial protection for the Band in case of default by the applicant. The NRC conducts a financial assurance review of all applicants. If the proposed PFSF were transferred to a different consortium, the NRC would require the same financial assurances as for the original applicant.

Commenters wanted to know the amount of the lease payment to the Skull Valley Band. The proposed lease is confidential and proprietary information of the Skull Valley Band and the applicant, and is, therefore, not included in the FEIS. See *State of Utah v. U.S. DOI*, 45 F. Supp. 2d 1279 (D. Utah 1999), *aff'd* 210 F. 3d 1193 (10<sup>th</sup> Cir. 2000). Also, under the proposed action, there would be a positive economic benefit to the Skull Valley Band that would not occur under the no action alternative.

Several commenters questioned the financial arrangement between the applicant and the Skull Valley Band and indicated that Congress should investigate whether there are any improprieties associated with this arrangement. Should any such investigation be initiated, the DOI and the BIA would cooperate fully. However, whether there has been any impropriety in any financial arrangement between the applicant and the Skull Valley Band is outside the scope of this FEIS.

One commenter stated that the FEIS should consider the impact of the proposed PFSF would have on the Skull Valley Band's ability to access trust funds for agricultural development. This FEIS concludes that impacts to the lands adjacent to the proposed rail line and the proposed PFSF would be small and, therefore, would have no impact on agricultural development. Section G.3.13.2.8 of this FEIS discusses property values as they relate to the proposed action. It is not anticipated that the Skull

Valley Band will be denied access to any trust funds that exist to promote agricultural development on the Reservation.

The environmental impacts of the proposed action would not be significant and economic benefit to the Skull Valley Band would be large (see Section 6 of this FEIS).

### G.3.13.1.2 Tribal Culture and Traditions

#### Comment Summary:

Several commenters expressed concern about impacts of the proposed PFSF on the Skull Valley Band. Several commenters stated that the DEIS does not adequately address potential long-term impacts to American Indian Tribal culture, tradition, world-view, and relationship to the land. (0096, 0112, 0158, SL1-26) One commenter said that the Skull Valley Band's expertise in ethno-botany would be threatened by the proposal, and that the traditional reverence for the land and biota would be compromised. (0112)

- One commenter said that the DEIS's treatment of socioeconomic impacts exhibits little insight into the social, cultural, and religious affairs of the Skull Valley Band members. According to this commenter, the DEIS repeatedly makes foundationless statements concerning small and not so small impacts on, for example, cultural resources, without providing an expert or culturally sensitive basis for these conclusions. Further, the commenter asserted that the DEIS is inadequate with respect to addressing impacts on traditional social interactions and cultural activities of Skull Valley Band members. The commenter argued that the DEIS does not adequately analyze the potential inability of Skull Valley Band members who fear or abhor the project to leave the Reservation or the psychological impact this inability may have on them and their culture. Additionally, the commenter argued that the document fails to consider long-term impacts to the survival of the traditional culture, religion, and language of the Skull Valley Band members. (0158)
- The same commenter said that in analyzing impacts to the Skull Valley Band members, the NRC does not adequately consider factors peculiar to this community. The commenter asserted, as an example, the failure of the NRC to identify the existence and magnitude of impacts that could be oppressive given the unique situation of the Skull Valley Band members. The commenter stated that Skull Valley Band members have a unique interest in preserving their traditional worldview, lifestyle, and relationship to the land, in part, because without their participation, these cultural views face extinction. Furthermore, the commenter stated that, given their minority status, Skull Valley Band members are much more prone to losing their cultural identity given the prevalence and force of the majority culture. (0158)
- One commenter stated that Section 6.1.5, "Socioeconomic and Community Resources," of the DEIS (pages 6-10 through 6-14) accepts the fallacy that the Native Americans are indistinguishable from the remainder of the Tooele County residents in terms of socioeconomic, cultural, and community aspects. The commenter said that the DEIS fails to address the unique differences and the hardship most Native Americans have had to face. (0096)
- One commenter stated that on page xliii of the DEIS, lines 1-17 no environmental costs are discussed with respect to the Skull Valley Band, only benefits (page xlii). According to the commenter, specific costs associated with the abandonment and abrogation of a cultural heritage based on reverence for the land per se were not discussed in the DEIS. The commenter cited this as the essential basis for opposition from Navajo, Hopi, Shoshone (to whom the Goshutes are related), and other Tribes. The commenter stated that this opposition identifies the most significant socioeconomic concern of Native Americans throughout the region. The commenter also stated that reverence for the land was not identified, except by Native Americans opposed to

the proposed PFSF. According to the commenter, this is a serious oversight that also constitutes a significant socioeconomic cost. (0112)

**Response:**

The NRC and the Cooperating Agencies reviewed the potential effects of the project on the culture and traditions of the Skull Valley Band, and did not find evidence of an adverse effect. In Section 3.6.2.2, the DEIS stated that there are no documented traditional cultural properties or usage of culturally important natural resources within the proposed PFSF project area. Based on consultation with regional Federally recognized American Indian tribes, the Skull Valley Band, and other organizations, the NRC staff did not identify traditional cultural properties at the proposed PFSF. Traditional plants of value to the Skull Valley Band, such as sage and cedar, are sparse at the proposed site due to a lack of surface water, and are considered inferior to the same plants growing in the Stansbury Mountains east of the Reservation, and in the adjacent Tooele Valley.

Neither the DEIS nor the FEIS claim that Native Americans are indistinguishable from the remainder of Tooele County. The FEIS notes, in Section 6.1.5, "Socioeconomic and Community Resources," that impacts to those resources are indistinguishable except for population, land use, and economic structure and made no conclusion regarding the comparability of impacts to cultural resources between Native American and non-Native American communities.

Regarding comments about consideration of potential impacts to the Skull Valley Band's reverence for the land and broader world view, the NRC and the Cooperating Agencies note that the Skull Valley Band has carefully researched and considered its participation in the proposed project and the potential benefits and adverse impacts to the Skull Valley Band. The Skull Valley Band has subsequently chosen to enter into an agreement with the applicant. As a part of the business arrangement between the Skull Valley Band and the applicant, the Skull Valley Band has stated that among its purposes for participating in the proposed PFSF are to establish a cultural center on the Reservation that would maintain and teach their traditional language and culture and to improve the Reservation housing and infrastructure, which would encourage Tribal members to live and work on the Reservation. Accordingly, the proposed action does not appear to threaten any expertise in ethnobotany that members of the Tribe have, nor would it appear to directly compromise any traditional reverence for the land and biota.

Therefore, this FEIS concludes that the proposed PFSF would not adversely affect Tribal cultural values or traditional cultural properties.

**G.3.13.1.3 Support for Tribal Benefits**

**Comment Summary:**

Supporters of the proposed PFSF stated that a majority of the General Council of the Skull Valley Band voted in favor of the proposed action, a substantial majority of the adult members of the Skull Valley Band signed resolutions in favor of pursuing the proposed PFSF, and the Skull Valley Band has discussed the possibility of building an ISFSI for many years. (0100, SL1-03, SL1-30) Commenters stated that when the Skull Valley Band was first approached about an MRS proposal prior to the PFSF proposal, the majority of the Tribal General Council voted for the MRS proposal. Additionally, the commenters stated that the Skull Valley Band has turned down a landfill proposal and other proposals they believe would spoil the land. According to the commenters, the Skull Valley Band has used its own resources to research this project, and has agreed to allow the proposed PFSF on the Reservation because they believe it is safe. (GR-02, GR-03, SL1-03)

- One commenter stated that if the other facilities provided more of a benefit for the Skull Valley Band, they would not have to consider a facility like the proposed PFSF. The commenter stated

that, as a sovereign nation, the Skull Valley Band has a right to do what they want with tribal land. (GR-10)

- One commenter noted that the financial income from the proposed action could address housing and medical needs on the Reservation. (SL1-30)

**Response:**

The NRC and the Cooperating Agencies acknowledge the comments supporting the proposed action as it relates to the Skull Valley Band and the use of land on the Reservation for the proposed PFSF. These comments do not require modification of the DEIS.

**G.3.13.2 Regional, State, and National Socioeconomics**

**G.3.13.2.1 General Comments**

**Comment Summary:**

A commenter raised concerns that the proposed action will have impacts on the growth, development potential, and infrastructure of Tooele County. (0198h) Another commenter was concerned that if the County continues to accept hazardous waste facilities, the County will be viewed as a place that does not place great importance on protecting its environment, and there will be a decreased interest in cleaning up current waste sites. (SL2-06)

Several commenters expressed concern that the DEIS did not address the socioeconomic impacts of the proposed action on Salt Lake City and the Wasatch Front. (0198, SL1-01, SL1-05, SL1-10, SL1-16, SL2-05, SL2-15, SL3-02, SL3-33) Specifically, commenters have the following concerns:

- Many commenters said that the transportation of SNF through Salt Lake City and other cities would have a negative impact on property values, tourism, revitalization efforts, and the rest of the economy. (0041, 0042, 0046, 0050, 0063, 0067, 0072, 0073, 0079, 0080, 0082, 0086, 0104, 0134, 0160, 0177, 0194, 0201, 0210, SL1-05, SL1-10, SL1-37, SL2-05, SL2-07, SL2-13, SL3-04, SL3-05, SL3-08)
- One commenter said that developers would be less likely to develop land in Utah because of the transportation of SNF through the State. (SL2-07)
- One commenter said that the Governor's web site, [www.qget.state.ut.us](http://www.qget.state.ut.us) contains more information on the following issues: 1) the Tooele County and City population projections and State of Utah's Tooele County persons per square mile (Section 3.5.22 of the DEIS); 2) the State of Utah and Tooele County employment and income statistics and Tooele County residential building permits (Section 3.5.2.3); and 3) the Tooele County average school-aged children per household (Section 4.5.1). The commenter says that for Section 3.5.2.2, there is more information on the web site about Tooele County and City population projections and about State of Utah and Tooele County persons per square mile. For Section 3.5.2.3, the commenter says there is more information in the web site for State of Utah and Tooele County employment and income statistics and Tooele County residential building permits; and for Section 4.5.1, there is more information on the web site for Tooele County average school-aged children per household. (0198)
- One commenter stated that the economic impact from real and perceived risks must be evaluated not only for the storage of the SNF in Utah, but also for other communities and states that would bear the risk of transportation. (0166)

- Some commenters asserted that Federal agencies have historically approved projects in Utah that have had negative effects on the State's citizens, including uranium workers, millers, truckers, and "Utah testing downwind victims." (SL3-04, SL3-19, SL3-25)
- One commenter said that the safety and long-term effects on the State of Utah must be considered. (0105)

**Response:**

The DEIS acknowledged the expected future growth in Tooele County (see Section 3.5.2.2 "Population" and Table 3.8 "Population projections for incorporated areas in Tooele County"). This expected growth, however, will be limited by the availability of resources and infrastructure, particularly in Skull Valley (see Section 3.5.2.1 "Land Use"). The impacts of storage and transportation of SNF on community and socioeconomic resources throughout the life of the proposed PFSF are assessed in Sections 4.5 and 5.5, respectively.

Federal regulations governing waste cleanup are not affected by the number or the location of waste disposal and storage sites being licensed. Regardless of location, each site must comply fully with the specific regulations governing its construction, operation, closure, and cleanup. The approval of the proposed PFSF would not affect the regulations governing any waste disposal or storage site in Tooele County or the State of Utah.

The NRC staff reviewed comments regarding socioeconomic impacts of the proposed action on Salt Lake City and the Wasatch Front. As explained in Sections 4.5.1 and 4.5.2 on impacts during construction and operation, other than a portion of the relatively small construction and operations work force that may reside in Salt Lake City and other areas outside of Tooele County and commute to their work in Skull Valley, it is expected that all socioeconomic impacts, to the extent that they occur at all, would occur in Tooele County.

The NRC staff notes the commenters' statements that the mere presence of SNF (whether at the proposed PFSF or along the rail transportation routes) could create perceptions that adverse impacts will occur. As established by current NEPA case law, an EIS is only required to consider the effects of a proposed action upon the physical environment. The element of public perception of risk, including stigma, falls outside of the definition of "real and tangible" impacts; hence, the types of analyses suggested in the comment (regarding potential impacts to property values, tourism, revitalization efforts, and the overall economic stability of the region) are too far removed from the proposed action to warrant consideration in the FEIS (see G.3.13.28 for more discussion on property values). Regarding the perception of adverse effects from the transportation of nuclear materials through Utah, shipments of nuclear materials through Utah already occur regularly without any significant adverse effects on Utahns. These shipments will, by necessity, continue even if this project is not approved.

The purpose of the FEIS is to evaluate environmental impacts of the proposed action, not the effects of past decisions by Federal, State, or local agencies. However, the FEIS evaluates cumulative effects of the proposed action and takes into consideration past, present, and future activities in the vicinity of the proposed site. The discussion of cumulative impacts is located in Section 6.3 "Cumulative Impacts." The discussion identifies any small, moderate, or large cumulative impacts that would result from the proposed action. The FEIS states that all of the potential cumulative impacts would be small, with the exception of scenic quality impacts, which were determined to be moderate because the proposed action would contribute to a cumulative change from an undeveloped rural area to one that incorporates residential, commercial, and industrial development. No large adverse cumulative impacts were identified.

The NRC notes the reference offered in the comment regarding city, county, and state data sources. The nature of most, if not all, socioeconomic data is that it is frequently updated. At the time the DEIS was prepared, the NRC staff used the most recent data available from the source referenced by the

commenter. The NRC staff reviewed and considered the most recent data available from this source, and determined that the new data would not result in any changes to the conclusions presented in the DEIS and here in the FEIS. Accordingly, the information and data used in Chapter 3 of this FEIS is sufficient for developing an adequate assessment of potential environmental impacts.

Regarding the safety and long-term effects on the State of Utah, the FEIS analyzes the human health impacts of the proposed PFSF, as well as the effects of decommissioning the proposed PFSF (see G.3.5 and G.3.15 for additional comment responses on decommissioning and human health respectively).

### **G.3.13.2.2 Population**

#### **Comment Summary:**

Two commenters expressed concern that Utah's population is growing and an increased population should be considered when planning for a facility that will last 20 years or more. (0198h, SL3-39) One commenter stated that the license application failed to address the impacts of the proposed PFSF on future growth in this area of Utah. The commenter said that the population of Utah is projected to more than double in the next 25 years, with the most significant increases occurring along the Wasatch Front and adjacent counties to the east and west. The commenter also said that Tooele County is already experiencing increased growth in residential development and that various organizations and partnerships are currently assessing, through public scoping processes, options or scenarios for such growth. The commenter stated that there is significant public information available and that NRC should consider this information as part of its EIS scoping, and must evaluate the impacts of transportation and storage of high level nuclear waste on the public and on infrastructure, for the entire life of the proposed PFSF and its operations. (0198h)

The same commenter stated that the DEIS does not rely on current information pertaining to growth projections. The commenter stated that in numerous sections of the report, the percentage change from the 1996 population is used to determine impacts to the Tooele County population, when more current information is available. According to this commenter, the DEIS does not acknowledge that Tooele County's growth rate has continued to climb; instead, it relies on a growth rate of 2.9 percent. The commenter stated that no discussion of expected land use can be complete without a better understanding of population growth than this DEIS exhibits. The commenter also noted the availability of data at the Governor's Office of Planning and Budget, Demographic and Economic Analysis. (0198)

#### **Response:**

Section 3.5.2.2 of this FEIS discusses the current and projected populations for the impact area (see also Table 3.8). Projected populations for areas outside the impact area (i.e., outside of Tooele County) were purposely not considered in the FEIS because they are not expected to experience impacts as a result of the proposed action. The analysis in this FEIS does, however, account for proposed population increases along the possible rail transportation routes to the proposed PFSF (see Section 5.7.2.3).

The DEIS used the most recent growth projections available at the time, namely the projections published in December 1996 by the Governor's Office of Planning and Budget, Demographic and Economic Analysis Section. The more recent population data to which the commenter refers, also by the Governor's Office of Planning and Budget, Demographic and Economic Analysis Section, now projects population for Tooele County to the year 2030 (rather than the year 2020). Although this more recent population projection identifies higher populations than the earlier projection (e.g., 65,852 in the year 2020 for Tooele County compared to the 1996 projection of 59,678 in the year 2020) and provides a projection to the year 2030 (80,938), it would not alter conclusions regarding the expected impacts of the proposed action because the contribution of project-related population and associated



infrastructure (e.g., housing, education, utilities, and traffic) would constitute an even smaller increment (or impact) on Tooele County and its municipalities than was assessed in the DEIS. For a detailed explanation on the estimated dose to the public see Section 4.7.1.2 of the FEIS.

### **G.3.13.2.3 Housing**

#### **Comment Summary:**

Two commenters stated that there is a shortage of housing in Tooele County and at Dugway Proving Ground. The commenters expressed concern that there will not be sufficient housing for construction and operation personnel. (0112, SL1-07) One commenter stated that the comparison to “vacant housing units” in 1990 (DEIS page lviii) in other parts of Tooele County, the largest county in Utah, is insulting and illogical, given the extensive geographic distance and the fact that 1999 statistics indicate an ongoing crisis for affordable housing in Tooele County. The commenter said it is deceptive and disingenuous not to cite available current data. (0112)

#### **Response:**

Section 3.5.2.4 of the FEIS provides the latest complete set of data available related to housing in the impact area. As noted there and in Sections 4.5.1.2 “Construction Impacts” and 4.5.2.2 “Operations Impacts,” there should be sufficient housing available in the impact area, even without considering housing in Dugway Proving Ground or Wendover, to accommodate construction and operations personnel and their families. The NRC staff is not aware of any recent data that establish a housing shortage in Tooele County, nor does the commenter provide any such data.

### **G.3.13.2.4 Education**

#### **Comment Summary:**

One commenter stated that busing students will have a negative effect on the Native American educational process with respect to their ability to have contact with plants used for traditional indigenous medicinal practices. (0112)

#### **Response:**

Students living on the Reservation currently attend schools in Dugway. The proposed action would not include any changes to student busing. Therefore, there would be no effect on Native Americans’ education or contact with plants used for traditional indigenous medicinal practices.

### **G.3.13.2.5 Sanitary Waste Systems**

#### **Comment Summary:**

One commenter suggested that the list of communities with centralized wastewater systems listed in the DEIS should also include Wendover, Utah. (0171)

#### **Response:**

The staff appreciates this information and has incorporated it into revised Section 3.5.2.4 in this FEIS.

### G.3.13.2.6 Transportation and Traffic

#### Construction Traffic

##### Comment Summary:

Several commenters expressed concern about increased traffic on Skull Valley Road. The DEIS stated there would be a 172 percent increase in road traffic (page lxi). Commenters stated that “given a standard multiplier of 4.2 or even 2.5 people per family, that represents a 2,133 percent increase.” (0047, 0077, 0089, 0112, SL1-11) One commenter stated that the baseline ADT (average daily traffic count) presented in the DEIS does not include approximately 30 residents who do not commute on a regular basis. Compared to an additional 255 construction workers and/or employees plus a family multiplier of at least 3.5 (rest of the state is 4.2) or 892 people, this commenter argued that there would actually be an increase of 2,974 percent in the population that commutes every day. Therefore, the commenter stated that the DEIS numbers are erroneous. (0112)

One commenter stated that the summary table on page lxi, as well as similar discussions throughout the document (e.g., 4-3), indicate that the impact to Skull Valley Road will be moderate to large, yet there is no provision in the document for road maintenance or repair. The commenter stated that given the uncertainty of water on site, the project will probably need to haul significant amounts of water along Skull Valley Road, which is not currently suited for this level of use. The commenter also stated that during Utah’s “unusually high” precipitation, trucks driving on Skull Valley Road sank in the water-softened asphalt and overturned, and that no substantial improvements to this road have been made since those events. According to the commenter, these statements are testimony that Skull Valley Road is not safe or suited in its current condition to support the reportedly proposed 172 percent increase in the road’s use and certainly not the transportation proposed under Alternative 1 or the ITF/Alternative 3. (0039)

Another commenter expressed concern about potential impacts to recreation access roads on the BLM lands (RS2477 roads). (SL1-01)

##### Response:

Increases in traffic are based on the number of vehicles using a particular road, not on the number of people in a family (whether drivers or passengers in a vehicle). Impacts due to traffic increases are addressed in Section 4.5.1.6. The NRC staff concluded that the impacts to traffic on Skull Valley Road would be small to moderate. The FEIS recommends consideration of traffic scheduling by the applicant to avoid or reduce these impacts (see Section 4.5.4). Table 3.15 shows the most recent available data on average daily traffic on roadways in the proposed project area, including transport of water. Maintenance along Skull Valley Road is addressed below under “Heavy-Haul Traffic.”

In commenting on impacts to rural roads that access public lands, one commenter referred to “RS2477 roads.” The term “RS2477 roads” apparently refers to roads constructed under 43 USC 932 (now repealed), which authorized rights-of-way for construction of highways over public lands not reserved for public uses. Effective October 21, 1976, Congress repeated this statute in Section 706.(a) of the Federal Land Policy Management Act of 1976 (FLPMA) (P.L. 94-579, 90 Stat. 2793), which also includes standards for granting or issuing new rights-of-way. However, the FLPMA provides that its provisions shall not be construed as terminating any valid right-of-way existing on October 21, 1976. See 43 U.S.C. 1701. See generally, Sierra Club v. Hodel, 846 F.2d 1068, 1078 (10<sup>th</sup> Cir. 1988) (summarizing the relevant provisions and history of RS2477 and the FLPMA). Such roads appear to be the subject of the comment.

With respect to such RS2477 roads, the commenter appears concerned about the potential for the proposed PFSF or its transportation facilities to limit access to public lands. Although it is not clear from the information presented in the comment which specific rural roads are of concern, impacts to

the use of rural roads, including those used to access the Cedar Mountains Wilderness Study Area, Horseshoe Springs, and the Deseret Peak Wilderness, are considered and assessed in Sections 4.8.3, 5.5.1.1, and 5.8.3 of this EIS. As indicated in those sections, the NRC staff concluded that during construction of the proposed rail spur (approximately 14 months), users of these public lands might experience some delays during the week but would not be expected to experience delays for weekend use. During operation, the train traffic would be infrequent (two times per week), so access to public lands would not be affected.

### **Military Traffic**

#### **Comment Summary:**

One commenter stated that impacts on transportation due to military maneuvers have not been addressed. (0039, 0077) The commenter stated that there are numerous opportunities in the DEIS for discussion of transportation issues. The only transportation issues discussed relate to the infrequent traffic caused by the few workers and residents of Dugway and Skull Valley. The commenter stated that the DEIS does not discuss impacts to transportation due to military maneuvers. According to this commenter, the NRC needs to realize and understand that Skull Valley Road, in its present condition (even after serious subsidence and damage caused by the 1982-1983 wet years, which were not repaired, a point mentioned in the DEIS) is barely suited for the impacts it currently sustains. The commenter stated that this road is a narrow, 2-lane road with no shoulder and steep banks on each side and that there are distances of up to 2 miles between places to pull off of Skull Valley Road. The commenter stated that the pull-offs that do exist are very steep and narrow, and most require small 4-wheel-drive vehicles to negotiate. (0077)

#### **Response:**

Any existing traffic related to military maneuvers is included in the calculation of ADT discussed in Section 3.5.2.4. The DEIS considered the impact of the incremental increase in traffic on Skull Valley Road resulting from the proposed action and local transportation alternatives (i.e., the new rail line from Skunk Ridge or the use of an ITF and heavy haul trucks). The analysis considered existing use of the road, including military maneuvers. See Section 4.5.1.6 for impacts during construction of the proposed PFSF, Section 4.5.2.6 for impacts during operation of the proposed PFSF, Section 5.5.1.1 for impacts during construction of the proposed rail line from Skunk Ridge, Section 5.5.1.2 for impacts during construction of the ITF near Timpie, and Section 5.5.2.2 for impacts during operation if the ITF alternative is selected. In each instance where it is anticipated that activities associated with the alternatives may result in adverse impacts to traffic on Skull Valley Road, the DEIS recommended avoiding or reducing these impacts by appropriate scheduling of the proposed PFSF related traffic. See Section 4.5.4 regarding mitigation of adverse traffic impacts during construction and operation of the proposed PFSF and Section 5.5.4 regarding mitigation of adverse traffic impacts during construction and operation of the ITF transportation option. The comments on the condition of Skull Valley Road are addressed in the following summary and response on heavy-haul traffic.

The impact to Skull Valley Road of any change in military operations is speculative and is not the subject of this environmental review.

### **Heavy-Haul Traffic**

#### **Comment Summary:**

One commenter stated that if Skull Valley Road is selected as a haul road in place of the rail alternative, it would create substantial impacts on the highway and highway users. This commenter argued that the hauling would cause numerous safety concerns and would likely cause substantial pavement damage. The commenter suggested that the EIS evaluate these operational considerations. (0198i) The commenter stated that the applicant has inaccurately represented that

Skull Valley Road is capable of handling the heavy-haul vehicles without road improvements or upgrades (page xxxviii of DEIS). According to the commenter, the DEIS has inadequate information to support such a conclusion. (0198) Specific concerns and comments include the following:

- The same commenter questioned how transportation by truck or rail would be scheduled to avoid delays and conflicts with normal commerce and emergency transportation. The commenter also questioned how conflicting transportation on Skull Valley Road will be mitigated, recognizing that based on information in the license application, there will be up to 200 shipments per year, and turn-around time for unloading each cask once it arrives will take anywhere from 11 to 22 hours per cask. (0198h)
- One commenter said that the planned haul vehicles would be oversized and overweight. The commenter stated that the Utah Code and Utah Administrative Code govern hauling and permitting. According to the commenter, oversize/overweight permits would be required for each trip and a separate permit for hauling the SNF would also be required. Additionally, the commenter stated that escort vehicles would be required for each haul. The commenter argued that the pavement subgrade materials over much of the highway length are weak and that the pavement shows extensive cracking over much of the area. According to the commenter, frequent heavy loads from the proposed hauling would cause severe pavement and subgrade damage. The commenter stated that oversize/overweight permits would likely not be granted until the pavement and subgrade can be strengthened, and the highway drainage structures might also need to be strengthened. According to the commenter, the Statewide Transportation Improvement Plan currently contains no plans to improve this highway. The applicant would likely be required to make the necessary improvements as a condition of the permits. The commenter stated that the summary table on page lxi and the statement on page 4-31, line 44, regarding potential wear and tear on Skull Valley Road contradict the statement on page xxxviii, line 14, that the ITF/Alternative 3 will not impact the physical integrity of Skull Valley Road. (0039)
- Commenters stated that the DEIS does not contain an adequate analysis of the potential impacts of heavy-haul trucks along Skull Valley Road, including safety. These commenters stated that although the average accident rate for this route is below the expected rate, the severity rate is high, because the highway was not designed and built to accommodate heavy trucks. According to the commenters, the pavement is narrow, with narrow, unpaved shoulders. Because of the long tractor/trailer combinations required, the commenters asserted that there is high potential for head-on accidents. According to the commenters, there are numerous horizontal and vertical curves that have insufficient passing sight distance to accommodate vehicles of the size required. The commenters asserted that the roadway would require significant improvements to handle the planned hauling, such as widened pavements, increased shoulder widths, flattened highway curves, and pullout areas to facilitate safe passing and to accommodate vehicle safety inspections. Again, the commenters asserted that the Statewide Transportation Improvement Plan does not address this highway. According to the commenters, the applicant would likely be required to make these improvements before a permit could be issued. (0012, 0096, 0198)
- Regarding anticipated weight loads and clearance limits, one commenter suggested that the EIS provide the specification of the existing “22- to 24-foot wide asphalt highway” (ER, Section 2.1.2) beginning at Timpie and continuing south to the proposed PFSF access road. This commenter also posed a number of questions about heavy-haul trucks: What are the weight tolerances for the anticipated 225-ton loaded heavy-haul truck? To what specifications has the road been built? Would the road need to be rebuilt to carry the anticipated loads? According to the commenter, Figures 2.1-2 (2 figures) in the ER are “silent” on the elevation, grade, and performance specifications of the proposed PFSF access road. The commenter stated that the related discussions in Section 3.2.1.4 of the ER, although providing more information on the Skull Valley Road improvements, are silent on the improved road and performance specifications. The commenter asserted that it appears from the discussion that it is not yet certain whether

improvements would be within existing road rights-of-way, and that acquisition of rights-of-way may pose significant challenges. (0198i)

- Prior to making the above improvements to the Skull Valley Road (SR-196), and any other related roadway, the same commenter stated that an environmental analysis would have to be completed. The commenter stated that NEPA or State and local requirements would apply. The commenter asserted that the needed improvements would require addressing impacts to stream/drainage crossings, rare and endangered species, and cultural and historic resources. According to the commenter, State permits, including a UPDES storm water discharge permit for construction would be required. (0198)

#### **Response:**

The applicant has indicated that if the ITF is constructed and operated, specially designed heavy-haul vehicles with multiple sets of tires to appropriately distribute the weight of the vehicle and its load would be used on the Skull Valley Road. The applicant indicated that these special vehicles would adequately distribute the weight of the load and the vehicle itself, and, therefore, modifications to the Skull Valley Road would not be required. Accordingly, the types of road modifications described in the comment are not being proposed as part of the project. However, because Skull Valley Road is designated a State road, a special use permit would be required from the State of Utah for the use of these heavy-haul vehicles on Skull Valley Road.

Section 5.5.2.2 of the FEIS discusses the potential impacts to Skull Valley Road for the ITF alternative. The FEIS indicates that 200 cask shipments per year would result in an average of four round trips per week on Skull Valley Road. Given the small number of trips, the NRC staff concluded that the traffic impacts would be small. Section 5.5.4 discusses potential mitigation measures that could further reduce the impact. While the Cooperating Agencies are recommending that the applicant implement a mitigation measure of scheduling truck shipments so as to avoid local traffic delays, the recommended measure does not direct PFS as to how scheduling should be done and is not proposed to be required. Several methods of mitigation regarding the scheduling of PFS traffic could be developed, such as avoiding periods of heaviest traffic during morning and afternoon commuting.

Regarding the apparent inconsistency between the Executive Summary and page 4-31 of the DEIS, the NRC staff has revised the FEIS to acknowledge the potential for increased wear and maintenance on Skull Valley Road due to heavy-haul truck traffic with the ITF alternative. See the Executive Summary and Sections 5.5.2.2, 6.1.5.3 and 9.4.1.3 of the EIS.

The State of Utah is responsible for the maintenance of Skull Valley Road. Hence, the required heavy-haul permit would allow the State to ensure the applicant would operate within the parameters set by the State for the roadway. No modifications are anticipated for Skull Valley Road. Wear and tear to the road would be addressed in accordance with State requirements for this type of roadway. As stated above, no additional improvements to Skull Valley Road would be expected as a result of HHT transport; however, if the State determines otherwise, it is expected that the appropriate State and local environmental reviews would be conducted.

#### **Road Construction**

##### **Comment Summary:**

One commenter said that before the applicant and the NRC expend enormous amounts of time and resources on this license application, it is incumbent on the applicant to show that it is entitled to widen Skull Valley Road, that the proposed road work is within the scope of existing public rights-of-way, and that the casks containing SNF can be safely moved from the railhead 24 miles along a 15-foot wide roadway to the facility in all weather and traffic conditions. The commenter asserted that the

application contains little more than the applicants's hope to widen the road without any right to do so and without any discussion on how a 15-foot roadway would satisfy health, safety, and environmental concerns. (0198a)

The same commenter said that under UCA. 27-12-133, a person is guilty of a misdemeanor if the right-of-way of any State highway or county road is "dug up or excavated or structures or objects of any kind or character [are] placed, constructed, or maintained within any such right-of-way unless permitted by the appropriate authority." The commenter asserted that there is no indication that the applicant may widen a public road or move drainage culverts, etc. solely with the cooperation of Tooele County. Also, the commenter stated that there is no indication that Tooele County is in accord with the applicant's plan. Furthermore, the commenter stated that the applicant has not provided plat maps of the area to show the existing rights-of-way and whether such road widening is feasible. Finally, there is no justification that a 15-foot road is sufficient to accommodate the size and quantity of heavy-haul trucks that will use Skull Valley Road over the life of the proposed PFSF. (0198a)

**Response:**

This comment was based on the applicant's ER. The alternate proposal to construct and operate an ITF, including the use of heavy-haul vehicles on Skull Valley Road, is described in Section 2.2.4.2 in this FEIS. The NRC staff recognizes that any additional construction activities associated with Skull Valley Road could have additional environmental and socioeconomic impacts. However, there are no proposals to widen or otherwise modify Skull Valley Road or any other road, or to move or replace drainage culverts. The applicant has claimed that Skull Valley Road is wide enough to accommodate heavy-haul trucks if the ITF is approved. The NRC requires that licensees comply with all applicable Federal, state, and local requirements. The EIS assumes that the applicant would comply with all requirements regarding transportation construction. The comment indicates that the applicant would need permits from appropriate Utah authorities to widen or otherwise perform work on Skull Valley Road. The commenter did not identify any specific legal requirements for permits, other than a criminal provision applicable to persons engaging in such activities without a permit. Nonetheless, the applicant would have to satisfy any permitting requirements applicable to such activities in order to engage in them. The applicant has indicated, however, that no work on Skull Valley Road, including widening the right-of-way, would be necessary for the road to accommodate the transportation of SNF via heavy-haul vehicles. Accordingly, the comment does not warrant changing the analysis or conclusions in the EIS. Regarding the safety of transporting SNF from the ITF to the proposed PFSF, the NRC staff addressed transportation accidents associated with transporting SNF from the ITF in Section 5.7 of the FEIS, and concluded that the risk of an accident is small.

**G.3.13.2.7 Land Use**

**Existing Land Uses**

**Comment Summary:**

One commenter expressed concern that the DEIS did not address impacts to State lands, private lands, and State-owned rights-of-way. (0198)

Another commenter stated that there are no significant conflicts with existing resource management plans or land use plans within Skull Valley. (0179)

**Response:**

The FEIS addresses impacts to land use, regardless of ownership, in Sections 4.5.1.7, 4.5.2.7, 5.5, and 6.1.5. Impacts to land use are expected to be small for construction and operation of the proposed PFSF itself, moderate for construction and operation of the proposed rail line, and small for construction of the ITF and heavy-haul truck transportation of the SNF on Skull Valley Road.

## Rail Line

### Comment Summary:

One commenter stated that the applicant has not shown the ability to build a rail line from the rail head at Rowley Junction to the proposed PFSF. The main rail line is on the north side of Interstate 80. A narrow freeway underpass allows access to Skull Valley Road on the south side of Interstate 80 and from there it is 25 miles along the two-way, 22-foot-wide Skull Valley Road to the proposed PFSF. The commenter stated that if the applicant cannot use the public right-of-way, it must acquire Skull Valley Road (from the BLM and intervenors, Castle Rock, *et al.*). The commenter asserted that it is highly unlikely that these landowners would grant a right-of-way to the applicant that would permit rail transportation of SNF across their land. Thus, the commenter believed it should be presumed that the applicant would have to build an ITF at Rowley Junction and transport the SNF to the proposed PFSF by road. (0198a)

### Response:

This comment was based on the applicant's ER. The applicant withdrew the proposal to construct a new rail line along the Skull Valley Road. The FEIS evaluates the applicant's replacement proposal for a new rail line on the western side of Skull Valley (approximately seven miles from Skull Valley Road) on land managed by the BLM.

## Utah Trust Lands

### Comment Summary:

In scoping comments, one commenter stated that the DEIS must address impacts to the Trust Lands Administration lands adjacent to transport routes and around the proposed ITF. (0198h, 0198i) The commenter stated that if the lands of the Trust Lands Administration are adversely affected, then they should either be compensated or the license for the proposal should be denied. (0198h)

The same commenter also stated that the EIS must analyze the direct and indirect impacts of the transportation of SNF to the proposed PFSF, including the economic impact to trust lands adjacent to transportation routes. The commenter stated that the EIS must assess the economic impact to the lands administered by the Trust Lands Administration around Rowley Junction, the proposed ITF site. (0198h)

The commenter stated that it is critical that the NRC, the BLM, and the BIA take into account the purpose of trust lands in the DEIS. The commenter said that the problem of addressing the handling of high level radioactive waste is fraught with uncertainties as a result of the complexity of technical issues, its novelty, its extraordinary time horizon, and the extreme difficulty in predicting with any confidence the numerous unknowns associated with high level radioactive waste.

The commenter stated that the economic analysis must account for all diminution in value to trust lands, including any impact to trust lands "caused by" the public's attitude towards the proposal and its involvement with the handling, transportation and storage of high level radioactive waste.

The commenter said that the effect of the public's apprehension on the market value and revenue generating potential of trust lands surrounding the proposed transportation routes, including the railroad line, are of concern to the Trust Lands Administration. The commenter stated that it has been documented that property values of lands near proposals involving high level radioactive waste have been diminished as a result of this apprehension, referring to City of Santa Fe v. Komis, 14 NM 659, 845 P.2d 753 (1992). The commenter stated that the market value and revenue generating potential of these trust lands would probably be adversely affected if NRC approves the proposal. Furthermore, the commenter stated that an NRC regulation, 10 CFR Part 51, Subpart A, App. A, provides that the

EIS must identify possible conflicts among the proposal and its alternatives and the objectives of Federal and State policies.

The commenter said that if the EIS determines that the economic value and revenue generating potential of trust lands will be adversely affected or that the Trust Lands Administration will be hindered in its ability to effectively manage trust land, the United States, acting through the NRC, must honor its duty as grantor of the trust and either compensate the Trust Lands Administration or deny licensing of the proposal. (0198h)

**Response:**

The NRC received these comments during scoping meetings and prior to the publishing of the DEIS. Impacts along the proposed rail line from Skunk Ridge and at the alternative ITF near Timpie are addressed and discussed in Chapter 5 of this EIS. The NRC and the Cooperating Agencies did not identify any significant adverse impacts to lands adjacent to the proposed project area, including any Utah Trust Lands; therefore, the NRC staff did not identify any conflicts between the proposal and State policies related to Trust Lands. Further discussion of potential impacts to property values is included in Section G.3.13.2.8.

**G.3.13.2.8 Economic Structure**

**General Comments**

**Comment Summary:**

Many commenters indicated that the project would have long-term negative impacts on Utah's economy and that the DEIS did not address socioeconomic impacts of the project outside of Tooele County and outside the Reservation of the Skull Valley Band. (0012, 0041, 0204, GR-01, SL1-01, SL1-04, SL1-05, SL1-10, SL1-16, SL2-01, SL3-04, SL3-28)

Specifically, the commenters focused on the following potential economic impacts:

- One commenter said that the stated \$53 million in economic benefits to Utah is small in comparison with the project's annual budget or the 20-year budget. (SL1-07)
- Several commenters stated that the people of Utah will receive no benefits from the proposed PFSF, but that the profits of the nuclear industry and the safety of people in the east will increase. (GR-13, SL1-10, SL3-49)
- One commenter stated that the analysis for the proposed Yucca Mountain project by the Nuclear Waste Project Office in Nevada showed that as many as 30,000 jobs could be lost in Las Vegas alone due to the permanent geologic repository being sited there. The commenter thought such an impact should be considered for the proposed action. (SL2-12)

Several commenters questioned the statement that the County will benefit economically from the proposed PFSF, since the facility will be on Reservation land, where county taxes are not collected, and property values would decrease resulting in lower revenues for the County. (0112, SL3-46, SL3-54)

- One commenter asserted that the applicant would pay the Skull Valley Band members favoring the proposal and Tooele County approximately \$48 million over the 40-year period. Based on this and other assumptions, the commenter calculated that this payment was equivalent to a payment of \$100 per acre for the land affected by the proposed action. The commenter stated that the proposed action would preclude other more economically beneficial uses of the land. (0112)



- One commenter suggested that the project would create a major economic disincentive for other businesses that might otherwise locate in Tooele County. (0198)
- One commenter stated that it is not appropriate for any property owner or any business to operate in a manner that damages other businesses and other people's property rights. (SL3-05)

Other commenters expressed concern that the discussion of potential economic impacts is not broad enough. Specifically, these commenters recommend that the discussion cover the following issues:

- One commenter suggested that the discussion in Section 4.5 should include current employment, economic, and tax revenue statistics as a comparison to the overall existing scale of the local economy. (0179)
- Another commenter recommended discussion of the impact of closure of the proposed PFSF on Tooele County and the Skull Valley Band. More specifically, the commenter, pointing to page 4-64, Section 4.9.5, lines 7-8, stated that the impacts of closure of the proposed PFSF should include the loss of revenue to the County pursuant to the County-PFS agreement, in addition to the loss of tax payments and the loss of revenue to the Skull Valley Band. (0163) Additionally, the commenter stated that on page 7-33, line 14, the payments to Tooele County would be made pursuant to the agreement between the applicant and the County and would not be "tax payments." As stated in the comment, on page 4-36, lines 16-17, the correct estimate for these payments is \$91.2 million, as stated in ER Section 7.2.2. (0163)
- The same commenter stated that the discussion on page xlii, line 40, regarding the benefit to Tooele County, should include economic benefits called for under the agreement between the County and the applicant. (0163)

One commenter stated that there is an economic and societal cost in providing for firefighting and law enforcement services. The commenter said that the applicant chose to locate on an Indian reservation, thus attempting to avoid many State and local environmental regulations and taxing requirements. There is no assessment in the DEIS of the costs that would occur from the applicant using governmental resources. (0198)

#### **Response:**

In general, there should be positive economic effects (see Sections 4.5.1 and 4.5.2) within the State of Utah, including areas outside Tooele County, resulting from increased employment and income generated by the project's spending during construction and operation. Regarding the comment about potential job losses resulting from the proposed PFSF, the commenter did not identify a specific reference for the staff to review. The NRC staff has evaluated employment impacts (see 4.5 and 5.5) from construction and operation of the proposed PFSF and rail line and concluded that those impacts are small. The NRC staff found no basis for a conclusion that the PFS project would result in job losses in Utah.

In general, costs of the project would be paid by the individual reactor licensees. These same reactor licensees would receive net benefits to the extent that the costs they would be charged to use the proposed PFSF would be less than the costs of continuing to store SNF at the reactor site. The benefits and costs are assessed in Chapter 8 of this FEIS.

The NRC staff researched the issue of County and State tax payments related to the proposed PFSF. This issue is discussed more fully in Section 4.5.2.8 of the FEIS, which states that the applicant has negotiated a separate agreement with Tooele County under which the applicant would pay an estimated \$91.2 million to the County over the life of the project. Similarly, the applicant estimated State tax payments in the amount of \$53.5 million over the life of the project, from sales tax related to purchasing equipment, materials, and supplies for the facility including the manufacturing of steel

liners for the storage casks. These sales taxes would not be the only economic benefit to Utah from the proposed action.

As discussed below, the NRC staff is not aware of any evidence that property values in the County or any other place, will decrease in the future as asserted in the comment. The NRC staff reviewed the commenter's calculations for the "opportunity cost" of the land and found no basis for the assumptions included in the calculation. The staff cannot concur with the commenter's analysis and believes the socioeconomic analysis in the FEIS is adequate and accurate. Furthermore, the elected government of the Skull Valley Band has determined that this is an appropriate use of their land.

The NRC staff reviewed the concern that the proposed PFSF and other hazardous waste facilities in the area have created a disincentive for other companies to locate in Tooele County. Although the hazardous waste facilities cited by the commenter are currently present in Tooele County, the County has continued to experience a higher growth rate (2.9 percent) than the State as a whole (2.1 percent) for the time period through the 1990s. The growth rate demonstrates that people continue to locate in Tooele County and that businesses to serve those people also continue to locate in the County. The NRC staff has not identified any basis for concluding that the proposed PFSF would affect a business' decision to locate in Tooele County.

Based on the most recently available data, the DEIS described current employment, economic, and tax information relevant to the assessment (see Section 3.5.2.3). The DEIS also assessed the socioeconomic impacts of closure of the proposed PFSF in the discussion of decommissioning impacts in Section 4.9.5; the NRC staff assessed these impacts to be relatively small, although perhaps the most potentially significant impact would be the loss of revenue to the Skull Valley Band (from the lease payments) and the loss of revenue to State and local governments (from tax payments and payments in lieu of taxes). These jurisdictions would have sufficient notice of the date of the proposed PFSF's closure to plan for the loss of these revenues.

Regarding the comment on regulatory requirements and the costs of using government resources, the applicant will be subject to Federal regulation and any environmental mitigation requirements established by the NRC and Cooperating Agencies. Section 4.5.2.8 of this FEIS lists estimated tax payments that would be made to the State of Utah. As noted in Section G.3.13.1.1, the applicant will provide its own on-site security force and its own firefighting equipment and brigade for the proposed PFSF. The likelihood of a significant event that would require the use of offsite governmental resources is considered to be low; therefore, there is little likelihood of costs to State and local governments resulting from such an event.

## **Tax Revenues and Expenditures**

### **Comment Summary:**

A few commenters expressed concern with how the proposed action will affect Utah's taxpayers and the State's tax revenues.

- One commenter expressed concern that the DEIS did not address economic impacts to Utah's taxpayers. The commenter said that the cost of training and providing emergency personnel would be the State of Utah's responsibility and that Utah's taxpayers would have to pay for accidents that might occur at the proposed PFSF or during the transportation of the waste. (SL2-07)
- One commenter said that the State will not receive any tax money since the proposed PFSF would be on Reservation lands. (SL3-46)
- One commenter asserted that the State and local communities may experience a loss in tax revenue (e.g., State income, sales, and property). This commenter also stated that

socioeconomic impacts related to the applicant's proposal may occur beyond the boundaries of Tooele County. According to this commenter, direct and socioeconomic impacts from the loss of Hill AFB would affect the entire state, including Davis, Weber, Morgan, Box Elder, Cache, and Salt Lake counties. The commenter stated that NEPA requires such impacts to be assessed. (0198e)

**Response:**

The NRC staff considers severe rail accidents resulting in a release of radioactive material and subsequent cleanup costs to be very unlikely, and, therefore, considers the likelihood that Utah taxpayers would have to pay for transportation accidents to be low. Accordingly, the staff need not consider such costs in its evaluation. For more discussion of the economic cost of transportation accidents see Section G.3.16.6. Furthermore, accidents resulting from transportation of SNF to and from a reactor are covered under the Price-Anderson Act. The NRC has specific indemnity and insurance requirements for the transport of SNF to and from a reactor site. Although not required, the applicant committed to pursue and maintain nuclear liability insurance for the proposed PFSF in the maximum commercially available amount of \$200 million. The SER, as updated, for the proposed PFSF concluded that there would be no release of radioactive materials in effluents during normal and credible accident conditions. Therefore, it is not anticipated that an accident at the proposed PFSF would exceed the \$200 million coverage.

In its emergency plan, the applicant identified equipment and personnel capable of responding to emergency situations at the proposed PFSF. The applicant's emergency plan for the proposed PFSF also includes provisions for training entities providing emergency response assistance. The training would include facility orientation, exposure guidelines, personnel monitoring devices, and basic contamination control principles (PFS/EP 2000. "Emergency Plan, Private Fuel Storage Facility, Skull Valley Indian Reservation, Tooele County, Utah, (Rev 10)," NRC Docket No. 72-22, Private Fuel Storage, LLC). All states provide emergency response for transportation accidents involving hazardous materials. There are a number of shipments of radiological materials within the State of Utah, for which the state already provides capable emergency response. The North American Emergency Response Guidebook for First Responders involving hazardous materials, developed in part by the DOT, does not distinguish between the actions needed for a SNF shipment and other shipments containing radioactive materials (U.S. Department of Transportation. "2000 Emergency Response Guidebook, A Guide for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident"). Therefore, an assumption that additional cost would be incurred, for unique or different training to respond to potential transportation accidents involving SNF, does not appear to be justified.

Additional impacts on the economic structure of the impact area during the operational life of the proposed PFSF include county tax payments, local payroll, and other local expenditures. Payments to Tooele County have been estimated to be \$91.2 million over the life of the proposed PFSF (based on a proposed agreement negotiated between the applicant and the County) (PFS/RAI2 1999). Local payroll during operation of the proposed PFSF has been estimated to be \$81 million (based on the applicant's estimate of actual staff positions and anticipated pay for each position, including benefits) (PFS/RAI2 1999). Other local expenditures, including operations support and reactor licensees, have been estimated to be \$79 million (based on the applicant's estimate of the number of personnel involved, the number of buildings, and the estimated utility load for these buildings) (PFS/RAI2 1999). In addition, steel liners for the storage casks would be fabricated in the Salt Lake City or Tooele County area over a 21-year period and shipped over-the-road by truck to the proposed site on the Reservation, where they would be filled with concrete from the batch plant; the number of weekly shipments to the site would be four (or 200 per year). The construction cost of casks and canisters has been estimated to be \$747 million (PFS/RAI2 1999). The direct and indirect benefits of cask and liner construction would accrue to whatever jurisdiction hosts their manufacture. The expenditures identified above would result in sales tax payments to the State of Utah, estimated to be \$53.5 million (based on the applicant's review of the Utah tax structure). (PFS/RAI2 1999)

Section 6.3 describes the cumulative impacts to the region from the proposed project. The NRC and the Cooperating Agencies did not identify any significant adverse socioeconomic impacts in Tooele County or beyond.

The comment on socioeconomic impacts related to Hill AFB is addressed in Section G.3.13.3.1, "Military Operations."

## Property Values

### Comment Summary:

Many commenters were concerned that the project's potential impact on the property values of homes in the area or along transportation routes has not been adequately addressed. (0071, GR-18, GR-22, SL1-05, SL2-12, SL3-05, SL3-14, SL3-39, SL3-54)

Several commenters stated that whether there is a real or only a perceived potential for accidents and health hazards, there would be a negative effect on property values, and there should be compensation for the loss of value. (SL1-05, SL3-04, SL3-05, SL3-39)

Several commenters discussed the *Komis* case, in which a property owner was awarded damages for the reduction of property value due to the public's perceived risk. See *City of Santa Fe v. Komis*, 114 N.M. 659, 845 P.2d 753 (1992) (*Komis*). (GR-22, SL1-05, SL2-07, SL3-05, SL3-55) According to one commenter, in *Komis*, the New Mexico Supreme Court upheld an award of property damages of \$337,850 to John and Lemonia Komis for perceived loss due to the public perception of fear. (GR-22) One commenter stated that the studies in the case determined that the public perception devaluation was in the 11 percent to 30 percent range. (SL3-05) According to one commenter, the proposed shipments to Skull Valley would pass through low income and minority neighborhoods in Salt Lake City. The commenter stated that the courts upheld that property values decrease along nuclear waste transportation corridors and that property owners along such corridors are entitled to compensation for the loss of value.

One commenter offered a calculation of property value loss for 100 miles along the Wasatch Front at \$5 billion to \$20 billion, using a 15 percent decrease in value on properties within one-half to two miles of the tracks. (0086) Two commenters stated that agricultural land or products from the land would also lose value. (SL2-07, SL3-05)

Another commenter said residents of Skull Valley and other communities might feel compelled to move if the site were approved. (SL3-54)

### Response:

Several commenters requested that the FEIS include a discussion of potential negative effects on property values of the proposed PFSF and associated transportation of SNF, regardless of whether such effects arise from a real or perceived risk of accidents. Because the commenters believe there would be negative effects, they request that the NRC and the Cooperating Agencies require a mitigation measure for any loss of value. As discussed below, however, the potential for any reduction in property values that might result from the proposed action is too far removed from the proposed action to warrant consideration in the EIS.

As indicated by the Supreme Court, to warrant consideration in an EIS, environmental effects must have a reasonably close causal relationship to a change in the physical environment. See *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 774 (1983) (*PANE*). The Supreme Court also held that "*risk* of an accident is not an effect on the physical environment." *PANE*, 460 U.S. at 775 (emphasis in original). Accordingly, in order for the proposed action to have an adverse impact on property values, it must have an actual effect on the physical environment, and

the risk of an accident is not such an effect. The NRC staff and the Cooperating Agencies have not identified any effects on the physical environment that would have an adverse effect on the property values, nor have the commenter identified any such physical effects.

The comments refer to a decision of the Supreme Court of New Mexico as showing that the value of properties along transportation routes for SNF decline because people are afraid of the dangers associated with nuclear waste transportation. See *Komis*, 114 N.M. 659, 845 P.2d 753. That decision, however, affirmed a trial court determination of actual damages based on the fair market value of land remaining after a partial taking to construct a highway on which radioactive materials were to be transported. (*Id.*) The Supreme Court of New Mexico did not consider in *Komis* whether asserted effects on property values need to be evaluated in an EIS, and the *Komis* decision does not undercut the U.S. Supreme Court's decision in *PANE*. The *Komis* decision does not require that the NRC and the Cooperating Agencies evaluate whether property values might be reduced along rail corridors because of the risks of transportation of SNF by rail to the proposed PFSF.

### G.3.13.3 Indirect Impacts

#### G.3.13.3.1 Military Operations

##### Comment Summary:

Many commenters were concerned that the DEIS did not analyze the socioeconomic impacts to military operations such as Dugway Proving Ground, Hill AFB, Tooele Army Depot, the Deseret Chemical Facility, UTTR, or surrounding communities. Commenters stated that these facilities are strategically important to the military and to national security, and that the DEIS should discuss the possibility and impacts of curtailed operations at these facilities due to the location of the proposed PFSF. (0012, 0034, 0042, 0077, 0083, 0087, 0090, 0096, 0112, 0134, 0137, 0154, 0198, 0198e, 0198i, 0201, 0210, 0210a, 0256, GR-01, SL1-01, SL1-12, SL1-20, SL1-21, SL1-34, SL2-11, SL3-02, SL3-06, SL3-20, SL3-28, SL3-30)

One commenter stated that Congress recognized, in its 1999 National Defense Authorization Act, the potential for conflict between possible uses of federal land and the important goal of preserving the UTTR. The commenter stated that the DEIS did not recognize this potential or describe its economic and other impacts. (0198) Another commenter stated that the study required by Section 2815 of the National Defense Authorization Act to evaluate the impact upon military training, testing, and operational readiness of any proposed changes in land management of the Utah national defense lands has not been completed. (0210a, GR-01)

Many commenters stated that the Air Force would have to impose special flight restrictions over the proposed PFSF and this would have a negative impact on military base operations, military readiness, military training, and national defense. Commenters stated that use of this airspace and Military Operating Area is essential to the UTTR because it offers an ingress route that is irreplaceable, it is the largest overland special use airspace within the continental United States, it is a testing and pilot training area, and it is critical to the military readiness of the United States. (0012, 0087, 0198, 0198e, 0198i, 0210, 0215, GR-01, SL1-01, SL2-11, SL3-20, SL3-28) Several of the commenters provided the following specific concerns:

- One commenter stated that the proposed action constitutes a threat to the viability and mission of the UTTR, operated out of Hill AFB. The commenter stated that the base is a large piece of the economy for Utah and that a zero probability cannot be placed on the chance of accidental release of live ordinance, thus threatening the operations of the UTTR. (0198i)
- One commenter expressed concern that the DEIS did not include the DOD in its analysis of the effects of storing SNF adjacent to the Hill AFB Bombing Range and the Wendover Bombing Range, as well as the effects to national security if their use is limited. The commenter added that

there is no analysis of the possibility of military use of the bombing ranges if SNF casks were hit. (0096)

- Several commenters stated that the DEIS does not consider the economic risk and cost to Utah's economy if the military is forced to restrict its testing adjacent to the proposed PFSF. Commenters added that such restrictions could cost thousands of jobs at Hill AFB. (0090, 0198, 0256, GR-01, SL3-20)
- Several commenters were concerned that the proposed PFSF is likely to harm Hill AFB's ability to escape the Base Realignment and Closure (BRAC) process and subsequently impact the regional economy. (0087, 0112, 0137, 0154, 0198, 0215, 0256, GR-01, SL2-11, SL3-04, SL3-28, SL3-30)

One commenter said that the proposed PFSF could result in cumulative impacts on military operations, leading to adverse socioeconomic impacts on Utah's economy. The commenter asserted that restrictions in military training or weapons testing may have subsequent socioeconomic impacts on Utah communities that rely on employment at the UTTR and Hill AFB. "Weakening of the UTTR will cripple the military value of Hill AFB and subject it to possible closure." (Citing statement by Utah First District Congressman, Representative James V. Hansen, Limited Appearance Session, Salt Lake City, June 23, 2000) (0198e)

Specifically, the commenter cited the following information:

- The commenter (citing the SAR, rev. 13, at 2.2- 8) stated that the proposed PFSF and the proposed Low rail line would be located under the Sevier B Military Operating Area. (0198e)
- According to the commenter the UTTR-Dugway Proving Ground airspace, including the Military Operating Areas, is an irreplaceable testing and pilot training area, and its continued availability is critical to the military readiness of the United States. (Citing statement by Utah First District Congressman, Representative James V. Hansen, Limited Appearance Session, Salt Lake City, June 23, 2000) (0198e)
- The commenter (citing letter from Colonel Ronald G. Oholendt to Governor Michael O. Leavitt, May 3, 1991, Exhibit 5) also stated that to simulate combat conditions, Hill AFB aircraft carrying live ammunition must use the Sevier B Military Operating Area in Skull Valley to make an undetected approach to war targets located on UTTR-Dugway Proving Ground. The commenter stated that aircraft use the Sevier B Military Operating Area for low and medium altitude entries into restricted airspace over the UTTR-Dugway Proving Ground landmass, weapons testing, and air-to-air combat training. The commenter asserted that there is no other suitable nearby airspace in which Hill AFB aircraft may perform undetected combat exercises. The commenter further asserted that even a five-nautical-mile overflight prohibition above the proposed PFSF would eliminate the use of the Sevier B Military Operating Area. (0198e)
- The commenter (citing Economic Report to the Governor, State of Utah Governor's Office of Budget and Planning, January 2000 at 153, Exhibit 4) stated that various military missions require use of the range to train combat-ready forces. The commenter cited, as an example, Hill AFB, Utah, which is headquarters for one of ten new "expeditionary" forces for deployment to troubled areas around the world. (0198e)
- The commenter (citing the Economic Report at 153) stated that Hill AFB is a major part of the State economy because it is Utah's largest basic employer. The commenter stated that Hill AFB currently employs 11,628 civilians, 4,619 military personnel, 1,112 reservists, and 3,718 contractors for a total of 21,077 positions. The commenter estimated that 12,351 additional jobs are attributable to the operation of Hill AFB. Additionally, the commenter stated that new contracts and other realignments are expected to create 2,700 to 3,000 additional new jobs in the next three years. (0198e)

- The commenter (citing Realignment Scenarios, Exhibit 6, at 11) stated that in fiscal year 1993, \$578 million in wages were paid to civilian, military personnel, and reservists at Hill AFB. According to the commenter, \$196.8 million in goods and services were purchased by Hill AFB in fiscal year 1993. The commenter asserted that the existence and operation of Hill AFB has also led to increases in indirect and induced employment. (0198e)
- The commenter stated that the DEIS fails to comply with NEPA and 10 CFR 51.71(d) because it does not adequately assess the cumulative and socioeconomic impacts from loss of Military Operating Area airspace use. The commenter referenced the EIS Scope in the DEIS (Appendix A, Environmental Impact Statement Scoping Process, Supplemental Scoping Report, Private Fuel Storage Facility, Skull Valley Indian Reservation, Tooele County, Utah, November 1999). The commenter stated that the Scoping Report said the scope of the EIS would include "potential cumulative impacts, if any, of the proposed facility in the context of other existing and proposed facilities and activities in the area" and "the direct and indirect economic effects (both beneficial and adverse) on employment, taxes, residential and commercial development, agriculture, and public services in the area." The commenter asserted that the Scoping Report implied that the EIS would address the impacts to the vitality and mission of the UTTR, which is a cumulative and socioeconomic impact that the commenter raised in its supplemental scoping comments. Moreover, the commenter stated that Section 3.2 "Issues Outside the Scope of the EIS," of the Supplemental Scoping Report addresses issues such as those relating to conflicts in State-Tribal jurisdiction and the DOE responsibilities and activities, as well as issues relating to health and safety that will be evaluated in the SER. The commenter stated that Section 3.2 of the Supplemental Scoping Report does not indicate that the impacts to the vitality and mission of the UTTR and the effect on Utah's economy are outside the scope of the DEIS. (0198e)

One commenter stated that the proposed PFSF poses no threat to the continued operation of Hill AFB and thus no threat to the economy of the State of Utah. The commenter based this statement on the analysis of risk to the proposed PFSF from military aircraft flights and ordnance used on and around the UTTR. Based on this analysis the commenter determined that the probability of an accident involving military aircraft ordnance is extremely low. The commenter added that the probability that such an unlikely accident would cause a release of radioactive material is further reduced by the robust design and construction of the storage casks. (0163)

Another commenter stated that the assurances by the NRC and the applicant that no overflight restrictions would be necessary are based on mathematical calculations of the unlikelihood of an accident involving the Air Force and the proposed facility. The commenter indicated that the Air Force agrees that an accident is unlikely and has asked that the FEIS state that there is no foreseeable reason why the facility owners or the NRC should ever require or seek any changes in the operation of UTTR. (0068)

**Response:**

Text has been added to Section 3.5.2.1 in this FEIS to describe more fully the military resources in the area, including the military flight access corridor in the Sevier B Military Operating Area. In regard to the UTTR, the NRC staff met with the U.S. Air Force about the potential for impacts to the UTTR or the mission of Hill AFB. No overflight restrictions are being contemplated to accommodate the proposed PFSF. The SER addressed the potential for air crashes into the proposed site. The NRC staff has determined that such an accident is not credible.

The NRC staff has not identified any impact on the operations of Dugway Proving Ground, Hill AFB, Tooele Army Depot, Desert Chemical Facility, or the UTTR from the presence of the proposed PFSF. The NRC staff evaluated potential hazards to the proposed site from military operations and other facilities in the Skull Valley area. These operations included military aircraft operations and cruise missile testing in the UTTR and other past and present military operations. The NRC staff determined from its review and the applicant's analyses that an accident at the proposed PFSF, such as an F-16

air crash, resulting from these activities is extremely unlikely (less than one chance in a million per year). Accordingly, such accidents are not reasonably foreseeable, and do not require consideration in this FEIS.

The U.S. Air Force will be aware of the presence of the proposed PFSF when planning future activities. The U.S. Air Force has indicated they will not require any significant restrictions on military operations within the UTTR due to the presence of the proposed PFSF. Therefore, the NRC staff concluded the proposed PFSF will not pose any significant limitation or other impacts on nearby military installations and other military operations. As a result, the staff did not identify any socioeconomic or national security impacts on nearby military operations from the proposed PFSF.

### **G.3.13.3.2 Other Indirect Impacts**

#### **Comment Summary:**

One commenter stated that increased light pollution could have significant impacts on astrological (sic) observations at Dugway Proving Ground. (0198)

The same commenter stated that discussion of socioeconomic impacts in Section 2.7 of the ER is inadequate. The commenter said that the applicant's ER overinflates the indirect benefit of the project, while under reporting the project's potential indirect costs. (0198h)

#### **Response:**

Lighting would be designed for the security, monitoring, and surveillance of the storage casks. Lighting for the 40-ha (99-acre) restricted-access area would be provided by lights atop 40-m (130-ft) poles located at the perimeter of the area. The light fixtures would be downcast and shielded to minimize light pollution. It is expected that impacts from light pollution will be minimal.

This comment was based on the applicant's ER. Both the direct and indirect impacts to socioeconomic and community resources during the operational period of the proposed PFSF are primarily associated with workers who might move into the area. These impacts were summarized in Table 4.5, "Potential Impacts to Socioeconomic and Community Resources During the Operation of the Proposed PFSF," of the FEIS. As set forth in the FEIS, impacts to the socioeconomic and community resources of the Skull Valley Band and their Reservation are indistinguishable from those to the remainder of Tooele County with the exception of population, land use, and economic structure.

Because the operations workforce (direct and indirect) would be relatively small and the operations period would be relatively long, the effect of the proposed project on the economic structure of the local area would be small, but favorable and long-lasting. The commenter's specific issues regarding socioeconomic impacts are addressed throughout this section (Section G.3.13).

### **G.3.13.4 Cumulative Impacts**

#### **Comment Summary:**

Several commenters stated that the proposed PFSF should be more fully evaluated in context with the cumulative impacts of other facilities in the region. The commenters stated that Tooele County is already overburdened by many environmental and hazardous waste facilities (e.g., Superfund sites), that the large number of hazardous waste facilities in the area is a disincentive for other companies to move to Tooele County, and suggested that the communities that generate the waste should take responsibility for it. (0011, 0171, GR-18, SL1-20, SL2-06, SL3-07)



More specifically, commenters expressed the following concerns:

- One commenter stated that the analysis of the indirect and cumulative impacts of the proposed action on the local Tooele County economy and on individual property values is inadequate. (0113)
- One commenter stated that the existing toxic uses of land in the Skull Valley region are not addressed. The commenter added that ethical decision-making has been lacking in the past, the present, and apparently will be in the future. (0011)
- One commenter expressed concern that the cumulative impacts from facilities in the region will affect property values. (GR-18)
- One commenter expressed concern that the incentive to clean up other facilities in Tooele County will be lost due to the placement of SNF in Skull Valley. (SL2-06)

One commenter stated that the DEIS failed to address the potential cumulative and socioeconomic impacts of building and operating the proposed PFSF and the rail line from Skunk Ridge (near Low, UT) under the Sevier B Military Operating Area, limiting currently authorized use of Sevier B Military Operating Area airspace and any subsequent socioeconomic impacts on the communities that support activities conducted in the Sevier B Military Operating Area. (The commenter referenced DEIS pages 5-21 to 5-29). The commenter stated that the DEIS makes a brief reference to the fact that the military is a major land owner in Tooele County (the commenter referenced DEIS at page 3-36), and that the government, including the military, provides more jobs by far than any other employer in Tooele County (DEIS at page 3-39). The commenter asserted that there is not even a reference in the DEIS that the proposed PFSF or the Low rail line is under the Sevier B Military Operating Area, let alone an analysis of the impacts on the military or Utah's economy. The commenter stated that the DEIS does not comply with NEPA because it omits an analysis or assessment of the cumulative and socioeconomic impacts that the proposed PFSF and Low rail line may have on Hill AFB and Utah's economy. (0198e)

**Response:**

The cumulative impacts of the proposed PFSF in conjunction with other hazardous waste facilities in the Tooele County vicinity is discussed in Section 6.3. The cumulative impact analysis covers the full range of environmental effects. The analysis concluded that all potential cumulative impacts of the project would be small, with the exception of scenic quality. The proposed PFSF, in conjunction with other development in the area, would create a moderate impact to the scenic quality of the area from that of an undeveloped rural area to one that includes residential, commercial, and industrial development. Cumulative health impacts were found to be small. Section 5.7, "Human Health Impacts of SNF Transportation," contains a more thorough discussion of this issue.

The NRC staff reviewed the concern that the proposed PFSF and other hazardous waste facilities in the area have created a disincentive for other companies to locate to Tooele County. Tooele County has continued to experience a higher growth rate (2.9 percent) than the State as a whole (2.1 percent) for the 1990s. The growth rate demonstrates that people continue to locate in Tooele County and that businesses to serve those people will continue to locate there as well.

Cumulative impacts on the growth and development potential of Tooele County are considered in the FEIS in Section 6.3.5, "Socioeconomic and Community Resources," in which the NRC staff concludes that both of the local transportation options would involve rail transfer points located in areas that may be used in the future for similar expansion or development (e.g., for other waste management activities in the Tooele County's Interstate 80 Planning District). Tooele County has adopted waste management as one of its development activities for this part of the County. The FEIS also states that the potential for cumulative impacts to socioeconomic and community resources exists, since almost

all residential and infrastructure options for all activities in Tooele County are in the Rush or Tooele Valley portions of the County.

Regarding potential cumulative or socioeconomic impacts to military operations in the area, the NRC staff met with the U.S. Air Force about the potential for impacts to the UTTR or the mission of Hill AFB. No overflight restrictions are being contemplated to accommodate the proposed PFSF. The NRC staff concluded that the proposed PFSF would not result in any significant cumulative socioeconomic impact to Hill AFB. However, the text in this FEIS in Section 3.5.2.1 has been revised to include additional information about military aircraft using Skull Valley and the Sevier B Military Operating Area.

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### **G.3.14 Cultural Resources**

#### **G.3.14.1 Cultural Properties**

##### **Comment Summary:**

One commenter asserted that there is a potential for historic properties to be on-site and in the surrounding area. The commenter indicated that the Donner Party Historic Trail alignment, Pony Express California, and Hawaiian Historic Settlement are within eight miles of the proposal. (0198h)

Other commenters stated that the applicant should consult with state and Federal agencies about possible disturbance of cultural resources. Commenters stated that the DEIS should clarify what type of on-site training the applicant will provide to ensure cultural resources are not disturbed. (0047, 0089) Another commenter stated that the DEIS failed to list the cultural resources that may be affected and the extent of these impacts. (0112)

Two commenters called for an inventory of archaeological resources affected along the proposed rail alignment. (0096, 0198h, 0198i) One of these commenters indicated that archaeological resources have been encountered along the proposed railway alignment. The commenter stated that the BLM has records of artifacts near the proposed railway. (0198i)

One commenter wanted the Lincoln and Victory Highways, the Central Pacific Railroad, and the first transcontinental telegraph line to be cited and evaluated as cultural landmarks. (0112)

Two commenters stated that the Hastings Cut-Off Trail and Donner-Reed Trail may be impacted and asked why these trails were not properly evaluated. (0112, 0198, 0198c, 0198i) One commenter said that these two significant historical resources may be lost where the rail line crosses them. The commenter also stated that the ER does not quantify or otherwise evaluate this loss as a cost of obtaining a license to store SNF on the Skull Valley Reservation. (0198c) The other commenter asserted that the DEIS is negligent in not providing additional documentation on the Hastings Trail and, thus, cannot conclude that the cumulative impact to cultural resources is low. (0112)

One commenter was concerned about the impacts of traffic and road construction to the native Hawaiian townsite of Iosepa and Horseshoe Springs on Skull Valley Road. (0039, 0077)

##### **Response:**

The NRC and the Cooperating Agencies have contacted numerous agencies, Tribes, and organizations and offered an opportunity to participate in the consultation process required by Section 106 of the NHPA. These agencies, Tribes, and organizations include State agencies (including Utah SHPO), Federally recognized Indian Tribes (including the Northwestern Band of Shoshoni Nation, Northern Ute, Tribal Council of the Te-Moak Western Shoshone Indians of Nevada, Paiute Indian Tribe of Utah, Confederated Tribes of the Goshute Reservation, and the Skull Valley Band), and other organizations (including National Park Service, member organizations of the Utah Historic Trails Consortium, National Railway Historical Society, Iosepa Historical Society, U.S. Army Dugway Proving Ground and Ohngo Gaudadeh Devia) that may be concerned with the possible effects of the proposed action on historic properties.

The NRC and the Cooperating Agencies conducted ongoing consultations, required by the NHPA and its implementing regulations, with all Tribal, State, and Federal offices, including the Advisory Council on Historic Preservation, along with the other interested parties, to ensure compliance with historic preservation laws and regulations concerning mitigation of potential adverse effects during construction activities. The consultation process included the consulting parties' evaluation of the results of a literature review, through ethnographic and historic eligibility recommendations, determination of effects on the properties' eligibility for inclusion in the National Register of Historic

Places (National Register), and development of mitigation measures. These mitigation measures will be documented in an agreement developed by all consulting parties. This agreement will outline measures that the applicant shall take to avoid, minimize, or mitigate any adverse effects. Additionally, the agreement will contain a commitment to develop a Treatment Plan that includes specific mitigation measures for cultural resources within the affected area. A Discovery Plan for previously unencountered sites will be appended to the Treatment Plan. See the draft agreement in Appendix B of this FEIS.

During the preparation of the DEIS and the subsequent review and comment phase, the applicant conducted intensive cultural resources field inventories at project areas, including: (1) the proposed ITF location, comprising about 40 acres about 1.8 miles west of Timpie Junction; (2) the Skunk Ridge transportation corridor from Interstate 80 southward to the Reservation; (3) the proposed site (Sites A and B) and the site access road (about 1,000 acres) on the Reservation; and (4) an exploratory trench, located along the northern base of Hickman Knolls on the Reservation. The results of these surveys confirmed that historic resources are present in the project area and resulted in the discovery and documentation of 12 sites, 16 isolated historic features, and 70 isolated artifacts or small, isolated artifact clusters.

Of the 12 sites, eight are considered eligible for inclusion in the National Register including the Hasting Cutoff (site 42T0709), which is part of the California National Historic Trail; U.S. Route 40 (site 42T01409); the “new” Victory Highway (site 42T01410); an old alignment of the Victory Highway (site 42T01411); a late nineteenth- and early twentieth-century telegraph line (site 42T01412); the Western Pacific Railroad (site 42T01413); a segment of the Deep Creek Road, which may contain portions of the Beckwith Trail (site 42T01416); and the Sulphur Spring or Eight-Mile Spring Road (site 42T01417), which is part of the California National Historic Trail. The applicant’s proposed PFSF design features do not affect the earlier route of the Lincoln Road, which originally paralleled Skull Valley Road along the east side of the valley before being rerouted through the Tooele Valley. Consequently, the Lincoln Highway has not been recorded nor evaluated as part of this project.

The proposed rail line would intersect the Donner-Reed Trail and Hasting Cutoff Trail. Construction and operation of the rail line and proposed PFSF would constitute a visual impact on the historic character of the original trail alignments at the points of intersection with the rail line and the valley floor viewshed. The consulting parties have agreed that collection of additional mapping and other visual data would be utilized to mitigate the impacts to the greatest extent possible.

The former Hawaiian settlement of Iosepa is located away from the rail corridor on the east side of Skull Valley. The proposed rail line would be visible from the former town site. However, the NRC and the Cooperating Agencies concluded that the impact would be small. The applicant’s plans do not include widening or any other physical changes to the roadbed. If Skull Valley Road is selected as the access route to the proposed PFSF, the road would be used in its current condition. Therefore, there would be no adverse effects to the town site under this scenario. If the rail access option is selected, Skull Valley Road would be used for general vehicular access to the proposed PFSF, but again the applicant does not plan improvements to the road. Consequently, whether Skull Valley Road is used for heavy-haul or regular vehicular traffic, there would be no impacts to the former town site.

Section 3.6 describes the cultural resources that are potentially affected by the proposed project. The impacts on these resources from the proposed PFSF and transportation are discussed in Sections 4.6 and 5.6 of this FEIS, respectively. The commenters did not identify any cultural resources not already evaluated as set forth in these sections of the FEIS, and revision to the FEIS is not required. In Section 9.4.2 of the FEIS, the NRC and the Cooperating Agencies proposed that the applicant be required to train workers to ensure that construction activities do not disturb cultural resources. This section of the FEIS has been revised to state that training would be conducted in coordination with cognizant cultural and ecological resource agencies.

### G.3.14.2 Native American Properties

#### Comment Summary:

A few commenters stated that the proposed PFSF would be built on lands sacred to Native Americans, would affect traditional territories and roaming areas, and would generally affect the landscape, which should be revered. (0112, GR-06, GR-10, SL1-11, SL2-06, SL3-54) One commenter asserted that project responsibilities defined by Executive Order 13007, "Indian Sacred Sites," May 24, 1996, and the American Indian Religious Freedom Act, 42 USC 1996, have been ignored. The commenter also stated that the DEIS is inaccurate in its characterization of proposed PFSF impacts to Native American resources. This commenter indicated that these resources are unique to the Skull Valley area. (0012)

Several commenters stated that Tribal cultural traditions are being ignored and affected. (0096, 0112, 0113, 0158) Other commenters asserted that cultural resources should have received more attention. (0198h, SL1-11) One commenter asserted that the DEIS does not adequately analyze the impact on the connection between Skull Valley Band members and their Reservation, their lands, and access to these lands. (0158)

Several commenters indicated that the DEIS did not address traditional properties important to the Skull Valley Band. (0096, 0112, SL1-11)

One commenter stated that archaeological sites on the Reservation are not addressed. (SL1-26)

One commenter indicated that Table 3.17 on page 3-49 of the DEIS lacked information about the Fremont Indians, other Native American tribes, and the Spanish and Mexican cultures which the commenter believed were in the area before the Skull Valley Band. (0096)

#### Response:

The NRC and Cooperating Agencies' ongoing consultations with regional Federally recognized Indian Tribes have concluded that no traditional cultural properties, including archaeological sites, would be adversely affected by the proposed action, including the proposed railroad access corridor and the proposed PFSF on the Reservation of the Skull Valley Band.

The Utah SHPO suggested consulting with tribes other than the Skull Valley Band, including the Northern Ute Indian Tribe, Paiute Indian Tribe of Utah, Northwestern Band of Shoshoni Nation and other Goshute Bands. The NRC and Cooperating Agencies completed consultation with the Skull Valley Band, the Confederated Tribes of the Goshute Reservation, and Tribal Council of the Te-Moak Western Shoshone Indians of Nevada. In addition, the agencies forwarded project cultural resources information to the Northern Ute Indian Tribe, Paiute Indian Tribe of Utah, and the Northwestern Band of Shoshoni Nation. However, these tribes declined to be consulting parties in the Section 106 consultation process of the NHPA.

By its own terms, Executive Order 13007 (codified at 42 USC 1996) does not create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by any party. After extensive consultation, no Indian Tribe or authoritative representative of an Indian religion has informed the Cooperating Agencies of the existence of a "sacred site," as defined in Executive Order 13007, within the Federal lands that would be affected by the proposed action. Accordingly, no action is necessary under Executive Order 13007.

The applicant conducted cultural resource inventories on the Reservation for the area that would include the proposed PFSF. As discussed in the FEIS (Section 3.6.2.1), no archaeological sites were recorded on Reservation lands that have been designated for use by the proposed PFSF.

The cultural historical sequence for the Skull Valley area, dating back about 12,000 years, is summarized in Table 3.17 of the DEIS. A discussion of the Fremont occupation of the area is included in the table, along with information for each of the other groups that have utilized the area throughout the prehistoric and historic cultural periods. Section 3.6.2.1 of this FEIS discusses the prehistoric occupants of the area.

### **G.3.14.3 Effects on Plants and Animals on the Reservation**

#### **Comment Summary:**

Two commenters expressed concern about plants used by the Skull Valley Band (0096, 0112, SL1-11) while another thought there were animals on the Reservation considered to be endangered. (SL2-06) Two commenters stated that Ralph Chamberlain's 1911 study of vegetation in the area should be cited in the EIS and that, as a result, the DEIS statement on page 3-51 is in error. (0096, 0112) One commenter said that only 11 plant species are identified in DEIS Section 6.3.4.1.1, whereas Chamberlain identified 334 species. (0112) The commenter stated that impacts are ignored to plants with ecological habitats unique to Skull Valley, plants used for religious rites, and those providing medicinal therapy unavailable elsewhere. (0112, SL1-11)

One commenter stated that the applicant has not identified any plant species that may be culturally or medicinally (scientifically) significant to various individuals. For example, the commenter said that Confederated Tribes of the Goshute Reservation gather plants in the vicinity of the Skull Valley Reservation. The commenter stated that the applicant must determine whether significant plant species may be affected by the proposed action. (0198a)

#### **Response:**

Section 3.6.2.2 of the DEIS referenced earlier studies of Goshute plant names and uses in Skull Valley including the study by Ralph Chamberlain. Section 3.6.2.2 also addressed potential uses of culturally important plants by the Skull Valley Band. Contacts with Tribal representatives indicate that usage of certain plants occurs in the vicinity, but that the plants on the proposed site are considered inferior to the same plants growing in the Stansbury Mountains east of the Reservation and in adjacent Tooele Valley because of arid growing conditions at that locale. To date, no information has been made available that specifically documents collection and/or use of culturally important plants by tribes within Skull Valley. Consultations with Tribal representatives did not identify any culturally important animals that reside on or use the acreage designated for development of the proposed PFSF.

### G.3.15 Human Health Impacts

#### G.3.15.1 Adequacy of Evaluation of Human Health Impacts

##### Comment Summary:

Several commenters stated that the evaluation of human health impacts is inadequate. Some commenters stated that the DEIS did not consider actual risks. One commenter was concerned that the DEIS considered only a “best scenario.” (SL2-13) Commenters stated that the human health risks and impacts warrant a more thorough evaluation. (0236, SL1-05, SL1-37, SL2-13, SL3-02)

##### Response:

While it is unclear what the commenter meant by the statement that the DEIS only considered a “best scenario,” the Cooperating Agencies believe that all reasonably foreseeable impacts to human health have been adequately addressed. The NRC staff considered the specific issues raised by the commenters and concluded that the EIS adequately addressed these issues and the overall human health impacts from the proposed PFSF. The commenters did not provide any new information, facts, or studies that invalidated the evaluation of human health impacts set forth in the DEIS, or that warranted additional analyses. As discussed in Sections 4.7 and 5.7 of the EIS, the NRC staff determined that the radiological and non-radiological health impacts from the proposed PFSF, including shipment of the SNF, would be small. The NRC staff considered pollutants and occupational health during construction of the proposed PFSF. As discussed in Section 4.3 of the EIS, the NRC staff found impacts to air quality from pollutants such as particulate matter to be small. The NRC staff also evaluated expected fatal and non-fatal occupational injuries and found these impacts to be small. As discussed in Section 4.9 of the EIS, the NRC staff concluded that impacts from decommissioning activities would be similar to construction impacts and would be small.

As discussed in Section 4.7.2 of the EIS, the NRC staff considered potential human health impacts of ionizing radiation (e.g. radiation dose and latent cancer fatalities) from the proposed PFSF received by the public from possible ingestion or inhalation of radioactive materials and from possible exposure to radiation (e.g. gamma rays and neutrons) that would be directly emitted from the SNF. The NRC staff also considered the radiological impacts from incident free (routine) SNF shipments and from potential transportation accidents involving SNF, as discussed in Section 5.7.2 of the EIS. In its analysis of radiological impacts, the NRC staff considered the inherent ability of the cask designs to confine SNF contents and minimize direct radiation during normal operations, off-normal operations, and credible accidents (i.e. the most severe reasonably foreseeable scenarios). As discussed in Section 2.1.2 of the EIS, the SNF will be completely sealed (welded-shut) in steel canisters during its entire life-time at the proposed PFSF. The exterior of each canister will be decontaminated prior to shipment to the proposed PFSF in order to remove any significant amounts of radioactive material. Each steel canister will be surrounded by a robust transportation cask (overpack of thick layers of steel) at all times during shipment to the proposed PFSF and will then be surrounded by a robust storage cask (overpack of thick layers of concrete and steel) during storage at the proposed PFSF. The NRC staff further considered the effect of several potential hazards such as military accidents in the vicinity of the proposed site, and credible accidents, such as tornados, wildfires, and earthquakes, on the storage cask and proposed PFSF. The NRC staff also evaluated the ability of the proposed PFSF physical protection plan and safeguard systems to protect against acts of radiological sabotage and to prevent the theft of special nuclear material (10 CFR Part 73).

As discussed in the EIS, the design of the welded canister would prevent the release of its radioactive contents during normal operations and credible accident scenarios at the proposed PFSF. Therefore, there would not be any accumulation or movement of the SNF radioactive contents in the environment that would impact the public. The NRC staff also determined that the health impact from direct radiation to the public would be minimal and a small fraction (less than 2 percent) of the radiation impacts that would be expected from natural background radiation. The NRC staff also determined



that the health impact to workers at the proposed PFSF would be small and below radiation safety limits for workers as required by the NRC (10 CFR Part 20). Finally, the NRC staff determined that the radiological impacts from incident free transportation or potential transportation accidents during transport to the proposed PFSF would be small.

In addition, the applicant showed in its safety review that the estimated radiological doses to workers and general public were within NRC regulatory dose limits. NRC regulations require licensed facilities not to exceed these regulatory limits to assure that there is no undue risk to workers or the general public from ionizing radiation. The NRC staff performed an independent evaluation of the applicant's analyses and found it acceptable as documented in the SER, as updated. In view of the foregoing, the NRC staff concludes that the EIS thoroughly analyzes human health impacts from the risks of construction, operation, and decommissioning of the proposed PFSF.

### **G.3.15.2 Background Radiological Characteristics**

#### **G.3.15.2.1 Comparison of Radiological Impacts to Background Radiation**

##### **Comment Summary:**

Two commenters stated that the evaluation of background radiological characteristics in the DEIS is inadequate. (0039, 0077, 0096) One commenter stated that the DEIS inaccurately assumes that background radiation has the same effects as radioactive isotopes found in SNF. (0096) Another commenter stated that the DEIS needs to reflect the baseline radioactivity tests reported in the SAR. (0039, 0077) Several commenters said that the DEIS oversimplifies radiological exposure by comparing it with medical x-rays and other sources of radiation. (0076, SL2-08, SL3-16, SL3-19)

##### **Response:**

The NRC staff considered specific issues raised by commenters regarding background radiation characteristics and has determined that the EIS adequately addressed this information in Section 3.7. The NRC staff agrees that the types and energies of radiation emitted from SNF, natural sources, and man-made devices may be different. However, the methodology for determining radiation dose values (e.g. mSv or mrem) for individuals accounted for these differences and were independent of the actual source of radiation. In other words, a 1 mrem whole-body radiation dose received from SNF has the same radiological impacts (latent cancer risks) as a 1 mrem whole-body radiation dose received from radon or a medical x-ray. Therefore, the NRC staff concludes that it is valid and appropriate to compare the radiation doses from the proposed PFSF to the radiation doses from natural sources such as environmental radon or man-made devices such as medical x-ray equipment. Accordingly, Table 3.18 in this FEIS provides useful information for comparing the radiation doses from the proposed PFSF to the relative impacts of radiation dose from various natural and man-made sources.

The NRC staff believes that the background gamma radiation measurements and the radionuclide soil measurements obtained by the applicant, and presented in Section 3.7 of the EIS, provided an adequate description of the background radiological characteristics of the proposed site for the purposes of the EIS. The applicant did not provide pre-operational baseline radioactivity tests in the SAR as suggested by the commenter. The applicant stated it would perform additional radiological measurements at the proposed site to establish a pre-operational radiological environmental baseline.

### G.3.15.3 Radiological Impacts

#### G.3.15.3.1 Adequacy of Radiological Impacts Analysis

##### Comment Summary:

A number of commenters expressed concern that the radiological risks and impacts have been inadequately and incompletely analyzed. (0076, 0183, 0198h, 0198i, GR-14, SL1-09, SL1-20, SL1-26, SL1-37, SL2-08, SL2-12, SL2-17, SL3-06, SL3-16, SL3-18, SL3-19, SL3-19, SL3-21, SL3-38) A number of commenters stated that the human health impacts to the general public have been ignored or inadequately analyzed. The commenters expressed concern about the health and safety risks the proposed action would pose to their families, to Utah citizens, and to individuals who live on the transportation corridors. (0001, 0002, 0012, 0041, 0046, 0048, 0067, 0090, 0097, 0189, 0198, 0198h, 0200, 0264, GR-06, GR-23, SL1-01, SL1-17, SL1-21, SL1-39, SL2-13, SL2-15) One commenter stated that scrutinizing safety issues and radiation exposures associated with the proposed action is important to the process. (SL2-04) Commenters identified the following concerns regarding safety:

- Several commenters questioned comments made by proponents and/or said the safety claims made by proponents were not credible. (0076, SL1-09, SL1-20, SL1-26, SL1-37, SL2-17, SL3-06, SL3-16, SL3-19, SL3-21, SL3-38)
- One commenter stated that the ER failed to consider the health and safety risks raised during the decommissioning process. (0198a)
- One commenter said the current radiation risk assessments are inadequate. (SL2-08)
- One commenter said doses to the public under normal operating conditions should be considered. (0189)
- One commenter said an evaluation of the maximum foreseeable release incident or a worst case scenario should be considered. (SL1-21)
- One commenter said the EIS should include quantitative and qualitative (health/ecological) risk assessments (site and operation specific) as part of the license application process. (0198h, 0198i)

##### Response:

The NRC staff determined that the radiological impacts from normal operations would be minimal as discussed in Section 4.7.2 of the EIS and summarized below. Because the welded SNF canisters would remain intact and would not release radioactive contents during normal and off-normal operations, the applicant determined that direct radiation is the only possible radiological dose contributor to the general public. Direct radiation levels will decrease substantially with increasing distance from the PFSF. A conservative estimate showed a maximum radiological dose of approximately 0.06 mSv/yr (6 mrem/yr) to an individual at the site boundary during normal and off-normal operations, which is approximately  $\frac{1}{4}$  of the NRC dose limit of 0.25 mSv/yr (25 mrem/yr). As shown in Table 3.18 of the EIS, this calculated dose would be a small fraction (less than 2 percent) of the typical dose received by the average member of the public from other natural and man-made radiation sources.

In addition, the NRC staff determined that the radiological impacts at the proposed PFSF site from the most severe credible accidents are small, as discussed in Section 4.7.2 of the EIS. The NRC staff had determined from evaluation of the applicant's analyses that the welded SNF canisters would also remain intact and would not release radioactive materials after a credible accident. The applicant's

analyses included an in-depth analysis of potential hazards such as local military activities, and credible accidents such as earthquakes, tornadoes, and wildfires. In addition, the applicant calculated a hypothetical dose assuming a hypothetical canister leak after a credible accident to further demonstrate compliance with the regulatory dose requirements in 10 CFR 72.106(b). The applicant determined the hypothetical dose to an individual member of the public would be less than 1 mSv (100 mrem) at 500 m. This is significantly less than the NRC regulatory dose limit of 50 mSv (5,000 mrem) for credible accidents (approximately 1/50 of the dose limit). The NRC staff performed an independent evaluation of the applicant's analyses and found them acceptable, and the staff's evaluation is documented in the SER, as updated.

As described above, the NRC staff has evaluated normal operation and foreseeable accidents and described the proposed PFSF's anticipated effects on human health in the FEIS. The FEIS describes doses to the public from normal operation. As discussed in the FEIS, the NRC staff has determined that no credible, foreseeable accident at the proposed PFSF would result in the release of radionuclides, with consequent effects on health. The credibility of project proponent's safety claims is irrelevant to the NRC staff's evaluation and conclusions. In addition, the commenters did not identify any particular flaws in the NRC staff's evaluation. The comments on these matters did not warrant any changes to the EIS.

As discussed in Sections 4.7.2 and 4.9 of the EIS, the NRC staff believes that health impacts from decommissioning and off-site shipment of SNF would be similar to the impacts from initial construction and shipment of SNF to the proposed PFSF. The NRC staff does not expect any significant health effects from radiological exposure because the proposed PFSF would be a "start clean, stay clean" facility. This meant that there would be little, if any, contamination to clean-up during decommissioning, and radiation doses would be similar to those during normal operation. The comment on decommissioning does not warrant any change to the EIS. The NRC staff safety evaluation is documented in the SER, as updated.

The comments on the adequacy of radiation risk estimates and the comments about having quantitative and qualitative risk assessments are acknowledged. However, the NRC staff has determined that the EIS contains a conservative assessment of potential radiological doses and risks based on sound scientific principles, and presents these risks in the manner that can be easily compared to other natural and man-made radiological risks in the environment. The NRC has published several useful technical documents that provide a detailed explanation of radiation, and its effects on the human body, and help to show how these risks correlate to radiation dose estimates from the proposed PFSF. These documents include: Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Radiation Exposure," and Regulatory Guide 8.13, "Instruction Concerning Prenatal Radiation Exposure." These documents can be found on the NRC Web Page at <http://www.nrc.gov>. In view of the above, the NRC staff concludes that radiological impacts have been adequately addressed in Section 4.7 of the EIS.

### **G.3.15.3.2 Accumulation of Radioactive Material**

#### **Comment Summary:**

One commenter stated that the EIS should have considered bioaccumulation or biomagnification in the food chain or human body, especially that of children, developing fetuses and breast feeding infants. (SL1-21)

#### **Response:**

As discussed in Sections 4.4.2 and 4.7.2 of the EIS, the proposed PFSF would not release any significant radioactive material into the environment that would result in "bioaccumulation" or "biomagnification" in the food chain or in the human body. In addition, accumulation of radioactive material in the human body through inhalation and ingestion was considered in the development of the

requirements of 10 CFR Part 20 and Part 72, and the establishment of dose limits for radiation workers and for general members of the public including children and fetuses. Furthermore, the estimated dose from a hypothetical release in Section 4.7.2.3 of the EIS considered ingestion through the food chain.

### **G.3.15.3.3 Proposed Yucca Mountain Radiation Standards**

#### **Comment Summary:**

One commenter stated that the NRC must consider the unresolved differences between radiation safety specialists at the NRC and the EPA on appropriate radiation standards for the proposed Yucca Mountain repository, and whether to set standards in terms of dose or risk. (0236)

#### **Response:**

The comment concerning appropriate radiation standards for the proposed repository is beyond the scope of the EIS. As stated in the comment letter from the EPA (0240) in Appendix H, the EPA radiation standards apply only to the proposed Yucca Mountain repository, as directed by Congress. The radiation standards for an ISFSI are specified in 10 CFR Part 20 and Part 72. The NRC staff has concluded that these standards adequately protect public health and safety.

### **G.3.15.3.4 Magnitude of Radiological Impacts**

#### **Comment Summary:**

A number of commenters stated that the radiological impacts of SNF are excessive, dangerous or even lethal. (0004, 0009, 0076, GR-06, GR-09, SL1-09, SL3-06, SL3-16, SL3-18, SL3-36, SL3-40, SL3-43) Commenters stated that:

- Nuclear waste is lethal for thousands of years. (0004, 0009, 0076, SL3-06, SL3-16, SL3-36)
- Cancer rates will increase as a result of exposure to radiation from the SNF. (0004, 0009, SL3-40)
- The facility presents a radiation poisoning danger. (GR-09, SL3-43)
- Other countries have recognized nuclear waste as hazardous. (SL1-09)
- The NRC has no experience with this type of facility because of its unique, large size. (GR-09)

#### **Response:**

The NRC staff has concluded that the SNF storage system to be used at the proposed PFSF can meet all applicable regulations regarding off-site dose limits. The proposed PFSF transfer and storage systems have been designed to maintain exposures ALARA. In addition, its shielding and confinement features have been designed to provide reasonable assurance that radiation doses to workers and the public will be within all applicable regulatory limits. The NRC considered the size of the proposed PFSF in its evaluation. The methods of analysis and regulatory standards used to evaluate the facility were generally independent of the proposed size of the facility. In addition, the radiation dose limits in 10 CFR 72.104 and 72.106 would apply to the proposed PFSF independent of its capacity. The commenters did not provide any new information, facts, or studies that invalidated the evaluation of radiological health impacts considered in the DEIS, or that warranted additional analyses. Accordingly, the NRC staff concludes that the EIS has adequately addressed these issues and radiological health impacts from the proposed PFSF. The NRC safety evaluation is documented in the SER, as updated.

The NRC staff notes that SNF could be dangerous, in an unshielded bare state, without proper shielding and confinement inherent within a SNF storage or transportation cask that has been approved by the NRC. The NRC staff has determined that SNF could be safely shielded and contained by the HI-STORM 100 storage cask system and other facilities that are proposed for use at the proposed PFSF.

### **G.3.15.3.5 Radiological, Chemical, and Heavy Metal Contaminants**

#### **Comment Summary:**

One commenter stated that a leak would pollute the watershed and cause radiation poisoning and death. (SL3-21)

Another commenter expressed concern that the applicant failed to identify all effluent sources and potential contaminants and contaminant pathways that may have subsequent impacts to surface water and groundwater. The commenter stated the proposed PFSF as designed, the proposed ITF, and transportation of SNF present the potential for a number of contaminant sources. The commenter was concerned that construction and operation of the ISFSI will generate an effluent with radioactive, chemical, and heavy metal contaminants that may be transferred to the groundwater. The commenter indicated the applicant must identify the actual contaminant sources, the potential for surface and groundwater contamination, and the impact of any contamination on downgradient resources, in order to satisfy 10 CFR 72.100(b). (0198a)

The commenter stated that the SAR is required to describe the ability of the surface water and groundwater environment “to disperse dilute or concentrate, normal and inadvertent releases of radioactive effluents for the full range of anticipated operating conditions” and to identify contaminant pathways according to NUREG-1567, *Standard Review Plan for Spent Fuel Dry Storage Facilities*. Furthermore, the commenter stated that the applicant is required to review “the transport characteristic of aquifers which are subject to radionuclide contamination, and an adequate description of the contaminant pathways” and ensure that “potential future groundwater uses are conservatively estimated.” (0198a)

Regarding operations, the commenter stated that routine maintenance of diesel generators, facility vehicles, and equipment such as the tractor and overhead cranes, will generate various solvents and other organic contaminants. Also, the commenter stated that washing or rinsing heavy haul trucks and other vehicles will generate an effluent that may be contaminated with radioactive, heavy metal, or organic contaminants both on site and at Rowley Junction. Further, the commenter stated that precipitation may wash off contaminants from vehicles or cask surfaces and that laboratory operations may generate a variety of radiological, heavy metal, or chemical contaminants. (0198a)

The commenter also expressed concern that construction of the proposed PFSF and the access road, as well as the widening of Skull Valley Road or building a rail spur would generate a number of radiological, chemical, or heavy metal contaminant sources from the heavy machinery, vehicles, construction materials and chemicals, including fuel, solvents, asphalt, etc., that will be used during construction. These activities, according to the commenter, would create the potential for these contaminants to be released to groundwater and surface water via drainage ditches, culverts and through seepage. As an example, the commenter stated that culverts would be located through the applicant’s access road off Skull Valley Road and the access road embankment “to carry the occasional runoff.” (0198a)

#### **Response:**

The NRC staff determined that the radiological impacts from normal operations and credible accidents are small as discussed in Section 4.7.2 of the DEIS. In making this determination, the NRC staff considered potential ionizing radiation impacts (radiological dose) from ingestion or inhalation of

potential radioactive materials released from the proposed PFSF and transported through the environment. The DEIS showed that the design of the welded canister used by the proposed PFSF prevents the release of radioactive contents to the environment and therefore prevents contamination of air or water in the environment during normal operations and credible accident scenarios. Therefore, there would not be any accumulation or movement of radioactive material in the environment from operation of the proposed PFSF. Hence, the DEIS did not explicitly address potential contaminant pathways in groundwater or surface water.

Activities at the proposed site or proposed ITF were not expected to result in contamination of groundwater from heavy metals or organic contaminants. In addition, the proposed PFSF will have a surface water detention basin to contain run-off during operation. Control of water run-off is discussed in Section 4.2 of the DEIS. The environmental impacts to groundwater from potential radiological and chemical contaminants generated during construction and operation of the proposed PFSF are discussed in Sections 4.2, 5.2, and 6.3.2 of the EIS.

#### **G.3.15.3.6 Owner Controlled Area Boundary Dose Rates**

##### **Comment Summary:**

One commenter expressed concern that the applicant had not adequately described why the owner controlled area (OCA) boundary was chosen and whether boundary dose rates will be the ultimate minimum values compared to other potential boundaries. (0198a)

##### **Response:**

NRC regulations for ISFSIs do not specify boundary selections to minimize radiation exposure, except for specifying in 10 CFR 72.106 that the boundary must be at least 100 meters from the SNF handling and storage facilities. The applicant selected and proposed a boundary that exceeded this distance. The NRC staff evaluated the potential radiation exposure at the proposed boundary and determined it would meet all regulatory requirements. A comparison of the applicant-chosen OCA boundary to some other hypothetical boundary is not required.

#### **G.3.15.3.7 Testing of Rain and Snow Melt**

##### **Comment Summary:**

One commenter stated that the applicant failed to indicate whether rain water or melted snow from the proposed PFSF storage pads would be collected and analyzed prior to disposal and whether it would be handled as radioactive contaminated waste. (0198a)

##### **Response:**

The NRC would not require the applicant to monitor for directly discharged radioactive effluents to the environment since the proposed PFSF is designed not to release its SNF contents. However, any water from rain storms or snow melt which runs off from the storage pads of the proposed PFSF will be collected in a detention basin. As stated in Section 4.2.2.4 of the EIS, the applicant would further sample and analyze free-standing water in the basin to determine if radiological contaminants are present.

#### **G.3.15.3.8 Compliance with NRC Radiation Exposure Limits**

##### **Comment Summary:**

One commenter stated that the applicant failed to include an analysis of accident conditions, including accidents due to natural phenomena, in accordance with 10 CFR 72.104 and 72.126(d). (0198b) The

same commenter stated that 10 CFR 72.126(d) requires that “[a]nalyzes must be made to show that releases to the general environment during normal operations and anticipated occurrences will be within the exposure limit given in 10 CFR 72.104. Analyses of design basis accidents must be made to show that releases to the general environment will be within the exposure limits given in 10 CFR 72.106.” The commenter asserted that the applicant has completely failed to include an analysis of accident conditions including accidents due to natural phenomena. (0198a)

The commenter stated that the applicant has failed to demonstrate reasonable assurance that the dose limits specified in 10 CFR 72.106(b) can and will be complied with, and quoted the requirements of that regulation and applicable guidance in NUREG-1567, *Standard Review Plan for Spent Fuel Dry Storage*, (October 1996), at 12-3, which defines a design-basis accident as “the subset of all credible accidents that bound the entire spectrum of accidents that could occur in terms of the nature and consequences of accidents.” (0198a)

The commenter also asserted that the applicant did not provide enough information to meet NRC requirements controlling and limiting the occupational radiation exposures to as ALARA and analyzing the potential dose equivalent to an individual outside of the controlled area from accidents or natural phenomena events. The commenter also asserted that the applicant failed to address several specific safety issues involving the applicant’s radiation protection program. The commenter stated that the applicant has not complied with 10 CFR 72.24(e) and (m); NUREG-1567, *Standard Review Plan for Spent Fuel Dry Storage Facilities (Draft)*, U.S. NRC (October 1996) Section 9; NRC Reg. Guide 3.62, *Standard Format and Content for the Safety Analysis Report for Onsite Storage of Spent Fuel Storage Casks*, Section 9; NRC Reg. Guide 8.8, *Information Relevant to Ensuring the Occupational Radiation Exposures at Nuclear Power Stations will be As Low As Reasonably Achievable*, U.S. NRC, Revision 3 (June 1978); and NRC Reg. Guide 8.10, *Operating Philosophy for Maintaining Occupational Radiation Exposures As Low as is Reasonably Achievable*, U.S. NRC, Revision 1-R (May 1977). (0198a, 0198b)

#### **Response:**

The issues identified in the comments are not directly related to the environmental review and the EIS, but are instead related to the NRC staff’s safety evaluation. Therefore, the NRC staff considers these issues to be beyond the scope of the EIS. The NRC staff notes that the applicant addressed the effects of normal operation on dose to the public and also the effects of credible accidents in the SAR, in accordance with NUREG-1567, *Standard Review Plan for Spent Fuel Dry Storage Facilities*. The accident conditions analyzed in the SAR included the types identified by the commenter (e.g., earthquakes, tornadoes, floods, explosions, fires, and cask tipover). The NRC staff determined that the applicant’s evaluation of the radiological impacts of normal operations reflected that the operations would not exceed the dose limits in 10 CFR 72.104 as discussed in Chapter 11 of the SER, as updated. The NRC staff also determined the applicant’s description of the quality assurance program, radiation protection program, and ALARA program is acceptable as discussed in Chapters 11 and 12 of the SER. The NRC staff evaluated the applicant’s analysis and determined that credible accidents would not result in the release of radioactive contents as discussed in Chapter 15 of the SER, as updated. Therefore, the accident exposure limits in 10 CFR 72.106 would not be exceeded.

#### **G.3.15.3.9 Airborne Radioactive Effluents**

##### **Comment Summary:**

One commenter stated that the applicant failed to adequately discuss control of airborne effluents which may cause unacceptable exposures to workers and the public. (0198a, 0198b) One commenter expressed concern about living downwind of the facility and being exposed to radioactive releases. (0001)

**Response:**

Section 4.7.2.1 of the DEIS indicated that there will be no off-site, airborne radiological effluents from the proposed PFSF under normal operating conditions. Therefore, there should not be any exposure to the public from airborne radiological effluents under normal operating conditions. Direct radiation from the casks would be the only source of radiation to members of the public. As indicated in Section 4.7.2.3 of the EIS, no credible accident scenarios would result in the release of radioactive contents, including off-site, airborne radioactive effluents. Workers could hypothetically be exposed to localized airborne radioactive contamination at the proposed PFSF as a result of normal handling of the SNF canisters. However, they would be monitored under a radiological protection program and their exposure would be maintained ALARA.

**G.3.15.3.10 Safety and Viability of SNF Storage****Comment Summary:**

One commenter stated that there needs to be more research into making SNF safe before nuclear energy is a viable choice. The commenter cited a National Academy of Science (NAS) report commissioned by the DOE that said, according to the commenter, that engineered barriers such as concrete and steel would eventually fail and that much of the information known about the behavior of contaminants in air, soil, and water might eventually be proven wrong. The commenter said that nuclear energy is in its infancy and we don't know what it is going to do. (SL3-18)

Another commenter stated that the proposed action is an engineering experiment based only on theory and no actual data. The commenter compared it to the atomic testing of the 1950's and believed it was unwise to rely upon theory that may prove to be unreliable, if not deadly. (0144)

**Response:**

The NRC staff disagrees with the comment that the proposed PFSF is an engineering experiment. Dry storage technology has been used for several years and has an excellent safety record. Currently, there are more than 200 dry storage casks that have been loaded by nuclear power reactor licensees in the U.S.

The NRC staff notes that the NAS report cited by one commenter was written for the DOE's geologic repository program where SNF and high-level waste would be permanently emplaced underground for disposal. The discussion in the NAS report of the failure of concrete and steel barriers refers to deep geologic disposal time periods of up to 10,000 years, far greater than the 20-year license term of the proposed PFSF, which is an above-ground temporary facility. Therefore, the NAS report does not apply to the proposed PFSF.

**G.3.15.4 Impacts to Workers****G.3.15.4.1 Magnitude of Impacts to Workers****Comment Summary:**

One commenter stated that the proposed action poses moderate health impacts to workers. The commenter added that workers at the proposed PFSF must risk their health in order to be employed. (0050)

One commenter stated that the applicant's failure to provide adequate means for inspecting and repairing the contents of SNF canisters, or detecting and removing contamination on the canisters would result in increased risks to workers. Workers would be required to handle and inspect casks



with contamination or defective contents during receipt of casks, storage of casks, or in preparing the casks for shipment to a permanent repository. (0198a)

**Response:**

The NRC staff acknowledges the concerns in comments regarding the handling of damaged or contaminated canisters. The FEIS states that if contaminated canisters (i.e., unacceptable removable surface contamination) are found during the receipt inspection at the proposed PFSF, then the canister would be repackaged into its shipping cask and returned to the originating reactor. The shipping cask was designed to contain any such surface contamination. The return shipment would not place workers at risk from any significant occupational exposure to the contaminated canister. Section 2.1.2.1 of the FEIS has been revised to better explain the terminology concerning repackaging and return of casks and the resulting consequences. However, handling and repairing of the SNF contents are not necessary to return a contaminated canister. The proposed PFSF is not designed to perform these operations and the applicant would not be licensed or authorized by the NRC to perform such operations during storage operations at the proposed PFSF. The SNF will be sealed (welded-closed) at the originating nuclear power plant prior to shipment to the proposed PFSF. The applicant would be limited to handling the canisters which contain the SNF contents. Accordingly, the impacts suggested by the commenter are beyond the scope of the EIS.

The NRC staff acknowledges the comment regarding risks to workers. However, an occupation that involves radiation exposure contains a health risk based on the expected exposure level. The Commission has determined that there will not be any undue risk to the safety of the workers at a licensed facility if individual dose limits in 10 CFR Part 20 are not exceeded. These radiation exposure limits for workers were based, in part, on providing no greater occupational risk to health than other typical occupations. Doses to workers, although generally higher than those received by the general public, would be administratively controlled by the applicant to levels at or below NRC's regulatory limits. The applicant will be required to ensure that worker doses do not exceed NRC radiological dose limits specified in 10 CFR Part 20 (e.g. 5 rem/year for an individual worker). As part of typical radiation worker training and in conjunction with the proposed PFSF radiation protection program, each radiation worker would be informed of potential radiation risks from possible radiation exposures as part of his or her job.

The NRC staff also notes that radiological doses to the workers at the proposed PFSF would be monitored on a continual basis during operation of the proposed PFSF in order to verify that NRC regulatory dose limits are not exceeded. The applicant would also have to implement a radiological protection program during operations that assures, in part, individual doses are ALARA. The applicant may meet these regulatory objectives by several methods such as providing additional shielding for specific tasks, managing the number of personnel and exposure times for various tasks, and training workers to maintain their doses ALARA. Radiation dose rates in some work areas would be actively monitored with electronic measuring equipment and individual doses to workers would also be monitored both actively and passively while performing radiological tasks at the proposed PFSF. These actual measurements of worker doses will provide positive assurance that individual regulatory dose limits are not exceeded. The NRC staff will also implement appropriate inspection procedures for the proposed PFSF, if licensed, and verify that operations are performed in accordance with NRC regulations and license conditions.

**G.3.15.4.2 Conclusions Regarding the Proposed ITF and High Doses to Workers**

**Comment Summary:**

Several commenters provided the following comments regarding doses to workers and the use of ALARA for the proposed PFSF and ITF:

- One commenter indicated that the discussion of radiological impacts to workers contradicted the discussion dismissing the proposed ITF alternative from detailed evaluation. The commenter stated that phrases such as “within acceptable levels” and “minimal radiological impacts” in discussing the proposed action implied that any dose is inconsequential. The commenter stated that the DEIS, however, stated that alternative three was not considered because of “additional doses that would be incurred by workers making the transfer.” (SL3-46)
- One commenter stated that the assumption on page xxxviii of the DEIS that doses received by workers under the proposed ITF option would exceed the 5 rem occupational exposure limit in 10 CFR Part 20 is inappropriate. The commenter stated that the proposed PFSF must comply with NRC regulations and that it was inappropriate to make an assumption that any of the alternatives would result in workers exceeding exposure limits. The commenter added that the FEIS should assume that proposed operations will be conducted in full compliance with NRC regulations, and a more appropriate consideration of worker doses would change NRC’s determination of the significance of the potential impact from “small to moderate” to “small.” (0179)
- One commenter stated that Tables ES.2 and 9.1 of the DEIS indicated doses to workers are small although the estimated doses are at 90 percent of the NRC regulatory limit of 5 rem/yr. The commenter indicated the doses appeared to be excessive when compared to occupational doses for workers at the proposed Yucca Mountain repository which would handle, maintain, and monitor SNF received in transportation casks in a manner nearly identical to the work at the proposed PFSF. The commenter stated that the DEIS for the proposed Yucca Mountain Repository reports that worker doses would average less than 1 rem/yr. The commenter also stated that it was not readily apparent from the tables and the discussion in Section 4.7.2.2 of the DEIS the extent to which ALARA principles had been considered in minimizing the estimated occupational doses. The commenter stated the FEIS should evaluate the application of ALARA principles towards maintaining worker doses as far below the applicable limits as possible. (0240)
- One commenter stated that a worker dose of 4.45 rem/yr seemed high and a dose of 5.3 rem/yr [ITF option] in Table ES.2 of the DEIS is above the NRC legal limit. The commenter asked whether doses would be limited to levels significantly less than 5 rem/yr by the application of ALARA principles or facility administrative limits. (0169)

**Response:**

The DEIS did not imply that doses for the proposed PFSF were “inconsequential,” but rather showed that the radiological health impacts were small or minimal. The NRC staff determined that, as set forth in the EIS, estimated worker doses and associated latent cancer fatalities are a small health impact if they are below the NRC dose limit of 5 rem/yr, or  $2 \times 10^{-3}$  LCF/yr. The Commission has previously determined that doses and associated health risks at or below 5 rem/yr would not result in undue risk to nuclear workers. The DEIS concluded that additional radiological health impacts from transfer operations would be eliminated if the proposed ITF alternative were not implemented. As discussed in Section 6.1.7.3 of the EIS, the calculated ITF dose estimates that exceeded 5 rem/yr were based on information provided by the applicant and the premise that the workers at the proposed PFSF facility would also be performing transfer operations at the proposed ITF. Therefore, the combined doses for these workers under this alternative were calculated to exceed 5 rem/yr for the purposes of the EIS analyses. Therefore, these potential impacts would be small to moderate. As further discussed below, the applicant would need to take some action either through their ALARA program or by employing additional workers to assure regulatory limits and ALARA objectives are satisfied, if it intends to use the proposed ITF.

The NRC staff agrees with the commenters that NRC regulations in 10 CFR Part 20 do not allow the dose to any worker to exceed 5 rem/yr. As discussed below, the NRC staff agrees that individual worker doses could be maintained within this limit at the proposed PFSF. The NRC staff notes (see Section 6.1.7.3 in this FEIS) that the collective dose for the ITF transfer and PFSF storage of

200 canisters per year would be 0.802 person-Sv/yr (80.2 person-rem/yr). Because the applicant has indicated that the workers conducting the cask transfer operations at the ITF would also perform Category 1 and/or Category 2 duties (as described in Section 4.7.2.2 in this FEIS) at the proposed PFSF, approximately 12 to 15 workers might share this dose. Therefore, the average dose for each worker was calculated to exceed the regulatory limit of 0.05 Sv/yr (5 rem/yr).

As suggested by several commenters, NRC regulations also require worker dose to be maintained ALARA. As discussed in Section 4.7.4 of this FEIS, the occupational doses to workers could be mitigated and maintained ALARA by means of active programs that involve administrative controls, engineering controls, measurements, and training. The NRC staff notes that its safety review found that the proposed PFSF design satisfies ALARA objectives and that there is reasonable assurance that the radiation protection program proposed by the applicant can maintain radiation exposures ALARA. The NRC staff review of the proposed PFSF radiation shielding design and radiation protection programs were documented in Chapters 7 and 11 of the SER.

If licensed, the applicant could meet ALARA objectives by several methods such as providing additional shielding during specific tasks, managing the number of personnel and exposure times for various tasks, and providing worker training to maintain doses ALARA. Radiation fields in some areas would be actively monitored with electronic measuring equipment and individual doses to workers would be monitored with active electronic devices and passive TLDs. The continual monitoring of workers would assure that NRC dose limits are satisfied and allow for implementation of individual corrective actions to mitigate worker exposures during operations, as necessary.

Furthermore, the NRC staff notes that ALARA objectives would be a “continuous” requirement during actual operations at the proposed PFSF. Workers could likely receive doses well below the upper values presented in the EIS based on the proposed ALARA program and successful implementation by the applicant. The applicant would have radiation protection personnel who would draw upon several years of experience with meeting similar ALARA requirements at the nuclear power plants owned by the PFS- member companies and other companies. The NRC staff will also implement appropriate inspection procedures for the PFSF, if licensed, and verify that the applicant is in compliance with NRC dose limits and ALARA requirements.

The NRC staff acknowledges the comment that compared calculated doses for the proposed PFSF workers to doses calculated in DOE’s DEIS for the proposed Yucca Mountain repository. The NRC staff did not compare dose estimates between the two facilities to determine if the proposed PFSF would meet regulatory dose requirements and ALARA objectives, and such an evaluation is not necessary for this safety issue. Nonetheless, differences in dose estimates could potentially be attributed to several possible factors such as differences in the assumed SNF characteristics, differences in the assumed design and purpose of both facilities, and/or differences in the assumed number of workers at both facilities. Therefore, any differences in estimated doses would not change the conclusion that radiological impacts to the workers for the proposed PFSF would be small.

### **G.3.15.5 Impacts to Members of the General Public**

#### **G.3.15.5.1 Magnitude of Impacts to the General Public**

##### **Comment Summary:**

Several commenters stated that the radiological impacts to the environment and human health are considerable and too great to proceed with the proposed action. (0001, 0002, 0012, 0027, 0044, 0063, 0144, GR-06, GR-23, SL1-01, SL1-17) Several commenters stated that the human health impacts would be excessive and unacceptable. (0001, 0010, SL1-20, SL3-04, SL3-55, SL3-31)

One commenter stated that high safety standards will not be maintained at the facility. (SL2-15)

Several commenters stated that cancer deaths and other serious illnesses have occurred due to atomic testing in Nevada and the proposed action would have similar consequences. (0027, 0044, 0063, 0144)

Three commenters stated that people were told there was no danger from nuclear testing in the past, but are now suffering from health impacts associated with that testing. (SL2-17, SL3-06, SL3-16) Another commenter recalled similar safety assurances regarding uranium mining. (SL3-38)

One commenter stated that there is conflicting information about the safety of SNF so why take a chance when the impacts could be catastrophic. (SL3-31)

One commenter expressed concern about risks to citizens based on the conclusions in the Utah Department of Environmental Quality review of the DEIS. (0041, 0046)

One commenter noted that the stated impact is vastly underestimated and that the description of “influence zones” in the license application is misleading. The commenter stated that the original application did not mention that the influence zone actually contains one of the most urbanized areas in the country (top third or fifth) – the Wasatch Front. The commenter added that there was no discussion of factors or conditions such as “wind travel/wind speed” to show how quickly materials could be broadcast by frequent winds from the north-west, west and south-west. (0198h)

**Response:**

The NRC staff acknowledges the comments regarding the safety and environmental impacts of the proposed PFSF. The NRC staff determined that there is reasonable assurance that operation of the proposed PFSF, constructed in accordance with the design set forth in the application, will provide adequate protection of the public health and safety. Specifically, the proposed PFSF will have met applicable NRC licensing requirements, and operation of the proposed PFSF would be subject to NRC inspections and reviews of operating procedures, and required reports. Thus, the NRC would continue to review compliance with applicable NRC requirements, should the NRC grant a license and the PFSF be constructed and operated. As explained below, the NRC staff considered specific issues raised by commenters and concluded that Section 4.7 of the DEIS has adequately addressed these issues and the general public radiological health impacts from the proposed PFSF.

The NRC staff determined that the radiological impacts from normal operations and credible accidents would be small as discussed in Section 4.7.2 of the EIS. In the EIS, the NRC staff considered potential ionizing radiation impacts (radiological dose) from ingestion or inhalation of radioactive materials that might be released from the proposed PFSF and/or exposure to direct radiation that would be emitted from the proposed PFSF. The EIS showed that the welded canister design used by the proposed PFSF prevents the release of radioactive contents to the environment and therefore prevents contamination of air or water in the environment during normal operations and credible accident scenarios. Therefore, there would not be an accumulation or movement of radioactive material in the environment from operation of the proposed PFSF. The applicant also showed that estimated radiological doses to workers and the general public were within NRC regulatory dose limits. NRC regulations require that licensed facilities do not exceed these regulatory dose limits to assure that there are no undue risks to workers or the general public from ionizing radiation. These dose limits are based on sound scientific principles and are conservative to account for age and gender. NRC staff performed an independent evaluation of the applicant’s analyses and documented its findings in Chapter 7 of the SER, as updated. If licensed, the applicant would be required to meet these safety standards during the lifetime of the proposed PFSF. The NRC would also inspect the proposed PFSF to verify safety standards are met.

The NRC staff acknowledges concerns and opinions regarding past nuclear testing in Nevada and uranium mining. However, specific concerns regarding environmental impacts of past nuclear testing and uranium mining are unrelated to the requested action and are beyond the scope of this EIS.

Radiological releases associated with past nuclear testing and uranium mining are vastly different than the storage of SNF at the proposed PFSF. The welded canister design used by the proposed PFSF would prevent the release of radioactive contents to the environment, and therefore prevent contamination of air or water in the environment during normal operations and credible accident scenarios. Because the proposed PFSF would not release any radioactive contents to the environment during normal operations or accidents and the facility's design would reduce direct radiation to minimal levels, there are no cumulative radiation impacts associated with the proposed action and uranium mining.

The NRC staff acknowledges the comment regarding the risks to citizens based on Utah Department of Environmental Quality comments on the DEIS. The NRC staff considered risk to all citizens from potential impacts of the requested action and found that the proposed PFSF poses a low risk. The NRC staff considered the comments and specific issues submitted to the NRC by Utah, including the Utah Department of Environmental Quality. The comments made by the Utah Department of Environmental Quality are addressed throughout Appendix G.

The comments regarding "influence zones" referred to information in the applicant's ER. The DEIS addressed the issues mentioned in the comment. The commenter hypothesized the accidental release of radioactive materials with a wide-scale dispersion of those materials, and claimed that an inadequate "influence zone" has been used to characterize the impacts from such an accident. The NRC reviewed such potential events in the SER, as updated, and found that the large-scale dispersion of radioactive materials (from an accident) is not a credible event. Therefore, no change to the FEIS is required with respect to influence zones.

### **G.3.15.5.2 Radiological Impacts to Children and Other Special Populations**

#### **Comment Summary:**

Several commenters stated concerns about and provided information regarding radiological standards for children and radiological impacts to children. Specifically, commenters stated the following concerns:

- One commenter stated that children are more vulnerable to radiation than adults because of their higher surface-area-to-volume of organs ratio. The commenter stated other contributing factors including the fact that children have higher soil ingestion rates. The commenter added that in the opinion of the State of Utah's expert, Dr. Marvin Resnikoff, because of these distinctions, the dose to children from the proposed PFSF is likely to be significantly higher than the dose to an adult. The commenter stated that in order to satisfy the dose regulation, it is necessary to determine whether the dose limits are satisfied for children. In addition, the commenter stated that the risk to children is greater. According to the commenter, children also have a greater chance of developing cancer than adults, because they live longer than adults (and therefore have a greater chance to develop cancer). (0198)
- One commenter stated that pages 4-42 through 4-45, Section 4.7.2.1, "Estimated Dose to the General Public," of the DEIS have several fallacies and ignore a large portion of the general public. Specifically, the commenter expressed concern that the maximally exposed individual is typically a "white male approximately six feet and approximately 155 to 170 pounds, for 70 years." The commenter asserted that the analysis ignores breast feeding infants, a developing fetus, females, ethnic people and children. (0096)
- One commenter stated that the analysis of latent cancer fatality is inadequate because it only assesses latency for an adult male. The commenter asserted that information from the BEIR V report by the NAS shows latent cancer fatalities are higher among children and females. The commenter also stated that children have actively growing cells, and children live more years than adults and, therefore, there is more time for the cancer to develop. The commenter added that

information should be provided to indicate that radiation exposure at an earlier age is more likely to lead to cancer fatality. (0096)

- A few commenters stated that an analysis of health and safety risks to children and developing fetuses is required by Executive Order 13045 and is not included in the DEIS. (0096, 0200, GR-22, SL1-21, SL2-12) One commenter requested this analysis as the majority of the members of the Skull Valley Band are under the age of 18. (0096) The commenter also stated it is not clear if the standards (10 CFR Part 20) cited in the Transportation Options section (page xxxviii, Executive Summary, lines 26-31) give children's health and safety the highest priority, as required by Executive Order 13045. (0096, SL1-21)
- One commenter also stated that ICRP-60, "1990 Recommendations of the International Commission of Radiological Protection," (1991) is more accurate for human radiation doses, particularly inhalation doses from a refined lung model, than ICRP-30, "Limits for Intakes of Radionuclides by Workers," (July 1978) and correctly calculates the dose to children, which ICRP-30 does not do at all. (0198b)

**Response:**

The NRC staff considered radiation exposure at the boundary of the proposed PFSF to be the only linkage between the proposed action and potential health impacts to children. The Executive Summary of the DEIS discussed why occupational exposure standards are not relevant to radiation exposure at the facility boundary. A conservative estimate showed a maximum radiation dose of approximately 0.06 mSv/yr (6 mrem/yr) to an individual at the site boundary, which is approximately two percent of the natural background radiation dose in the United States of 3 mSv/yr (300 mrem per year) (see Section 4.7.2.1). At the location of the Reservation resident nearest to the proposed PFSF, this dose would diminish to about 0.01 percent of the natural background radiation dose in the United States. The impacts from these doses would be small in comparison to the everyday dose impacts from natural background radiation present in the environment; hence, there should be no discernible health impact to children or adults on the Reservation as the result of any radiation exposure from the proposed action.

The purpose of controlling dose to the public is to limit the lifetime risk from radiation to any member of the general public. Variation of the sensitivity to radiation with age and gender is considered in NRC standards, which are based on a lifetime exposure that includes all stages of life, from birth to old age. The unrestricted annual dose limit of 0.25 mSv (25 mrem) specified in 10 CFR 72.104(a) is considered to pose a small health risk to all individuals and is consistent with EPA standards and is protective of all individuals as discussed above.

The NRC has endorsed ICRP-26 and ICRP-30 recommendations and incorporated its guidance into radiation dose standards in 10 CFR Part 20 and Part 72, and continues to believe these standards are inherently protective of all individuals. The NRC has not incorporated newer ICRP-60 recommendations into its radiation standards. Any future changes to the dose standards would be the subject of a future rulemaking proceeding. However, as discussed in Sections 3.7 and 4.7 of the EIS, the estimated human health impacts from radiation were based on the ICRP-60 latent cancer fatality risk value of  $5 \times 10^{-4}$  LCF/rem, which considers radiation effects on younger age groups.

The purpose of Executive Order 13045 is to require Federal agencies "to identify and assess environmental health risks and safety risks that may disproportionately affect children" in rulemaking activities. The proposed action is not a rulemaking activity and therefore the Executive Order does not apply directly to the proposed action. Nevertheless, the NRC staff concluded that the proposed action would not result in any environmental health risks or safety risks that would disproportionately affect children, as discussed above, and a change to the EIS is not warranted.

### G.3.15.5.3 Psychological and Human Health Impacts

#### Comment Summary:

Several commenters provided specific concerns regarding psychological and associated health impacts. Specifically, commenters stated the following concerns:

- One commenter stated that an accident would affect the health of hundreds of Utah citizens from associated psychological fears. (0013)
- One commenter stated that the physical stress from an accident or fear of an accident could lead to non-cancer health problems including chronic bronchitis, digestive system problems, hypertension, and compromised immune systems. (SL1-27)
- One commenter stated that fears related to the proposed action are not unrealistic as claimed by proponents. (GR-06)
- One commenter stated that the proposed action may result in psychological harm to the Skull Valley Band. (SL2-06-2)
- One commenter stated that the negative risks and perceptions would affect Salt Lake City. (SL1-05)
- One commenter stated that the proposed action would result in a loss of peace of mind of Utahns. (0197)
- One commenter stated that the health risks associated with the proposed PFSF will negatively affect the emotional safety and quality of life for Utah citizens. (0013)
- One commenter stated that Utah children will fear nuclear waste related accidents. (SL3-43)
- One commenter asserted that the fear of an accident at the proposed PFSF will cause stress and physical harm to children and adults in the area that far outweigh any direct physical harm from the proposed PFSF. The commenter stated that according to Ukrainian investigators, stress and emotional trauma on children from the Chernobyl disaster is of more concern than cancer or chromosome damage. The commenter further stated that stress combined with radiation phobia has led to real diseases, including chronic bronchitis, digestive system problems, and hypertension, and may have compromised immune systems. The commenter also said that any Chernobyl cleanup liquidators received little radiation but presumed they were affected, with the resulting stress leading to increased suicides and alcohol abuse. The commenter added that these effects and the decrease in quality of life are significant costs not captured in the DEIS. (0013, SL1-27)

#### Response:

The NRC staff acknowledges that many concerned members of the public may have various degrees of fear about the perceived danger of accidents at the proposed PFSF. However, the Supreme Court has held that “*risk* of an accident is not an effect on the physical environment.” Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 775 (1983) (*PANE*) (emphasis in original). The risk and perception of that risk are necessary links in the causal chain from the facility to psychological health damage, including anxiety, tension, and fear, a sense of helplessness, and accompanying physical disorders (see *id.* at 774-75). According to the Supreme Court’s decision in *PANE*, the element of risk lengthens the causal chain beyond the reach of NEPA. Therefore, the psychological and physical health impacts from perceived risks are beyond the scope of the EIS. Based on this determination, the NRC staff did not evaluate the potential impacts from fears, stress, or perceptions.

Based on its evaluation of the environmental impacts of the proposed PFSF, the NRC staff has concluded that the risk from radiation exposure during normal operations or accidents is small.

#### **G.3.15.5.4 Radiological Impacts Other than Latent Cancer Fatalities**

##### **Comment Summary:**

Several commenters stated or implied concerns regarding radiological impacts other than latent cancer fatalities. (0096, 0183, 0257, GR-06, GR-14, SL2-12) One commenter stated that nuclear waste might cause thyroid cancer, weaken immune systems, and affect Skull Valley Band members with diabetes. (GR-06) One commenter stated that the DEIS should include the full health impacts from an accident, including latent cancer fatalities, nonfatal cancers, birth defects, genetic damage, lowered immunity, and other diseases. (0257-6) Other commenters stated that the DEIS failed to consider nonfatal cancer and radiological health impacts besides cancer, including birth defects, immune function damage, genetic damage and developmental disorders, and any other disease or malady currently known to be caused by radiation exposure. (0096, 0183, GR-14, SL2-12)

##### **Response:**

As discussed in response to G.3.15.1, the NRC staff considered potential human health impacts of ionizing radiation (e.g. radiation dose and latent cancer fatalities) from the proposed PFSF received by the public from possible ingestion or inhalation of radioactive materials and from possible exposure to radiation (e.g. gamma rays and neutrons) that would be directly emitted from the SNF. The NRC staff also considered the radiological impacts from incident free (routine) SNF shipment and from potential transportation accidents involving SNF, as discussed in Section 5.7.2 of this FEIS. The NRC staff has determined that the health impact from direct radiation to the public would be minimal and a small fraction (less than 2 percent) of the radiation impacts that would be expected from natural background radiation. In addition, the applicant showed in its safety analysis that the estimated radiological doses to workers and general public would be within NRC regulatory dose limits. According to NRC regulations, licensed facilities must not exceed regulatory limits to ensure that there is no undue risk to workers or the general public from ionizing radiation. The NRC staff performed an independent evaluation of the applicant's analyses and found it acceptable as documented in the SER, as updated.

The use of radiation dose values and correlated latent cancer fatalities to evaluate human health impacts is discussed in Sections 3.7 and 4.7.2 of this FEIS. The risk of latent cancer fatalities to any given individual, based on conservative assumptions, is very low and would likely not be distinguishable among normal cancer rates in the population. Latent cancer fatalities were the predominant health risk considered in the EIS, and were the predominant risk considered by the NRC to establish the regulatory dose limits in 10 CFR Part 20.

The NRC staff also considered the specific risk of thyroid cancer in the safety review because there are separate regulatory limits in 10 CFR 72.104 for radiation doses to the thyroid. The NRC staff determined that the proposed PFSF poses no undue risk to human health from any specific exposures to the thyroid. In addition, radiological effects on the thyroid are typically associated with the ingestion or inhalation of radioactive iodine. As discussed in the EIS, the proposed PFSF would not release any significant amount of radioactive materials to the environment. Therefore, the surrounding population would not likely ingest or inhale any radioactive iodine from the proposed PFSF.

There likely would not be any discernible non-cancer health impacts as suggested by the commenters, because the estimated exposure to the public is very low, and below regulatory dose limits. These dose limits in 10 CFR Part 20 are protective of all individuals and also consider the possibility of severe hereditary defects along with latent cancer fatalities. Radiation-induced health impacts such as birth defects, genetic damage (other than induced cancer), immune function damage, and other possible diseases have typically been detected and associated with extremely high levels of acute radiation exposure (such as from an atomic bomb blast) that were several orders of magnitude greater



than estimated public exposures from the proposed PFSF. The NRC staff also determined that it would be difficult to find a discernible risk of diabetes or some other compounding effect on diabetes to Skull Valley Band members, if any, from the very low exposures estimated for the proposed PFSF. Diabetes is a disease of complex etiology that could be caused and compounded by several environmental or lifestyle factors.

### **G.3.15.6 Impacts from Off-Normal Operations or Accidents**

#### **G.3.15.6.1 Adequacy of Accident Scenarios Analysis**

##### **Accidents and Off-Normal Operations - General**

###### **Comment Summary:**

Many commenters asserted that the DEIS does not address the costs or health impacts of accidents adequately, in part because the DEIS considers far too few off-normal operations and accident scenarios. (0012, 0015, 0023, 0042, 0058, 0084, 0127, 0135, 0136, 0171, 0183, 0185, 0189, 0194, 0195, 0198, 0198g, 0198h, 0198i, 0204, 0204b, 0217, 0240, 0246, 0257, 0260, GR-13, GR-16, SL1-01, SL1-07, SL1-05, SL1-32, SL1-39, SL2-05, SL2-20, SL3-04, SL3-18)

Several commenters expressed concern with the probabilities, impacts, and consequences of various accident scenarios. Some commenters stated that accidents could result in release of radioactive material with catastrophic environmental impacts. Others expressed concern that the human health and environmental consequences of an accident scenario could be immense and long lasting. (0198h, SL1-05, SL1-20, SL2-01, SL2-13, SL3-21) Specifically, commenters stated the following concerns:

- The impacts of an accident at the proposed PFSF could be similar to Chernobyl. (GR-15)
- The DEIS did not provide an adequate analysis of various accident scenarios and release incidents. (0024, 0090, 0158, 0198h, 0203, GR-16, SL1-09, SL1-21, SL1-32, SL1-39, SL2-13)
- The possibility that accidents may occur due to human error has not been made up and there is no guarantee they would not happen. (GR-06)
- Unexpected nuclear-related accidents can happen such as the accident in Tokaimura, Japan and the dry storage cask explosion in Wisconsin. (GR-16)
- Many highly radioactive materials such as xenon, iodine, cesium, ruthenium, rubidium, antimony, uranium and thorium could be released in the event of an accident and are missing from Table D.5 of the DEIS. (0203)
- It is unacceptable that the adequacy of the facility design to withstand accidents is addressed only in the SER and not in the DEIS, especially since the SER will not be available until the EIS is finalized. (0198, 0230)
- Accident scenarios are addressed in the SAR, as well as the SER, and such issues will be the subject of a public hearing in the Spring. (SL1-23)
- The applicant failed to adequately identify and assess potential accidents; therefore, the commenter was concerned that the applicant is unable to determine the adequacy of the ISFSI design to prevent accidents and mitigate the consequences of accidents as required by 10 CFR 72.24(d)(2). (0198a)

**Response:**

The NRC staff acknowledges the comments regarding consequences of various accidents. NRC safety regulations and guidance specify that ISFSIs be designed to withstand various credible accidents, including natural events, without having a significant radiological release. The SER, as updated, included an evaluation and determination of (1) the adequacy of the design to withstand credible accidents, (2) the potential for a radiological release to occur as a result of any such accident, and (3) the significance of any such radiological release. The EIS analyses then considered the evaluation documented in the SER, as updated, and any other relevant information to determine the radiological impact on the environment. There is no requirement to duplicate the SER analysis in the EIS.

The NRC staff evaluated the applicant's analyses of potential hazards to the proposed PFSF and consequences of credible accidents. These hazards included potential seismic (earthquake) events, natural phenomena, military and commercial aircraft crashes, events at nearby facilities, and other events at the proposed PFSF. The NRC staff evaluation was based on information provided by the applicant and the NRC staff's independent analyses. The NRC staff evaluation of potential hazards and resulting credible accidents are described in detail in Section 15 of the SER, as updated. The NRC staff determined that the applicant had demonstrated that all credible accidents would not result in a release of radioactive contents. Therefore, the NRC staff concluded that there is no radiological impact from the proposed PFSF as a result of potential seismic events, natural phenomena, military and commercial aircraft, potential events at nearby facilities, and other credible accidents at the proposed PFSF. In addition, the NRC staff determined that accidents outside the proposed PFSF design basis are not credible. Accordingly, such accidents are not reasonably foreseeable and need not be considered in the EIS.

The purpose of Table D.5 in the EIS is to reflect radionuclide inventory used to determine health impacts from SNF shipments, and is not intended to reflect all byproduct material that would be present in SNF during accident conditions. Table D.5 included the radionuclides, or radioactive elements, whose activities exceeded about one percent of the total radioactive inventory of the SNF. Appropriate radionuclides were considered in dose estimates presented in Section 4.7.2 of the EIS. The dose analysis considered the presence of radioactive byproduct material with the most effect on human organs that would be present during normal or accident conditions. The production facility in Tokaimura, Japan, and the Chernobyl nuclear reactor were different types of facilities that involved significantly different activities than those at an SNF dry storage facility and those that would be conducted at the proposed PFSF. Therefore, the past accidents at the Tokaimura facility and the Chernobyl reactor are not relevant to the analysis of the environmental impacts of the proposed PFSF and are beyond the scope of the EIS.

Furthermore, the accident scenarios that are analyzed as part of the accident analysis included in the SAR considered several types of accidents that could be precipitated by human error. The review criteria used by the NRC staff also took into account the recent experience from the hydrogen-burn incident that occurred at the Wisconsin facility.

**Earthquakes, Floods, Lightning, Tornadoes, and Other Natural Phenomena****Comment Summary:**

Many commenters expressed concern that accidents initiated by earthquakes and other natural phenomena were not adequately analyzed or addressed in the DEIS. (0012, 0077, 0090, 0198, 0198h, 0215, 0230, 0246, GR-05, GR-06, GR-21, GR-23, SL1-01, SL1-10, SL1-15, SL1-16, SL1-29, SL1-34, SL1-39, SL2-19, SL3-07, SL3-19, SL3-25, SL3-40)

One commenter stated that it is not clear in the DEIS under what conditions the storage casks and proposed PFSF could withstand earthquakes, wildfires, direct lightning strikes, tornadoes, corrosive

atmospheric deposits, mechanical forces from precipitation and wind, and internal or external overheating. (0215-6) Another commenter stated that emergency situations resulting from excessive heat or cold, as well as snow buildup, around the storage casks should be evaluated. (0198h)

**Response:**

The NRC staff has evaluated the effects on the proposed PFSF from the most severe, credible, natural phenomena, including earthquakes, wildfires, lightning strikes, tornadoes, atmospheric deposits, precipitation, and wind. The FEIS includes an analysis of the effects the proposed PFSF might have on the physical environment under such natural phenomena. The NRC staff did not, however, evaluate effects on the proposed PFSF from natural phenomena that are not credible. Natural phenomena more severe than those evaluated as set forth in the SER, as updated, are not reasonably foreseeable, and need not be considered in this FEIS. The FEIS does not discuss the effects of natural phenomena that are not credible. Notwithstanding that there is no requirement for the FEIS to include analysis as suggested by the commenters, the NRC staff, as set forth below, has briefly summarized its evaluation of the safety issues the commenters raise.

The NRC staff evaluated the applicant's analyses of potential natural phenomena, including floods, lightning, snowfall, and credible tornadoes. The NRC staff determined from its own confirmatory analyses and the applicant's analyses that (1) berms would retain water from a probable maximum flood and flooding would not submerge the cask storage area; (2) the proposed PFSF and design features can survive lightning; (3) the proposed PFSF and casks can withstand a design-basis tornado and associated wind-driven missiles; and (4) the casks can withstand snowfall. With respect to overheating, the applicant's analysis provided reasonable assurance that the casks would provide adequate protection of the public health and safety, even if the vents were completely blocked for 72 hours. If licensed, the applicant would be required to survey the vents every 24 hours to ensure they are not blocked. Furthermore, potential effects of credible floods, lightning, snowfall, and tornadoes would not result in a release of the SNF contents. Therefore, the NRC staff concluded that there would be no radiological impact from the proposed PFSF as a result of these natural phenomena (seismic phenomena are addressed in the next comment response). The NRC staff evaluation is documented in Chapter 15 of the SER, as updated.

Furthermore, the impacts of the proposed PFSF upon the environment in the event of flooding were addressed in Sections 4.2.1.1 and 4.2.2.2 of the EIS. The impacts of the proposed rail line from Skunk Ridge in the event of a flood were addressed in Sections 5.2.1.2 and 5.2.2.2 of the EIS. There would be no other impacts from the proposed PFSF or proposed rail line in the event of the other types of natural phenomena mentioned in the comment.

**Design Basis Accidents Involving Earthquakes and Other Seismic Concerns****Comment Summary:**

Some commenters expressed concern with the ability of the proposed PFSF to withstand earthquakes during storage and handling of the casks. The commenters stated the following concerns:

- Earthquakes, ground motion, soil stability concerns, foundation concerns, surface rupturing, seismic history and other major geologic and seismic considerations are not addressed in the DEIS. (0198, 0230)
- There is no discussion in the DEIS of the risk of cask sliding and tipping over that may occur as a result of an earthquake. (0198)
- The claims by the applicant that an earthquake is unlikely and that storage casks can not fall over are not supported by any reliable data. (0077)

One commenter stated that whether the casks are Holtec casks or TranStor casks, the applicant's cask sliding analysis fails to consider the potential range of conditions that may occur during a seismic event, such as whether the pad will remain rigid under cask loading; whether the simple frictional elements applied in the soil-structure interaction model are appropriate; and whether the analyzed coefficients of friction of 0.2 and 0.8 bound the actual behavior of the cask-pad interface under dynamic loading. The commenter wanted the NRC staff to continue to require the applicant to perform complete analysis. (0198f)

**Response:**

The NRC staff evaluated the applicant's analysis of potential seismic (earthquake) events at the proposed site and performed confirmatory analyses. These analyses considered ground faults in the vicinity of the proposed site and other information relevant to seismic characteristics at the proposed site, as well as the proposed design of the proposed PFSF. The applicant calculated the maximum ground accelerations in both the horizontal and vertical directions from the largest design earthquake event in a 2,000-year return period, using a probabilistic seismic hazard analysis (PSHA). See Section G.3.6.2.9 for additional detail on the seismic standards used for the proposed PFSF. An accident analysis assuming these maximum ground accelerations was performed for the structures, systems, components important to safety at the proposed PFSF (i.e., canister, concrete storage cask, transfer cask, lifting devices, canister transfer building, canister transfer overhead bridge crane, canister transfer semi-gantry crane, seismic struts, and cask storage pads). The accident analysis considered both cask handling operations in the canister transfer building and storage operations on the pad. The analysis recognized that a seismic event could take place at any time during any stage of a transfer or storage operation involving a cask or a canister. The NRC staff determined from these analyses that it had reasonable assurance that the proposed PFSF and storage casks, if constructed as designed, would provide adequate protection to the public health and safety in the event of the design earthquake event with a return period of 2,000-years. Further, the analysis determined that such an earthquake event would not result in a release of SNF contents. Therefore, the NRC staff concluded that there is no radiological impact from the proposed PFSF as a result of the design earthquake event. The NRC staff evaluation of the applicant's analysis of seismic setting and hazards are documented in Chapters 2 and 15 of the SER, as updated.

**Fires****Comment Summary:**

A number of commenters expressed concern that the DEIS does not adequately consider the risks of a fire at the proposed PFSF. (0039, 0042, 0077, 0249, SL1-07, SL1-09, SL1-18, SL1-34, SL1-39, SL3-25, SL3-40, SL3-43) One commenter stated that wildfire danger, including fires sparked by train operations in Skull Valley, has received inadequate evaluation. (0246) Another commenter stated that range or wildfires should be evaluated in the EIS. (0198h) A commenter stated that the DEIS failed to analyze, for example, a collision resulting in a long-duration extremely hot fire. (0203)

**Response:**

The NRC staff determined from the applicant's analyses that potential fire and explosions at the proposed site would not result in a release of SNF contents. In response to public comments, a new Section 4.8.4 has been added to the FEIS to discuss the impact of the proposed PFSF on wildfires. The proposed storage area would be surrounded by vegetation (i.e., crested wheatgrass) that would serve to resist fire. The proposed storage area itself would be covered with a layer of gravel and would be kept clear of combustible material. In addition, the proposed rail line would be revegetated with fire resistant native grasses. The proposed PFSF would have its own fire-fighting capability and might rely upon the assistance of Tooele County.

The fire suppression system for the proposed PFSF has been found acceptable by the NRC staff and the staff's evaluation is documented in the SER. The commenter did not provide details on the potential collision accident followed by a fire of long duration. However, as discussed in Chapter 15 of the SER, several credible accident scenarios involving potential diesel fuel fires at the proposed PFSF were analyzed. This included a 50-gallon diesel fuel fire from the cask transporter which surrounds the cask and a 6,400-gallon diesel fuel fire from nearby locomotives on-site. In all cases, the casks were shown to adequately survive the fire events and not release SNF contents. In addition, the proposed transportation casks would be able to withstand a fuel fire at 1,475°F for 30 minutes as required in 10 CFR 71.73(c)(4). As stated in Section 4.8.4 of this FEIS, the staff found no basis to conclude that the proposed facility would cause wildfires.

### **Sabotage and Terrorism at the Proposed PFSF**

#### **Comment Summary:**

Many commenters expressed concern that the DEIS did not adequately consider the risks of sabotage and terrorism at the proposed PFSF. (0036, 0077, 0096, 0112, 0198, 0215, GR-05, GR-06, GR-23, SL1-10, SL1-11, SL1-22, SL1-32, SL2-05, SL2-08, SL3-12) Commenters stated the following concerns:

- Security measures for the proposed PFSF may not be adequate. (0039, 0077, 0142, SL1-11, SL1-32, SL2-08)
- One person has been able to penetrate security in the nuclear power industry more than 20 times. (SL2-08)
- The applicant and Tooele County will be unable to provide protection from terrorism and sabotage. (0039, 0077, SL1-11, SL2-05)
- The DEIS should address a worst case scenario of a nuclear detonation by terrorists. (SL1-32, SL2-08)
- It was estimated that 100,000 deaths and \$15 billion worth of damage could result from a terrorist attack at a nuclear waste facility. (SL1-32)
- A less manageable and totally uncontrolled environment exists should an accident occur - the proposed site is not secure, the public is not educated nor trained in protecting themselves, and trained personnel and specialized equipment are not present. (0198h)
- Sovereignty issues might affect the ability to ensure security at the site. (SL1-32)

#### **Response:**

The physical protection plan for the proposed PFSF must meet the safeguard requirements in 10 CFR 72.180 and 73.51, and have appropriate capabilities for the protection of stored SNF and high-level radioactive wastes. These regulations require the design of safeguard systems to protect against acts of radiological sabotage and to prevent the theft of special nuclear material. These regulations also specifically require that the licensee provide several specific means to deter, detect, and respond to acts of sabotage. First, the licensee must store SNF and high-level radioactive waste only within a protected area. The licensee must have systems to detect and assess unauthorized penetration of, or activities within, the protected area. The protected area must have two physical barriers, one at the perimeter of the protected area and the other providing substantial penetration resistance such as by the approved storage cask. The facility needs to be sufficiently illuminated, and the perimeter of the protected area must be continually surveilled and protected by an active intrusion alarm system. The associated primary alarm station must be located within the protected area, with bullet proof walls,

doors, ceiling, and floor and must not be visible from outside the protected area. Also, a second redundant alarm station is required. A personnel identification system and controlled lock system is required. Redundant communication capability must be provided between the onsite security force and the designated response force. All individuals, vehicles, and hand-carried packages entering the protected area must be checked for proper authorization and visually searched for explosives. All detection systems must be tamper indicating with line supervision. Details of the above must be described in a physical protection program which must be approved by the NRC and periodically reviewed by independent licensee staff.

The NRC staff evaluated the Physical Protection Plan for the proposed PFSF as documented in Chapter 18 of the SER. The NRC staff determined that the Physical Protection Plan satisfied the requirements in 10 CFR 72.180 and 73.51. The NRC staff concluded that the applicant has provided reasonable assurance that the Physical Protection Plan for the proposed PFSF will provide for the common defense and security and adequate protection of the health and safety of the public when fully implemented.

In addition, in light of the attacks on the United States on September 11, 2001, the NRC staff has been directed to review the NRC's security regulations and procedures. If the NRC determines that revisions to NRC's requirements are warranted, such changes would occur through a public rulemaking. The NRC staff, however, has not yet identified any specific additional requirement for storage of SNF with respect to sabotage.

### **Military Accidents**

#### **Comment Summary:**

Several commenters indicated that any probability of a military accident is unacceptable given the magnitude of its consequences. Several commenters expressed concern that the DEIS did not consider risks associated with military accidents given the proximity to active gunning and bombing ranges, recent cruise missile and F-16 crashes, and the proximity of the site to the UTTR. Several of these commenters expressed concern that a military plane or cruise missile crash, or other military accident at the proposed PFSF, could result in a release of radioactive material. Other commenters expressed concern over recent military aircraft and cruise missile crashes in the vicinity of the proposed PFSF. (0012, 0013, 0036, 0090, 0096, 0174, 0198, 0198i, 0210a, GR-01, GR-06, SL1-01, SL1-06, SL1-10, SL1-11, SL1-12, SL1-27, SL1-34, SL2-01, SL2-11, SL3-06, SL3-12, SL3-19, SL3-20, SL3-28, SL3-40) Commenters stated the following concerns:

- The following statement in the DEIS should be justified: "canister leakage under hypothetical accident conditions is not considered to be a credible event" (Page 4-47, line 37). The comment suggested that an accident scenario that could result in an environmental release should be analyzed, for example, an aircraft crash into a stored cask. (0169)
- The chance of the accidental release of live ordnance or crash of an aircraft can never realistically be placed at zero. (0198i)
- Tests of unmanned, long-range cruise missiles and other emerging, large footprint weapons are permitted and have been conducted within 1 mile of the site. The commenter stated that last year a cruise missile crashed in the same Military Operating Area beneath which the PFSF is proposed and that there have been over a dozen aircraft accidents in the past 10 years. (0198, 0210a, GR-01)
- The ability of the proposed PFSF to withstand explosions and missile or jet crashes. (0215, 0096)
- Locating a high-level nuclear waste storage facility under an active military testing and training range is harmful to national security and dangerous to the local population. (GR-01)

- The proposed PFSF is incompatible with surrounding military activities. The commenter stated that the proposed PFSF will be located east of the UTTR property and underneath the UTTR airspace designated as a Military Operating Area. According to the commenter, the activities approved in the airspace over the proposed PFSF include air-to-air training, low-altitude training, cruise-missile testing, and major military exercises. Also, the commenter stated that the main use of the Skull Valley airspace is to allow low- and medium-altitude entries of F-16s into the UTTR from Hill AFB. The commenter added that the risk of aircraft crashes, including military aircraft, into the proposed PFSF has not been evaluated at all in this DEIS and is a significant risk. (0198)

**Response:**

The NRC staff evaluated the applicant's analysis of potential aircraft hazards from both commercial aviation and military traffic in the vicinity of the proposed site. This evaluation was based on the applicant's analysis of military and commercial aircraft operation in the vicinity of the proposed PFSF. The staff determined from the applicant's analyses and its own confirmatory analyses that the total probability of a crash at the proposed PFSF was less than one in a million ( $1.0 \times 10^{-6}$ ) crashes per year. Therefore, such an event is not reasonably foreseeable, and need not be considered in the EIS. The staff also considered the use of military cruise missiles in the vicinity of the proposed PFSF, including past cruise missiles testing, and determined that such use would not pose an unacceptable hazard to the proposed PFSF. In addition, the NRC staff also determined that current military operations at nearby facilities and sites such as Hill AFB, Dugway Proving Ground and the UTTR would not have to be altered or reduced in order for the proposed PFSF to meet NRC safety and regulatory requirements. The NRC staff evaluation is documented in Chapter 15 of the SER, as updated.

The NRC staff evaluated the applicant's analysis of potential hazards from events at nearby military sites such as Dugway Proving Ground, Michael Army Airfield, and the UTTR. The evaluation included potential hazards from off-site explosions, rocket testing, chemical munitions, biological defense activities, unexploded ordnance, hung ordnance, conventional munition testing, and cruise missile testing. The NRC staff determined from its own confirmatory analyses and the applicant's analyses that potential events at nearby sites would not pose an unacceptable hazard to the proposed PFSF because of the low likelihood of such events or the distance from the proposed PFSF to these sites. Therefore, radiological impacts from the proposed PFSF, as a result of potential events from military aircraft and nearby military sites, are not reasonably foreseeable and need not be considered in the EIS.

**Tipped Casks****Comment Summary:**

Commenters expressed concern regarding tipped casks, including the following specific concerns:

- The environmental impacts of toppled casks. (0112)
- The procedures and testing for righting casks in the short time frame specified in the DEIS and the impacts of not righting a cask within a specified time frame of 12 hours. (0077, 0096, 0112)
- The need to evaluate the necessary response time and capability for righting an overturned cask. (0198h)
- The claims by the applicant that storage containers cannot be tipped are not supported by any reliable data. (0077)

One commenter referenced page xxxvi, lines 32-33 of the DEIS, concerning impacts to community resources, and stated that the region cannot provide for the righting of tipped casks within the time

frame specified in the DEIS. The commenter questioned how a radiological team would reach into the large subdivision of casks to correct the problem. The commenter further stated that response time is a critical issue, because it has been estimated that it would take between 12-15 hours for the nearest radiological team to reach the site from the West Coast. The same commenter questioned what time frame is required to right all casks should they become altered due to a geo-seismic event. The commenter also questioned whether the “storage cask transporter” (Figure 29) is capable of righting toppled casks and whether the procedure has been adequately tested with loaded casks other than in computer simulations. (0112)

**Response:**

The NRC staff evaluated the applicant’s analyses of potential cask tipover at the proposed PFSF. The NRC staff determined from its own confirmatory analyses and the applicant’s analyses that cask tipover should not occur at the proposed site based on the design of the casks and other measures designed to restrain the casks during handling operations. Therefore, methods and response times for “up-righting” is beyond the scope of the cask design. In addition, the applicant’s analyses indicated that a hypothetical cask tipover or drop (such as from a seismic event) would not significantly damage the cask and confinement and shielding of the SNF would be maintained. As discussed in Chapter 15 of the SER, as updated, cask tipover is not considered to be credible during design-basis seismic events.

**G.3.15.6.2 Analysis of Emergency Response Capabilities is Inadequate****Emergency Response****Comment Summary:**

A number of commenters expressed concern that the analysis of emergency response capabilities is inadequate. Commenters stated that emergency response capabilities for fires, leaks or other incidents at the proposed PFSF are inadequate. Many of these commenters expressed concern about the availability of emergency responders capable of managing accidents at the proposed PFSF. (0039, 0042, 0077, 0096, 0112, 0171, 0198, 0198e, 0246, SL1-07, SL1-09, SL1-10, SL1-38, SL1-39, SL2-12, SL3-04, SL3-43, SL3-55)

- One commenter asked what emergency response provisions were included in the DEIS? (0039, 0077)
- One commenter stated that there is no indication there will be adequate police and fire protection and other services as required by statute. (0198)
- One commenter stated that there would not be time to respond to an emergency at the proposed PFSF. (0033)
- One commenter stated that the discussion of emergency response impacts was minimal and inadequate for the nature of the proposed PFSF and the kinds of problems that have the potential to occur. The commenter added that Section 3.5.2.4 discussed public health and safety on page 3-43 of the DEIS, but no corresponding discussion of public health and safety is found in Section 4.5 under environmental consequences. The commenter stated that there should be a full discussion of emergency response issues in the FEIS, including the liability issues related to the involvement of volunteers responding to a radiological emergency. (0171)
- Citing page 3-43, line 1-4 of the DEIS, a commenter stated that the problem with volunteer fire departments is that under the Uniform Fire Code they cannot conduct remediation activities as hazardous materials teams. The commenter concluded that, consequently, they may not be available to respond to radiological incidents. (0096)



- One commenter stated that the applicant should be required to have an assessment for emergency-response needs, local emergency response training, and have sufficient safety and cleanup equipment for radioactive problems in case an incident occurs. (0230)
- One commenter stated that with minor exceptions, none of the common sense regulatory mechanisms have been employed by the NRC to ensure problems are avoided or addressed at the proposed PFSF. Also, the commenter stated that emergency planning should include a quantitative risk assessment as well as a detailed evaluation of the regulations, procedures, equipment, and personnel necessary to mitigate the impacts of the individual and cumulative impacts. The commenter also stated that the FEIS should indicate the permits, license, regulations, and procedures required to ensure that any impacts can be mitigated. (0198, 0198h)
- The commenter stated that the applicant failed to describe and consider area specific impediments to emergency response such as flooding, high winds, range fires, ice and snow, and the presence of grazing domestic and wild animals on access roads which will impede the response of off-site emergency assistance and the transporting of on-site victims to off-site medical facilities. (0198a)
- One commenter stated that a critical aspect of the EIS scoping process is the definition of emergencies, both those that could result from the operation of the proposed storage of high level nuclear waste fuel rods and emergencies which could impact the ISFSI operations. (0198h)

**Response:**

The NRC staff acknowledges the comments regarding emergency response. However, emergency response and emergency planning issues are addressed in the NRC safety review. The applicant will be required to meet specific regulations (10 CFR 72.32) for emergency response planning at the proposed PFSF. The NRC staff evaluated the Emergency Plan for the proposed PFSF and found it acceptable as documented in Chapter 16 of the SER. Therefore, an evaluation of the Emergency Plan was not included in the EIS. The Emergency Plan addressed the actions that would be taken in the event of an accident or off-normal event (e.g., a fire) at the proposed PFSF. This included the consideration of the roles and needs of off-site emergency response personnel. For a detailed discussion of the Emergency Plan, see Chapter 16 of the SER.

**Emergency Plan and Evacuation****Comment Summary:**

- One commenter stated that the applicant did not adequately describe the proposed PFSF in accordance with Regulatory Guide 3.67, Section C.1, the activities to be conducted at the proposed PFSF, and the area near the proposed PFSF in sufficient detail to evaluate the adequacy and appropriateness of the Emergency Plan. According to the commenter, the applicant merely touched on some of these requirements without adequately addressing any of them, and in fact, regularly refers to its "Emergency Plan implementing procedures" which will be developed sometime in the future to take care of numerous details which should have been described in its Emergency Plan. (0198a)
- One commenter stated that the Emergency Plan did not contain sufficient detail to meet the provisions of Regulatory Guide 3.67, Section 5.4.1, because the applicant has failed to provide adequate information on specific protective, communication, medical, contamination control, decontamination, fire fighting, radiation detection and hazardous material detection equipment with inventory lists and specific locations of the equipment. The commenter was concerned that without specific adequate information, emergency preparedness personnel may not be capable of providing a timely response to an emergency. (0198a)

- One commenter stated that the failure to allow the State of Utah to review and comment on the Emergency Plan, as required by 10 CFR 72.32(a)(14) is an example of the applicant refusing to work with the State. (0198a)
- A few commenters stated that the DEIS does not evaluate the possibility of evacuation or identify emergency evacuation routes in the event of accidents. (0012, 0198, SL1-01, SL1-10, SL1-29)
- One commenter expressed concern that no emergency evacuation route through Skull Valley had been identified in case of a chemical agent leak. (0012, 0198, SL1-01)
- Another commenter expressed concern that the impacts of evacuating abandoning the proposed PFSF due to an incident, like release of a chemical warfare agent, were not considered. (0158)

**Response:**

The NRC staff acknowledges the comments regarding emergency planning and evacuation, but these comments were not directly related to the environmental review. The comments were instead related to the NRC safety evaluation. Therefore, the issues identified in the comments are beyond the scope of the EIS.

As discussed above, the NRC staff evaluated the applicant's Emergency Plan and found it acceptable. The review of the Emergency Plan was documented in Chapter 16 of the SER. The effects of a hypothetical accident in which radioactive contents were released would be small and would meet regulatory limits as discussed in Section 4.7.2.3 of the EIS. There were not any credible accidents for the proposed PFSF that released SNF contents or that resulted in a significant radiological exposure to the public. Therefore, emergency evacuation route planning was not warranted for the proposed PFSF, as suggested by some commenters, and the EIS did not include any such evaluation. The NRC staff notes that Interim Spent Fuel Project Office Staff Guidance #16, Emergency Planning, provides the principle guidance for preparing Emergency Plans for ISFSIs. Regulations in 10 CFR 72.32(a), Emergency Plan, provided the regulatory requirements for ISFSI emergency plans.

**Spill Control****Comment Summary:**

- One commenter expressed concern about the 1000-gallon diesel fuel tank located next to the canister transfer building because the DEIS only stated that fuel spills will be managed under RCRA requirements. The commenter stated that RCRA does not routinely manage petroleum spills. The commenter questioned the safety and management of the diesel tank. (0039, 0077)
- One commenter stated that there is a discrepancy between the DEIS and the ER. The commenter added that page 5-10, Section 5.2.2.4 of the DEIS stated, "PFS's current list of BMPs ... does not include a specific commitment concerning spill response" at the proposed ITF. However, the commenter stated that Sections 9.1-6 and 9.1-8 of the ER state that a spill plan will be developed if the threshold requirements specified in 40 CFR Part 112, Oil Pollution Prevention, for such are exceeded. (0163)
- One commenter stated that contingency planning for the proposed PFSF is inadequate. The commenter stated that the applicant has not met the STB requirement that contingency plans be in place. The commenter said that management practices and controls, contingency plans, and financial assurance should be required to prevent and respond to spills. The commenter cited DEIS, pages 2-19, 2-25, and 4-42 and stated that the NRC appears to have uncritically accepted the applicant's assurance that it will "start clean, stay clean." (0198, 0198h)

**Response:**

The NRC staff acknowledges the comment regarding spill control of hazardous materials. The NRC staff notes that 10 CFR 72.32(a)(13) refers to the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Pub. L. 99-499 (EPCRA). EPCRA stipulates that if a facility has an extremely hazardous substance in an amount greater than the appropriate threshold planning quantity, then the facility must designate a facility Emergency Coordinator to participate in the local planning process. The proposed SNF storage facility would not have any extremely hazardous substances, as defined in 40 CFR Part 355, present in amounts equal to or greater than the threshold planning quantities specified in 40 CFR Part 355, Appendix A. Since only limited quantities of hazardous materials such as diesel fuel would be stored and used at the proposed PFSF, spills or other accidents involving hazardous materials have no potential for posing a threat to on-site or off-site personnel. The implementing procedures for the applicant's Emergency Plan will contain a list of all hazardous materials to be used at the proposed PFSF, including quantities, locations, use and storage requirements.

Section 4.2 of this FEIS discusses the potential impacts of a fuel oil spill on water resources at the proposed PFSF and concludes that the impact would be small. As discussed in Section 9.4.2 of this FEIS, to ensure that construction and operational activities will not lead to contamination of groundwater, the Cooperating Agencies have proposed that PFS be required to implement a Best Management Practices Plan that would include a spill response procedure for appropriately responding to a spill of oil or fuel at the proposed PFSF or related transportation facilities. This procedure would address spills on site, at the rail siding, or along the rail line. To the same end, the Cooperating Agencies have also proposed that PFSF be required to be responsible for clean-up of any spills or accidents on the PFSF, at the rail siding, and along the right-of-way for the rail line, in accordance with applicable standards. As discussed in Section 4.7.2.3 of the EIS, credible accidents at the proposed PFSF would not result in the release of SNF contents to the environment. Furthermore, as discussed in Chapter 14 of the SER, the staff evaluated the waste confinement and management systems for the proposed PFSF and determined that the applicant has adequately described systems for confining possible radiological wastes (liquid or solid) from decontamination activities. Therefore, PFSF personnel should be able to mitigate any minor radiological contamination issues at the site during operations.

**Fire Suppression and Fire Fighting Capability****Comment Summary:**

Several commenters questioned the adequacy of locally-based fire fighting resources for the proposed PFSF. (0042, 0112, 0198, 0246, SL1-09, SL1-10, SL1-39, SL2-12, SL3-04, SL3-43, SL3-55)

- A few commenters stated that fire suppression is not adequately addressed. (0039, 0077, 0112, 0246, SL3-43)
- Two other commenters said that the FEIS should address measures to avoid starting a fire as well as measures to protect the site and facilities in the event of a fire. (0047, 0089)
- One commenter asked how much of the “adequate plan for fire protection, suppression, and rehabilitation during construction and operation” cited on page xlv, lines 17-19 of the DEIS has been developed and tested? (0112)
- One commenter questioned which facility in the West Desert gets first priority to fire fighting resources. The commenter does not believe emergency responders could protect all of the West Desert facilities during a wildfire. (SL1-09)

- One commenter was specifically concerned because of the proximity of the 1000-gallon diesel fuel tank to the canister transfer building and storage pads. The commenter also stated that the only mention of fire suppression provisions were in the SAR on page 2.5-5. (0077-9)
- One commenter expressed concern about water availability to fight a fire at the proposed PFSF. According to the commenter, the applicant expects to obtain water for fire fighting, potable water and water for the concrete batching plant, from surface storage tanks since “it is unlikely that water wells drilled into the main valley aquifer would yield adequate quantities of water for these purposes on demand.” However, the commenter was concerned whether the storage tanks could hold sufficient water for a serious fire, especially since the applicant identified the use of a fire truck at the proposed site, another fire truck available from the Reservation, as well as trucks supplied by Tooele County Fire Department, all of which may need access to the water tanks in a wide spread difficult fire situation. (0198a)
- Two commenters stated that reliance on the Tooele County Fire Department was unacceptable because the Tooele County Fire Department consisted of volunteers, and the Utah State Highway Patrol provides very few responders. The commenters also said that the Chief of the Tooele County Fire Department has already stated that his department would not provide support in the event of a fire at the proposed PFSF. (0039, 0077, 0198)
- One commenter stated that volunteer firefighters will not access radioactive sites and the proposed PFSF may have to be evacuated for several days. The commenter stated that Utah Senator Ron Allen testified to the ASLB that, in his experience as a fire chief in Skull Valley, the area is dry and often experiences high winds causing range fires to burn thousands of acres. The commenter stated that Senator Allen also stated that the most common procedure in fighting such fires in Skull Valley has been to evacuate all persons at risk as quickly as possible, miles ahead of the fire. The commenter also said that the Senator questioned whether the applicant was willing to completely evacuate and abandon the proposed site for what could be a period of several days. The commenter asserted that the Senator said that county and city fire chiefs in the area have not been contacted or asked about potential aid agreements to the proposed site. (0198)
- One commenter stated that the applicant's ability to deal with on-site fires and the environmental consequences of these fires should be addressed. Specifically, the commenter stated that there is no substantive discussion of the consequences that will result from the applicant's inadequately trained and staffed fire fighting unit. The commenter stated that the consequences of leaving the proposed PFSF unattended for several days must be addressed in the FEIS. The commenter also expressed concerned that the proposed PFSF would have no fire fighters on-site after normal working hours. (0198)

**Response:**

The NRC staff acknowledges the comments regarding fire suppression and availability of off-site fire fighting personnel. With one exception, as discussed below, the comments are not directly related to the environmental reviews. The comments were instead related to the NRC safety evaluation. Therefore, the issues identified in the comments are beyond the scope of the EIS.

With respect to the safety issues as discussed above, the NRC staff evaluated the applicant's Emergency Plan, including fire-fighting resources, and found it acceptable. The NRC staff considered that a credible fire accident affecting the proposed PFSF during canister handling at the Canister Transfer Building or cask transfer was possible. A credible fire at the proposed PFSF could be initiated by the ignition of diesel fuel from the storage tank, vehicle diesel fuel tank, locomotive fuel tank, or electrical insulation/equipment. Fires from other site-specific sources, such as materials on-site, grass-fueled wildfires, and accidents on nearby highways or industrial complexes were also considered. The NRC staff evaluated possible consequences of the fires, and the design and description of fire detection systems and fire-suppression systems, and found them acceptable. The

NRC staff evaluation was documented in Chapters 6 and 15 of the SER. The NRC staff concluded that no radioactive contents would be released as a result of fire accidents. As discussed above, the NRC staff also concluded that the applicant's emergency plan, which considered off-site emergency response, was adequate. As stated in Section 4.8.4 of the FEIS, the proposed PFSF would have its own fire-fighting capability and would not rely solely upon the assistance of Tooele County. Also, see response to fire-related comments in G.3.15.6.1.

One commenter suggested that the FEIS should address measures to avoid starting a fire at the facility. As discussed in Chapter 6 of the SER, the applicant has adequately described the design of the proposed PFSF for fire detection, alarm, and suppression systems and these systems will be designed based on acceptable codes and standards. In addition, fire barriers with adequate width will be placed around the restricted area of the proposed PFSF to prevent fire hazards. As noted above, a fire at the proposed PFSF could be initiated by the ignition of diesel fuel from the storage tank, vehicle diesel fuel tank, locomotive fuel tank, or electrical insulation/equipment. Section 5.8.4 of the FEIS already addresses the issue of wildfire, including those that could be started by sparking from the wheels of a locomotive on the rails in the proposed transportation corridor. The DEIS lacked any discussion of wildfire originating at the proposed PFSF, and the NRC and the Cooperating Agencies have added such a discussion in Section 4.8.4 of the FEIS.

### G.3.15.6.3 Leaking and Contaminated Canister Issues

#### Comment Summary:

Two commenters expressed concern about the applicant's planned management of leaking casks during storage. (0198h, SL1-06) One commenter stated that the impacts of being unable to repackage a cask which is damaged or leaking, during transportation and storage, should be further evaluated. (0198h) One commenter objected to the applicant's plan to return leaking containers to the place of origin. The commenter stated that there is no guarantee of safety and believes the applicant will jeopardize millions of lives by returning leaking casks. (SL1-06)

#### Response:

The NRC staff acknowledges the concerns in comments regarding return of "leaking" or "contaminated" canisters to the place of origin. The staff emphasizes, however, that the applicant described the return of contaminated canisters, not contaminated casks or leaking canisters. The FEIS states that if contaminated canisters (i.e., those with unacceptable removable surface contamination) are found during the receipt inspection at the proposed PFSF, then the canister would be repackaged into its shipping cask and returned to the originating reactor. The shipping cask is designed to contain any such surface contamination. The return shipment would not cause any significant exposure to the general public from the contaminated canister. Section 2.1.2.1 of the FEIS has been revised to better explain the terminology concerning repackaging and return of casks and the resulting consequences.

The SNF will be contained inside steel canisters sealed (i.e., welded shut) at the originating reactor. The steel canisters are leak tested at the originating reactor before they are sent to the applicant to verify that the canisters are completely intact. At the proposed PFSF, these canisters will be stored inside concrete and metal overpacks that would rest on the storage pads. These steel canisters are designed to remain intact and not leak during the transport process to the proposed PFSF. They are also designed to remain intact and not leak during storage at the proposed PFSF during normal operations and credible accidents. The steel canisters also would not likely require any significant repairs at the proposed PFSF.

The term "contaminated" in the EIS generally refers to unacceptable levels of radioactive material contamination on the exterior of the steel canisters (i.e., removable contamination that exceeds the maximum limits specified in the proposed Technical Specifications for the PFSF). Section 8.1.5 of the

SAR and Section 4.7.2.3 of the FEIS provided a hypothetical and conservative calculation that indicates that maximum contamination limits in the proposed Technical Specifications would not result in a significant or generally detectable dose (0.004 mrem) to the general public during storage. The NRC staff concluded that intact canisters, which also satisfy allowable contamination levels, would not release any significant radioactive material to the environment.

The term “leaking” in the EIS generally refers to a hypothetical condition that is not credible, in which there would be a release of radioactive material (solids or gases) from the welded steel canisters into the environment. In Chapter 3 of the SER, the NRC staff proposed a license condition that would require the inside of the transportation cask to be sampled for radioactive gases upon receipt and prior to opening, in order to reverify that the canister confinement boundary is intact. In the hypothetical scenario that a canister is not intact and is leaking, the shipping cask should be able to safely contain the SNF contents and any hypothetical leakage from the inner steel canister, without a significant radiological exposure to the general public.

#### **G.3.15.6.4 Facility Design and Operations**

##### **Comment Summary:**

One commenter provided several comments regarding the proposed PFSF operations, including staff training and certification and cask design and handling. The commenter stated concern that the applicant did not adequately analyze cask accidents. The commenter stated the following concerns:

- The applicant did not consider the foreseeable risk posed by a cask drop accident in which a canister is dented or warped, and cannot be returned to its shipping cask. The commenter stated that if this occurs, the applicant has no provision for repacking the SNF. (0198a)
- The applicant failed to discuss canister end accidents involving improperly constructed casks. According to the commenter, it was unclear whether the TranStor cask is subject to the same quality of fabrication as the VSC-24. The commenter stated that the NRC issued a Demand for Information to the Sierra Nuclear Corporation on October 7, 1997, as a result of numerous NRC inspection findings indicating that, since 1992, Sierra Nuclear’s quality assurance and corrective action programs have failed to identify and correct design control and fabrication deficiencies. The commenter expressed concern that a canister with fabrication deficiencies could fail, and if it contained failed fuel, could release fission products. (0198a)
- The cask maximum lift heights of 10 and 18 in. imply that vertical drops greater than these amounts would result in damage to the canister or interior contents. The commenter stated that the applicant must not only address lifting accidents while on-site at the proposed PFSF, but at the proposed ITF or during transport on either rail or highway, where significant damage could occur during an accident with the potential release of nuclear material. The commenter added that cladding of SNF elements is likely to be very brittle through extensive radiation embrittlement, so cladding failure is likely during such accidents. (0198a)

One commenter stated that training and certification of applicant personnel fails to satisfy Subpart I of 10 CFR Part 72 and will not ensure that the proposed PFSF is operated in a safe manner. The applicant’s organizational structure, pre-operational testing program, and testing program are identified in Section 9.1 through Section 9.3 of the SAR. These sections do not satisfy the minimal NRC requirements and do not provide assurance that the proposed PFSF will be operated in a safe manner. (0198a)

One commenter noted that the SAR has no discussion regarding the physical condition of operators, as required by 10 CFR 72.194. The commenter said that a potential operator should be required to pass a medical examination that certifies the operator has the physical ability to perform duties of his/her specific job and has no physical impairments or mental conditions that would adversely affect

his/her performance or cause operational errors that would endanger public health and safety. (0198a)

The commenter stated that the applicant relies on some of the assumptions in the Sandia report for calculating CEDE from the HI-STORM cask and for the fuel failure accident evaluated in the SAR. The commenter stated that the applicant also relies on the Sandia report for its assumption that only 5 percent of the release fraction of Co-60 and Sr-90 will be respirable. However, the applicant did not explain why it was appropriate to use this particular assumption from the Sandia Report, but not the assumption regarding the initial release to the plenum, which would have yielded a higher dose than calculated by the applicant. Moreover, Sandia's assumption of a 5 percent respirable release fraction is based on a transportation accident. The applicant provides no evidence that it is an appropriate assumption for the fuel failure accident evaluated in the SAR. The commenter contended that a greater percentage of fuel would be respirable than calculated in the applicant's SAR. (0198a)

One commenter stated that the applicant failed to provide information about fuel failure that may be relevant to potential accidents at the proposed PFSF. Specifically, the commenter expressed concern with the applicant's statement that "the most vulnerable fuel" can withstand 0.63 g in the most adverse orientation. The commenter stated that the applicant did not provide the basis for its statement and did not specify whether this included fuel with leaks and cladding failures that has been stored underwater for many years and dry for many more years. Also, the commenter added that the applicant has not provided the loading that would cause such fuel to fail. (0198a)

#### **Response:**

The NRC staff acknowledges the comments regarding design aspects of the cask and its ability to withstand accidents. However, the issues identified in the comments are not directly related to the environmental review and EIS, but are instead related to the NRC safety evaluation. Therefore, these issues are beyond the scope of the EIS. The NRC staff considered these technical issues in its safety evaluation, and determined that the design and proposed operation of the proposed PFSF satisfied applicable regulations.

The NRC staff considered hypothetical accidents that could occur at the proposed PFSF and concluded that the proposed PFSF and cask design would provide sufficient shielding and would maintain confinement such that the doses to workers and to the public would be below regulatory limits. In the EIS, the staff evaluated the environmental impacts of the credible accidents and determined that the human health impacts would be small, as discussed in Section 4.7.2.3.

### **G.3.15.7 Cumulative Impacts**

#### **G.3.15.7.1 Inadequate Analysis of Cumulative Impacts**

##### **Comment Summary:**

A number of commenters expressed concern that the DEIS provided an inadequate analysis of cumulative impacts. Specifically, commenters expressed concern with the cumulative human health and environmental risks and impacts, such as increased cancers and deaths, that might result from adding the proposed PFSF to existing facilities in the area, many of which have hazards associated with them. Commenters said that existing facilities are already causing health problems and a cancer rate in the area that is several times the national average. (0009, 0056, 0096, 0116, 0118, 0121, 0135, 0139, 0157, 0166, 0171, 0180, 0182, 0189, 0190, 0194, 0195, 0198a, 0210a, 0215, 0217, 0257, GR-01, GR-09, GR-14, GR-23, SL1-01, SL1-14, SL2-05, SL2-14, SL2-17, SL3-06, SL3-37)

Many commenters stated that Utah and particularly the area in the vicinity of the proposed PFSF is already burdened and has suffered too much from the existing toxic facilities and military testing activities. Some commenters stated that there would be cumulative impacts from U.S. Army nerve

gas and chemical weapons incinerators, hazardous waste incinerators, the Envirocare “low level” radioactive waste dump, a hazardous waste landfill, a U.S. military biological weapons proving ground and bombing range, a U.S. Army depot with a large underground plume of carcinogenic water, the Tekoi Rocket Engine Test Facility, and a magnesium factory whose hydrochloric acid emissions make it one of the single worst air polluters in the country. (0001, 0019, 0033, 0044, 0056, 0064, 0067, 0071, 0074, 0075, 0076, 0091, 0095, 0111, 0116, 0128, 0129, 0137, 0139, 0141, 0147, 0149, 0164, 0174, 0185, 0190, 0194, 0195, 0203, 0210a, 0225, 0229, 0232, 0246, 0257, 0260, GR-08, GR-09, GR-14, GR-20, GR-23, SL1-09, SL2-13, SL2-14, SL2-17, SL3-07, SL3-08, SL3-16, SL3-21, SL3-37) One commenter also indicated that the area surrounding the proposed site (the Wendover Range and aerial munitions testing area) has a “historic pattern of errors, chemical leakages, dead sheep, frequency of carcinogenic anomalies, and nuclear fall-out.” (0163h)

Commenters were specifically concerned with the cumulative impacts of the proposed action and the following activities nearby:

- Radiation sources, including Envirocare, along the transportation route and in proximity to the proposed PFSF. (0215)
- Chlorine releases from MagCorp, air emissions from Kennecott Copper, above-ground disposal of low-level radioactive and mixed wastes at Envirocare, uranium mill tailings from the Atlas Corp. facility, and related impacts from Dugway Proving Ground, Tooele Army Depot, chemical weapons incinerators, hazardous waste incinerators, and medical waste incinerators in the area. (0009, 0116, 0190, 0215, GR-01, GR-14, SL1-01, SL2-14, SL3-37)
- Confirmed releases of deadly GB nerve agent and releases of polychlorinated biphenyls, dioxins, and mercury from the incinerator. (SL2-14)
- Bio-magnification and bio-accumulation of mercury from trash incineration. (SL2-14)
- The Envirocare proposal to increase its waste stream to include Class A, B & C radioactive wastes. (0096)
- Synergistic effects of the radiation from the proposed PFSF with impacts from surrounding toxic facilities. (0189, 0217) One commenter questioned whether possible synergistic effects of the radiation with other toxic compounds have been studied. (0189)

One commenter said that storing SNF on the Reservation will reduce incentives to clean up Superfund sites in Tooele County. (SL2-06)

One commenter said the cumulative impacts analysis is lacking the insight that was addressed in the scoping hearings and that the DEIS does not adequately evaluate the proposed action in the context of the collective, interrelated and cumulative impacts of the facilities in the region. (0171) One commenter stated that the determination that the proposed PFSF may not lead to significant additional exposure to harmful emissions does not excuse the NRC from examining cumulative exposure levels by combining past, present and reasonably foreseeable releases of all types of hazardous and toxic pollutants and emissions. The commenter noted that the purpose of a cumulative impact analysis is to examine the cumulative effects of even individually insignificant actions and impacts. The same commenter added that a cumulative impact analysis should include impacts of reasonably foreseeable single or multiple accidental releases of toxic and hazardous emissions in combination with emissions and impacts from the proposed PFSF. (0158) One commenter stated that the determination of the significance of potential environmental impacts on page xxxiv of the DEIS only addressed the single compound effect and does not take into account cumulative effects to ecological and health burden. The commenter cited page 3-56, Table 3.20 of the DEIS and indicated that the data did not take into account cumulative effects. (0096)



**Response:**

The NRC staff acknowledges the commenters' concern that Utah has borne its share of the burden of waste facilities. The EIS, as required under NEPA, provides an analysis of cumulative impacts of other past, present, and reasonably foreseeable future actions, including, where appropriate, the presence of other industrial facilities in the region to determine whether cumulative impacts would exist from hazardous and toxic pollutants and emissions. This included consideration of existing air emissions sources and background pollutant concentrations and cumulative effects on members of the public due to the presence of radioactive materials including the proposed PFSF and other known sources of radiation and pollution in the region. The proposed PFSF would not produce air emissions of radioactive material that could create additional or cumulative health effects. There would be only insignificant atmospheric emissions except for dust during construction activities or liquid discharges from the proposed PFSF that could create adverse cumulative impacts in conjunction with the other nearby industries. These emissions were evaluated as increments to the existing airborne pollutant levels in Skull Valley and were found to be insignificant from a combined or cumulative perspective. Therefore, the analyses in the EIS indicates that cumulative health effects of the transportation and storage of SNF at the proposed PFSF combined with other radiation exposures are small.

The NRC staff also acknowledges the comments regarding the current human health impacts of facilities currently near the proposed site, and specific concerns and opinions about the growing "burden" of pollution sources in the region west of Salt Lake City, particularly in regard to a potential new source of pollution from the proposed PFSF. However, the presence of the types of industrial facilities in Tooele County is a consequence of previous choices made by elected officials in the State of Utah and state and local permitting authorities. In addition, the NRC staff did not evaluate the current human health impacts of pre-existing facilities that could pose risks not associated with the proposed PFSF. Such an evaluation is outside the scope of the EIS. In addition, the staff, in this FEIS, did not assess the other facility impacts independently of the proposed PFSF, in Table 3.20.

The NRC staff notes the comments about nerve agent GB, PCBs, dioxins, mercury and other chemicals; however, none of these substances will be emitted by the proposed PFSF. Therefore, there would not be any cumulative chemical effects of these agents from other facilities with the proposed PFSF. The nearby facilities mentioned in the comments could result in human health effects at some locations primarily by airborne pollutant emissions. As discussed above, the proposed PFSF will not produce air emissions with radioactive material that could create additional or cumulative health effects. In addition, there is no evidence that radiation emitted from the proposed PFSF would have a synergistic effect with any emissions from the other facilities identified in the comments. Furthermore, the NRC staff has no evidence that storage of SNF at the proposed PFSF would reduce incentives to clean up Superfund sites in Tooele County.

For the proposed action, the only possible cumulative human health impacts including possible community disease rates, would be associated with exposure to direct radiation from the proposed PFSF and other known sources of radiation in the region. There are no foreseeable projects that would add substantially to the radiation environment in Skull Valley. The radiation doses discussed in Sections 4.7 and 5.7 of this EIS are extremely low and radioactive material would not accumulate in the environment or significantly interact with other possible adverse agents in the environment. In addition, as discussed in Section 6.3.7 of the EIS, the cumulative health effects of SNF and other radioactive waste transport on the population of Utah is small. Therefore, as discussed above, the cumulative radiological impacts from the proposed PFSF and associated transportation activities is small.

### G.3.15.8 Positive Comments on Human Health Analysis

#### G.3.15.8.1 General Comments

##### Comment Summary:

A number of commenters said the proposed PFSF is safe or that dangers associated with the proposed action have been greatly exaggerated. Several commenters said greater education about radiation will enable people to set aside their fears. Some commenters said that health impacts are being misrepresented, especially by making inaccurate comparisons to Hiroshima, Nagasaki and Chernobyl. (GR-03, GR-07, GR-08, GR-10, GR-17, SL1-03, SL2-10, SL3-53) Two commenters noted that many claims of radioactive waste dangers are unsubstantiated. (GR-08, SL1-03)

Several commenters stated that the radiological impacts of nuclear waste are minimal and that SNF can be safely transported and stored as proposed by the applicant. (0016, 0017, 0020, 0179, GR-02, GR-03, GR-08, GR-10, SL1-03, SL1-08, SL1-19, SL1-25, SL2-04, SL2-10, SL3-50) Commenters provided the following comments as a basis for their statements:

- Nuclear power is safe, or safer than other energy sources. (SL1-08, SL2-04, SL3-50)
- Radiation exposure can be simply and safely controlled with engineered barriers like the cask system. (0016, GR-02, SL1-03)
- SNF rods are not lethal for ten thousand years. (0170, GR-24)
- There is no evidence that the proposed PFSF will not be operated safely. (GR-02, SL1-03)
- SNF has been safely handled in other countries. (GR-08)
- The radiological impacts associated with transporting, handling, and storing the proposed quantities of SNF are minimal (potential radiation exposures to the public have been estimated to be less than 2 percent of naturally occurring background radiation). (0179)
- The residential radiological exposure of background radiation in Utah from radon, radioactive isotopes in the rocks and soil, and cosmic rays is equivalent to 360 mrem per year or 36 chest x-rays per year. (0170, SL2-04)
- Nuclear energy does not generate additional carbon dioxide to contribute to global warming. (0170)

##### Response:

The NRC staff acknowledges the comments. The NRC staff agrees that there is reasonable assurance that operation of the proposed PFSF, constructed in accordance with the design set forth in the application, will provide adequate protection of the public health and safety. Specifically, the proposed PFSF will have met applicable NRC licensing requirements, and operation of the proposed PFSF would be subject to NRC inspections and reviews of operating procedures, and required reports. Thus, the NRC would continue to review compliance with applicable NRC requirements, should the NRC grant a license and the PFSF be constructed and operated. The NRC staff did not determine the validity of the specific positive comments insofar as they go beyond the safety criteria used by the NRC staff in its safety review of the proposed PFSF, and the environmental impacts addressed in the EIS.

### G.3.15.8.2 Minimal Radiological Exposure to Workers

#### Comment Summary:

Two commenters stated that the radiological exposure to workers will be minimal and less than the maximum safely allowed. (0017, 0170) One commenter stated that workers would spend only the minimum time necessary near a storage cask, in accordance with ALARA principles, and that operators will be adequately shielded. The commenter stated that a worker within arm's length of one storage cask for 8 hours would be exposed to 20 mrem, the maximum safe amount for one day. The commenter also stated that for a worker near a whole array of storage casks, the exposure is almost 7.5 mrems per hour, so the worker should limit his time to under 2.5 hours per day. According to the commenter, workers would be monitored with radiation badges to assure their individual safety. (0170)

#### Response:

The NRC staff agrees that the radiological impacts from SNF would be small. Doses to workers, although generally higher than those received by the general public, would be administratively controlled to levels at or below NRC's regulatory limits. The NRC staff did not independently verify or evaluate specific data provided by the commenter regarding dose rates and work times at the proposed PFSF. However, the NRC staff concluded that the shielding features of the casks and proposed PFSF are adequate to ensure that radiation exposures to workers can be within applicable regulatory limits for both normal and accident conditions, based on expected dose rates and work times provided by the applicant. The NRC staff evaluation is documented in Chapter 7 of the SER, as updated.

### G.3.15.8.3 Safety of ISFSIs

#### Comment Summary:

Several commenters stated that the proposed action would be safe as evidenced by the operation of other on-site SNF facilities in the United States and other countries. (0014, 0170, GR-08, GR-12, GR-17, SL1-03, SL1-40, SL2-04) One commenter asserted that there has never been a release of radiation to the public from operation of these facilities. The commenter said that the NRC had calculated that an individual standing at the boundary of the proposed PFSF would receive "no more than a fraction of the normal background dose in the United States." (0014, GR-12, SL1-40) Another commenter calculated the exposure equivalent of living near the full-capacity site for 20 years to be one chest x-ray. (0170, SL2-04)

Some commenters stated that there would be no significant impacts from an accident. A few of these commenters asserted that accidents involving compromised casks or fuel rods would be easily contained and remediated since the SNF, according to those commenters, is in the form of heavy solid pellets, confined in the fuel rods which are sealed in canisters in an inert gas atmosphere. (0016, 0020, 0170, GR-08, SL1-25) One commenter asserted that even if a canister and its fuel rods were broken apart, the pellets would only lay around on the ground where they could easily be found with a geiger counter. (0020-11) One commenter stated that it is impossible for heat buildup in the storage facility to lead to an accident like Three Mile Island or Chernobyl. The commenter stated that any release of material could be expected to be small and to happen very slowly. (0016) One commenter stated that if an accident occurred there would not be a nuclear explosion and there would not be a meltdown. (SL1-25) Another commenter stated that nuclear fission reactions are not set off by heat, light, chemicals, electric sparks, or lightning and the neutron-absorbing characteristics of the cask materials and SNF prevents fission chain reactions. (0170) The same commenter stated that the consequence of a tipped cask would be heat buildup. The commenter indicated that this heat buildup could be mitigated by righting the cask or installing a cooling fan. Also, the commenter stated that there would be at least seven days to stand it up or install a fan before any structural damage

could begin. (0170) One commenter stated that resources would be available to respond to fires. (SL3-57)

**Response:**

The NRC staff agrees that there is reasonable assurance that operation of the proposed PFSF, constructed in accordance with the design set forth in the application, will provide adequate protection of the public health and safety. Specifically, the proposed PFSF will have met applicable NRC licensing requirements, and operation of the proposed PFSF would be subject to NRC inspections and reviews of operating procedures, and required reports. Thus, the NRC would continue to review compliance with applicable NRC requirements, should the NRC grant a license, and the PFSF be constructed and operated. The NRC staff safety evaluation of the proposed PFSF is documented in the SER, as updated. The NRC staff did not evaluate the validity of each specific comment regarding the characteristics of the SNF and proposed PFSF insofar as they go beyond the safety criteria used by the NRC staff in its safety review of the proposed PFSF design, and the environmental impacts addressed in the EIS.

However, the NRC staff notes that the EIS provided radiation dose analyses of off-normal operation and accident scenarios for the proposed PFSF, which included accident assumptions and scenarios that involved partial blockage and 100 percent blockage of cask air inlet ducts. The NRC staff reviewed the proposed PFSF design and concluded that no credible accident (including earthquakes, tornados, floods, cask drop events, and vent blockage) would result in a release of SNF contents. The NRC staff did not consider release of SNF pellets or tipped casks to be a credible event after a credible accident, as suggested by some commenters.

**G.3.15.8.4 Extremely Low Probability of Aircraft, Bomb or Missile Accident**

**Comment Summary:**

One commenter stated that the probability of an accident involving an Air Force aircraft, bomb, or missile and the proposed PFSF would be extremely low, well below the regulatory standards set by the NRC. The commenter added that even if such an accident were to occur, it is unlikely that any radioactive material would be released into the environment from the heavy concrete and steel casks in which it will be stored. The commenter provided a detailed analysis similar to that provided in the license application to support these conclusions including the following data:

- The annual probability that a storage cask or the Canister Transfer Building would be damaged by an explosion of live ordnance jettisoned from a crashing aircraft or carried aboard an aircraft that crashed near the proposed PFSF is equal to  $2.43 \times 10^{-10}$ , which is insignificant.
- The maximum annual air crash impact probability for aircraft conducting air-to-air training on the UTTR South Area was calculated from the sum of impact probabilities of the altitude bands to be  $7.35 \times 10^{-8}$ .
- The average annual crash impact probability for aircraft flying the Moser recovery is conservatively estimated to be  $1.32 \times 10^{-8}$ .
- The probability of an aircraft from Michael Army Airfield and airway IR-420 crashing at the proposed PFSF is  $3.0 \times 10^{-9}$  per year.
- The cumulative probability that a military aircraft would crash and impact the proposed PFSF or that ordnance jettisoned from military aircraft would impact the site is  $3.93 \times 10^{-7}$  per year, and would not require the Air Force to change its operations on or around the UTTR.

The commenter stated that hung ordnance (ordnance that does not release from the plane when the pilot initiates release) striking the proposed PFSF is not a credible event and does not require the Air Force to change its operations on or around the UTTR. Also, the commenter stated that a cruise missile striking the proposed PFSF is not a credible event and if the proposed PFSF is built and operated, the Air Force would not need to change its testing of cruise missiles on the UTTR. (0163)

**Response:**

The NRC staff agrees that an accident at the proposed PFSF involving Air Force aircraft, bombs, and cruise missiles was not considered a credible event because of the low probability of this type of occurrence (approximately one in a million crashes per year) at the proposed PFSF. As discussed in the response in G.3.15.6.1, the NRC staff reviewed the information provided by the applicant regarding air crash probabilities and found it acceptable as documented in Chapter 15 of the SER, as updated.

## G.3.16 Transportation

### G.3.16.1 Incident-Free Transportation Analysis Methodology and Assumptions

#### G.3.16.1.1 Need for a Site-Specific Transportation Risk Assessment

##### Comment Summary:

One commenter stated that risk assessments, both quantitative and qualitative, are critical for the initial and ongoing evaluation of a facility for licensing, environmental impact analysis, and operations. The commenter expressed the view that the license application for the proposed PFSF failed to provide a risk assessment. The commenter asserted that until one is done and a sufficient opportunity for public review is provided, it is impossible to evaluate the cumulative impacts of facility and transportation options on the public and the environment. Without such evaluation, the commenter stated that the EIS is incomplete and unacceptable. The commenter also indicated that the EIS must fully examine the safety of all the equipment to be utilized in the transportation of the SNF, including canisters, trucks, railroad cars, and loading and unloading equipment. (0198h)

The same commenter stated that the EIS should consider all environmental impacts associated with normal transportation of SNF, including occupational radiation exposures and exposures to the public along highways and rail lines. The commenter stated that the RADTRAN computer code is significantly more accurate and generally shows much higher radiological doses to the general public than methods used in the past by the NRC, and the NRC staff should use that code in performing its analyses. The commenter stated RADTRAN is consistently used by the DOE in its environmental analyses of radioactive waste transportation, and there is no reason it cannot be used by the NRC. (0198h)

The commenter contended that use of 10 CFR 51.52, Table S-4, to estimate the radiological impacts of transporting SNF from reactor sites to the proposed PFSF is inappropriate because the supporting analysis for Table S-4, WASH-1238, "Environmental Survey of Transportation of Radioactive Materials to and from Nuclear Power Plants," is not applicable for the SNF transportation being proposed by the applicant. Specifically, the commenter indicated that the EIS must consider the great distances over which SNF would be shipped to the proposed PFSF. The commenter explained that WASH-1238 is based on a transportation distance of approximately 1,000 miles, but the distance to the proposed PFSF may be more than twice that amount. (0198h) The same commenter stated that in WASH-1238 the NRC staff assumed that SNF would be stored under water in pools for a short period, and then individual fuel assemblies would be shipped; but under the proposed action all SNF would be stored at reactor sites for at least five years. The commenter stated that some of this SNF is likely to have been stored in dry casks prior to shipment. The commenter asserted that SNF that remains in a fuel pool until shipment to a reprocessing plant does not experience the potentially damaging environment of dry storage. (0198a)

The commenter also asserted that the HI-STAR cask, which the applicant proposed to use can hold more than a critical mass of SNF (17 PWR assemblies). The commenter stated that this stands in contrast to the assumption underlying WASH-1238 and Table S-4, which is 7 PWR assemblies for a train cask, an amount less than a critical mass. The commenter stated that if the NRC staff gives "burn up credit," then the decision as to when SNF is sufficiently used up or "burned" to justify shipment becomes essentially a management decision. The commenter stated that leaving this decision in the hands of the reactor licensees could introduce an additional source of human error, in which mistakes could lead to criticality accidents. The commenter asserted that a criticality event, in which fuel is rearranged and water enters the cask, would be far outside the envelope of consequences assumed in Table S-4 and *Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes*, NUREG-0170, published December 1977. (0198a)

The commenter also stated that there are many deficiencies in WASH-1238, and, therefore, doses must be recalculated for the entire shipping distance from plants to the proposed PFSF, and from the proposed PFSF to the repository, for all 19 plants served by the proposed PFSF. (0198h)

The same commenter stated that the NRC staff should evaluate the demographics of transportation corridors proposed for use by the applicant. The commenter expressed concern that large quantities of SNF would pass through Salt Lake City, a major population center. (0198h)

**Response:**

These comments were based on the applicant's ER. As documented in the SER, the NRC staff examined the safety and risks of the proposed PFSF using the methods and approaches described in the comment. Section 5.7 of this FEIS presents the potential human health risks of transporting the SNF. In the transportation analysis in the DEIS the NRC staff considered the impacts of transporting SNF from the reactor sites to the proposed PFSF. The DEIS as written (including Chapters 5 and 6, and Appendices C and D) accommodated these comments.

The response in Section G.2 describes the NRC staff's consideration of Table S-4. This FEIS includes a comparison of the applicant's dose estimates to the results in 10 CFR Part 51, Table S-4 (and WASH-1238), and NUREG-0170, and concluded that the dose estimates of the proposed action are less than the estimates in Table S-4 and NUREG-0170.

Regarding some of the technical points raised by the commenter, environmental conditions (e.g., temperature) are established as part of the safety review for cask certification (i.e., licensing) of the SNF storage systems. The objective of establishing the environmental conditions is to prevent SNF degradation. SNF that is damaged to the point where cladding may not provide confinement must be canistered prior to shipment, and the authorized contents of transportation casks are specified in the certificate of compliance issued by the NRC. The canister designs are quite robust and more than compensate for the condition of the SNF. Thus, damaged SNF does not produce any increase in consequence or risk of an accident. Pursuant to 10 CFR Part 71, casks must be designed to maintain subcriticality during normal conditions of transport and hypothetical accident conditions. The FEIS is intended to address the environmental impacts of the proposed action, not to conduct or repeat a safety review of a certified cask. The NRC staff, in evaluating the probabilities and consequences of accidents set forth in the FEIS, appropriately took into consideration failures of transportation equipment and the SNF.

The effects of population densities along transportation corridors including those through Salt Lake City, were captured in the DEIS by the construction of rural, suburban, and urban route segments for the transportation routes examined. If by demographics, the commenter means the characteristics of the population along the route (income level, minorities, etc.), the NRC staff examined this in the DEIS in Chapter 6, Sections 6.2, 6.3.9, 6.4.9, and 6.7.9, which discuss environmental justice considerations relative to the impacts of the proposed PFSF.

**G.3.16.1.2 The EIS Should Rely on Table S-4, Not Site-Specific Assessments**

**Comment Summary:**

One commenter stated that NEPA does not require that environmental impacts already evaluated in prior EISs be reevaluated, particularly when subsequent NRC analyses have shown Table S-4 to be conservative. Specifically, the commenter stated that Section 5.7.2 should compare radiological exposures during cross-country transportation with those set forth in Table S-4 since the purpose of the analysis set forth in the EIS should be to ascertain whether the conclusions of Table S-4 of 10 CFR Part 51 remain conservative. The commenter asserted that the cross-country analysis is unnecessary in light of the provisions in Part 72 requiring only a regional transportation analysis and

the fact that the environmental impact statements prepared for all of the applicant's potential reactor customers have included a transportation analysis. (0163)

Thus, the commenter concluded that the FEIS should explicitly recognize that Table S-4 is the applicable NRC regulatory standard, that SNF transportation falls within the bounds of Table S-4, and that the RADTRAN analysis described in the EIS confirms the Commission's regulatory standard in Table S-4. (0163)

**Response:**

The response in section G.2 explains the rationale for the analysis performed by the NRC staff, and the applicability of Table S-4. The transportation analysis in the FEIS has been expanded to elaborate on the rationale for the RADTRAN analysis included in the DEIS, and to include a comparison of the FEIS results to Table S-4. The NRC staff concludes that the analysis adequately estimates the environmental impacts from transportation of SNF to the proposed PFSF.

**G.3.16.1.3 Inadequate Methodology in the Applicant's ER**

**Comment Summary:**

One commenter contended that the ER failed to give adequate consideration to the transportation-related environmental impacts of the proposed PFSF. The commenter stated that in order to comply with NEPA, the applicant and the NRC staff must evaluate all of the environmental impacts associated with transportation of SNF to and from the proposed PFSF, including preparation of SNF for transportation to the proposed PFSF, transportation of SNF to the proposed PFSF, SNF transfer during transportation to the proposed PFSF, transfer and return of defective casks to the originating nuclear power plant, and transfers and transportation required for the ultimate disposal of the SNF. The commenter asserted that the ER used the numerical values in Table S-4 for its evaluation of the transportation-related environmental impacts of the proposed PFSF, claiming that these values are conservative with respect to the scope of activities of the proposed PFSF. (0198a)

The commenter stated that while the supporting analysis for Table S-4, WASH-1238, includes the dose to the truck crew, garage men, and freight handlers for a standard SNF shipment, the applicant's proposal involves additional handling of the SNF canisters and casks. The commenter stated that at an originating reactor site, the SNF must be placed in a storage cask for placement in a transportation overpack and transported to the ITF; then this transportation package must be lifted onto a heavy-haul truck, transported to the proposed PFSF, and then the SNF cask must be transferred to a storage overpack. (0198a)

The commenter also stated that, in an apparent effort to supplement Table S-4, the SAR contains an analysis of the impacts of SNF transfer at the proposed ITF. The commenter stated that even if Table S-4 applies, this analysis is inadequate as follows: The applicant assumes that there would only be one cask on the Rowley Junction site every day. The commenter asserted that there would be a high volume of rail shipments involved and it is likely that bottlenecks would form at Rowley Junction; therefore, it is likely that more than one cask would be stored at the proposed ITF at any given time. The commenter stated that the applicant failed to evaluate the potential for bottlenecks and their impacts with respect to incident-free handling and accidents. The commenter stated that the applicant also failed to take into account the additional doses that would be incurred by state and Federal radiation inspectors. (0198a)

**Response:**

The discussion in Chapter 5 of the DEIS provided an analysis of the environmental impacts of transporting SNF from reactor sites to the proposed PFSF. The analysis addressed the options proposed by the applicant. Additional evaluations proposed by the commenter are beyond the scope



of this FEIS. Regarding the applicability of Table S-4, see the transportation response in Section G.2. See also Section G.3.16.1.8 (worker doses at reactors).

#### **G.3.16.1.4 Different Methodology in DEIS as Compared to the Applicant's ER**

##### **Comment Summary:**

One commenter stated that the transportation impact analysis prepared by the NRC contractors, SAIC, Oak Ridge, is different than the analysis the applicant included in the ER. The commenter stated that while the DEIS transportation analysis is more specific than the applicant's ER, it is seriously deficient. (0198g) The same commenter stated that the DEIS represents a much more specific analysis of the applicant's project, using more up-to-date analytical tools. The commenter contends that Table S-4 is not applicable for the proposed PFSF. (0198b)

The commenter also stated that the NRC staff resisted these changes in the context of the applicant's licensing hearing, and yet has gone ahead and made many of them behind the scenes. The commenter stated that this illustrates the NRC staff's general resistance to public participation in the applicant's licensing proceeding, and generally undermines the NRC staff's credibility in this environmental review process. (0198g)

The commenter stated that rather than employing WASH 1238, the DEIS utilizes the RADTRAN 4 computer program to model specific routes, and the population zones and radiation risks for each route. (0198g)

The commenter stated that there are great differences between the DEIS and the applicant's ER with respect to the transportation of SNF. Table S-4 makes many assumptions that are different from the assumptions used in the DEIS. (0198g)

##### **Response:**

Oak Ridge National Laboratory assisted the NRC staff in performing the transportation analysis in the DEIS. The NRC staff acknowledges that the analysis in the DEIS is different from the analysis in the applicant's ER. The response in Section G.2 explains the rationale for the analysis performed by the NRC staff.

The discussion in Chapter 5 of this FEIS provides an adequate analysis of the environmental impacts of transporting SNF from the reactor site to the proposed PFSF. The transportation analysis in the FEIS was expanded to include a comparison of the transportation impacts estimated for the proposed PFSF with Table S-4. In reference to the PFS proceeding before the Atomic Safety and Licensing Board (ASLB), the NRC staff indicated at the hearing that the NRC staff would appropriately rely on earlier NRC transportation studies. The NRC staff has determined that the analysis in the DEIS is consistent with that position. The NRC environmental review process is open and provides an opportunity for public comment.

#### **G.3.16.1.5 Additional Routes Should Be Specified Instead of One Representative Route**

##### **Comment Summary:**

One commenter was impressed to see an analysis of transportation impacts of the proposal. The commenter appreciated that the analysis in Section 5.7.2.3 of the radiological impacts of national transportation of SNF was conducted on a "worst-case" basis by assuming that all 40,000 MTU of SNF would be shipped from Maine to Skull Valley, resulting in a conservative estimate of exposure in a more concentrated population over the longest possible route for a longer period than would occur in reality. The commenter urged that the calculation be made available for more likely routes and actual amounts so that states along specific corridors would be able to relate to their own scenario. The

commenter found the methodology used by the DOE in the Yucca Mountain DEIS of providing "generic risk" for incident-free and accident doses for both rail and truck modes to be of some value to state and local governments, even though the DOE deferred on selection of mode or routing for the permanent geologic repository. (0236)

**Response:**

Contrary to the comment, the NRC staff does not claim that the FEIS analysis either represents a worst-case scenario or is the longest possible route for an individual SNF shipment. NEPA does not require an EIS to include a worst-case analysis. The NRC staff used a representative route approach to evaluate the transportation impacts of the proposed action. In this approach, the NRC staff performed its analysis as if the SNF to be stored at the proposed PFSF would travel from the Maine Yankee nuclear power plant (even though the Maine Yankee plant itself would never possess that much SNF to ship). This route is one of the longest possible routes that any individual shipment could experience, and also passes through some of the most populated regions of the country. Maximizing these factors tends to conservatively overestimate the transportation risks. Thus, the overall risks estimated using this route are expected to characterize the risks of shipments to the proposed PFSF, regardless of their individual origin, transportation details (such as use of intermodal transfer near the reactor site), and reasonably foreseeable route characteristics. Use of the representative route approach in the FEIS is further supported by the fact that the volume of SNF, modes (namely, exclusively rail or intermodal including rail), routes, and reactor licensees that could ship SNF to the proposed PFSF are subject to decisions that are yet to be made.

The staff acknowledges the comment about DOE's risk methodology. However, it is not related to this action.

The analysis provides a conservative estimate of the radiological impacts from transporting 40,000 MTU of SNF to the proposed PFSF. The NRC staff concluded from the analysis that the transportation impacts from the proposed action would be small.

**G.3.16.1.6 Reliance Should Not Be Placed on the DOE Yucca Mountain DEIS**

**Comment Summary:**

Two commenters expressed concerns that the DEIS relied on the transportation analysis conducted for the Yucca Mountain project as the basis for the proposed PFSF, because the commenters considered the previous analysis to be inadequate. (SL2-12, SL3-09) One of these commenters stated that much has changed since 1982 or 1986, which is when the data for the Yucca Mountain analysis were collected. One commenter stated that it seems as if the applicant's ER and SAR rely exclusively on the 1986 Yucca Mountain environmental assessment for the transportation related risks of this proposal. (SL3-09) Another commenter stated that the DEIS did not adequately address national transportation impacts, saying that a national transportation impact analysis was done in the 1999 DEIS for the Yucca Mountain project. The commenter stated that the analysis also was inaccurate. The commenter also stated that most people agree that the transportation analysis in the DOE Yucca Mountain DEIS was insufficient. The commenter stated that NRC Chairman Meserve has stated that he also considered the DOE analysis of national transportation to be less than admirable. (SL2-12)

**Response:**

The NRC staff's transportation analysis for the proposed PFSF does not rely upon the transportation analysis that appears in either the DOE's 1999 Yucca Mountain DEIS or the DOE's 1986 Environmental Assessment. The NRC staff commented on the DOE's Yucca Mountain DEIS, including the transportation aspects, and the NRC staff understands that those comments are being resolved by the DOE through its comment resolution process. The adequacy and accuracy of the

DOE's DEIS, and the NRC staff's comments on it, are beyond the scope of this EIS, which only considers risks related to the proposed PFSF. However, the NRC staff notes that both this FEIS and the DOE's Yucca Mountain DEIS have common references, such as the 1987 Modal Study (NUREG/CR-4829, Shipping Container Response to Severe Highway and Railway Accident Conditions, February 1987), and in general use a similar (but not identical) risk assessment approach. The adequacy of the NRC approach and references is addressed in the response to transportation issues in Section G.2. The NRC's official comments on the DOE Yucca Mountain DEIS can be found on the NRC web page ([www.nrc.gov/NMSS/DWM/eiscomments](http://www.nrc.gov/NMSS/DWM/eiscomments)).

### **G.3.16.1.7 Comparison of Proposed PFSF DEIS and Yucca Mountain DEIS Results**

#### **Comment Summary:**

One commenter stated that even if results in the DOE Yucca Mountain DEIS are scaled appropriately for differences in the quantity of SNF and distance, the incident-free population doses, especially the worker doses, remain higher than those in the proposed PFSF EIS. (0169)

#### **Response:**

The proposed PFSF DEIS shows that the estimated incident-free doses for population and workers are small. The DOE reached a similar conclusion in its Yucca Mountain DEIS.

The "Mostly Rail Option" of the DOE's Yucca Mountain DEIS includes 10,815 rail shipments and 2,601 truck shipments for a total of 13,416 shipments to the proposed permanent repository. The total number of shipments considered in the proposed PFSF DEIS is only about 30 percent of this total. The estimated incident-free dose to the general population over the lifetime of a permanent repository, derived from the DOE Yucca Mountain DEIS, is between 990 and 1500 person-rem; the analogous value for the proposed PFSF is 184 person-rem, which is between a factor of five and a factor of eight smaller.

Some of the differences between the two EISs can be attributed to the use of general rail-freight input values for stop times in the DOE Yucca Mountain DEIS, as opposed to the dedicated rail input for stop times used in the proposed PFSF DEIS. Additional sources of conservatism in the DOE Yucca Mountain DEIS include the use of different package dimensions and slightly different cask dose rate values, both of which strongly affect the result. These inputs to the analysis also caused the Yucca Mountain DEIS risk estimates to be higher than those in the proposed PFSF DEIS.

Differences between the worker dose values can be attributed mainly to the inclusion of at-reactor worker doses in the DOE Yucca Mountain DEIS. These workers were not included in the proposed PFSF DEIS, nor have they been included in any major transportation analyses performed by the NRC in the past. The reason for this is that they are already considered in the environmental documentation associated with the reactor itself. For a more detailed response regarding the inclusion of at-reactor worker doses see the comment response in Section G.3.16.1.8.

The FEIS for the proposed PFSF adequately characterizes the risks and safety issues associated with the transportation aspects of the proposed action. The FEIS characterizes these risks and safety issues using assumptions that reflect the maximum number of shipments that would be required and the fact that transport to a permanent facility would eventually be necessary.

### **G.3.16.1.8 The EIS Transportation Analysis Should Be Comprehensive**

#### **Comment Summary:**

One commenter stated that the applicant has not identified the originating locations of the SNF, the means and routes by which it would be shipped, or the specific manner in which it would be

transferred to shipping vehicles. The commenter stated that the EIS must address the impacts of all actions that are foreseeable as a result of the licensing of the activities proposed by the applicant. The commenter further stated that impacts of both normal operations and off-normal operations, such as accidents and sabotage, must be considered, including preparation of SNF for transportation to the proposed PFSF; actual transportation of SNF to the proposed PFSF by rail and/or truck; transfer from rail to truck at the currently proposed ITF; transportation from the proposed ITF to the proposed PFSF by heavy-haul truck; and transfer from transportation casks to storage casks. The commenter stated that the EIS must also consider transfer-related and transportation-related impacts that would be incurred if the SNF had to be returned to the originating nuclear power plant site or another site if it is found to be improperly packaged or defective, and the impacts of transferring and transporting SNF to a final repository at the conclusion of the storage period at the proposed PFSF. (0198h)

**Response:**

These comments were based on the applicant's ER. The NRC staff concluded that the DEIS (in Chapter 5 and Appendices C and D) is responsive to these scoping comments. The impacts of SNF handling at reactors, including preparations for handling and transport of SNF, are considered as matters of reactor operations and licensing and, therefore, were considered in the EISs for the reactor sites. The radiological impacts to workers at reactor sites, including doses from SNF handling activities, are administratively controlled and limited by regulations in 10 CFR Part 20 to no more than 5 rem/yr to any individual worker. In reality, worker doses are significantly below this limit due to application of administrative limits and requirements to reduce doses to levels that are ALARA. Therefore, the transportation analysis begins once the SNF is loaded on a transportation vehicle on or near the reactor site. In the FEIS, Chapter 5 and Appendix D were revised to explicitly discuss intermodal operations near reactor sites (e.g., heavy-haul truck or barge to a rail-head). The overall transportation risk is discussed in Section 5.7.2 of the FEIS. The NRC staff determined that the impacts are small.

The impact of returning SNF that is improperly packaged or defective to the originating reactor is small and insignificant. It is expected that only a small number, if any, of the SNF canisters would arrive at the proposed PFSF improperly packaged or defective to the extent that it would be necessary to return the SNF to the originating reactor site. This is because the SNF would be handled and loaded in accordance with each utility's specific operating procedures and requirements, which must satisfy all applicable NRC requirements. In the unlikely event a canister would need to be returned to the originating reactor, it would be returned in a transportation cask that would meet all the DOT and the NRC transportation regulations. Because it is expected that only a small fraction of canisters, if any, would need to be returned, the incremental increase in radiological impacts resulting from the additional shipments is considered to be small.

**G.3.16.1.9 NRC Regulations for Cask Designs and Their Bases Are Inadequate****Comment Summary:**

One commenter stated that the NRC's reliance on NUREG-0170 and the 1987 Modal Study for risk estimates in the DEIS was unsound because the irradiated SNF transport container testing standards upon which they are based are unsound. The commenter indicated that the testing standards are extremely outdated, and do not represent real-life accident potentials. The commenter focused comments on two of the NRC tests. Specifically, the commenter stated that trains will be traveling at higher speeds, and will generate greater forces than those represented by the NRC drop test, and could run into unyielding surfaces. The commenter requested that the NRC staff identify the unyielding surfaces along the route from the eastern reactors to Utah. The commenter also stated that the NRC fire test is outdated and insufficient. The commenter stated that combustibles on or near railways in the year 2000 include chemicals with burning temperatures much higher than 1,475 degrees, and real-life train fires have burned for much longer than 30 minutes, with some burning for many days. (0194)

One commenter claimed that the Part 71 drop test of 30 feet represents a 30-miles-per-hour impact onto an unyielding surface. The commenter stated that there are unyielding surfaces on the rails to the proposed PFSF, such as bridge abutments and possible drops from ridges onto rocks, and the train speeds are a bit higher than 30 miles per hour. (GR-16)

One commenter stated that the same criteria used for the building that will house the SNF should be used for the vehicles to transport the SNF. For example, the commenter asserted that if the vehicles could be constructed to be bombproof and to survive derailment, then public safety would be well served. (0036)

**Response:**

The FEIS states that only NRC-certified cask designs (in this case, the HI-STAR cask) can be used for transportation of commercial SNF to the proposed PFSF.

The Commission previously determined that transportation regulations in 10 CFR Part 71 provide a reasonable degree of safety. This is based, in part, on NUREG-0170, which includes an estimate of impacts from large-scale SNF shipment campaigns, and shows that environmental impacts from the transportation of all radioactive material are small (46 FR 21619, April 13, 1981). Subsequent studies have reaffirmed this conclusion. For example, the 1987 Modal Study concluded that the impact and thermal forces that are represented by the NRC certification tests in 10 CFR Part 71 encompass 994 of every 1,000 accidents.

The hypothetical accident conditions in 10 CFR Part 71 are a set of repeatable engineering tests that were developed to produce the damage seen in severe transportation accidents. They are not intended to mirror any specific accident scenario, but to envelop the damage seen in all but the most severe accidents. All of the NRC transportation studies, including this FEIS, recognize that some accident scenarios could occur in which the thermal and impact forces exceed those represented by the design standards. However, those types of accidents are rare, and in estimating the risk, their probability is considered in addition to their consequences. Also, possible impact speeds in actual SNF transportation may exceed the impact speed in the test, but the combination of speed, impact surface hardness, orientation to produce maximum damage, and very low allowable leakage in the impact tests is not likely to be exceeded in an actual accident. Because the regulatory standards have previously been determined to be adequate, more rigorous cask designs are not considered in the FEIS.

The accident severity categories (from the Modal Study) used by the EIS account for the occurrence of wayside features (such as hard surfaces) that might approximate unyielding surfaces along the transportation route. The NRC staff used the values from the Modal Study in lieu of values specific to the Maine Yankee to the proposed PFSF route (which could have been obtained, for example, through GIS data), because the staff intended this route to represent shipments from any location in a reasonable and conservative fashion.

**G.3.16.1.10 The EIS Should Have Relied Upon Other Studies**

**Comment Summary:**

One commenter stated that use of the transportation accident probabilities and release fractions "based on the Modal Study," [page 5-44] in the DEIS is inappropriate. The commenter had previously criticized the use of the Modal Study for transportation accident analyses, especially regarding the performance of large rail casks in severe accidents. The commenter provided a critique of the Modal Study as an attachment to the comment letter. The commenter stated that the NRC staff is in the process of conducting a study to update the Modal Study with specific reference to the increased number of shipments, changes in shipping cask designs, and the changing transportation environment in which shipments to a temporary storage facility and/or a permanent repository would take place.

The commenter stated that the discussion of the Modal Study in the EIS must be revised to address both the technical and procedural implications of the Modal Study reassessment currently being conducted by the NRC. The commenter asserted that the NRC would almost certainly not complete its Modal Study update until if the NRC issues the proposed license. (0204)

A commenter stated that the EIS should re-evaluate previous assumptions and calculations regarding radiological releases during an accident. The commenter asserted that recent analyses suggest that during a severe accident, a greater fraction of Cesium-137 may be released than estimated in WASH-1238. The commenter also stated that the Cesium-137 inventory of the TransStor cask is a factor of 3.4 greater than assumed in WASH-1238 and that this new information must be evaluated in the EIS. (0198h)

One commenter stated that more analysis should be done on the risks of a canister breaking in an accident because, in the event of an accident, the structural integrity of the canisters is questionable. (0113) Another commenter stated that the EIS should re-evaluate previous assumptions and calculations regarding radiological releases during an accident. (0198h) Another commenter stated that accident scenarios considered in the DEIS are too few. (0058)

One commenter stated that the radiation risk analysis should be based on the most recently available estimates, namely the *Reexamination of Spent Fuel Shipment Risk Estimates*, March 2000, NUREG/CR- 6672. The commenter stated that the data in that study substantiate that the risk estimates in NUREG-0170 are, indeed, conservative when related to the actual shipment experience from the later study. (0236)

#### **Response:**

The EIS employs radiological release information contained in NUREG/CR-4829. NUREG/CR-4829 was published by the NRC in February 1987, after being peer reviewed by the Denver Research Institute. The information in this report is adequate for the purpose of assessing SNF transportation impacts, and provides a conservative estimate of (i.e., overstates) these impacts. The response in section G.2 provides additional insight on this conservatism.

The NRC staff is aware of the criticisms sponsored by the commenter, but the staff concluded that at the time the DEIS was being prepared, the Modal Study remained the most comprehensive and best available information on the severe accident performance of casks. The commenters do not identify any better source of information. Therefore, the Modal Study is a valid source of information on SNF cask behavior under severe accident conditions, and the NRC staff used that information, as documented, in the DEIS. As noted by the commenters, the NRC continues to conduct new studies on SNF transportation safety. However, the new studies do not invalidate the NRC's previous efforts, such as the Modal Study, and are not a necessary prerequisite to performing an adequate assessment of SNF transportation impacts as part of an environmental review associated with licensing, such as is documented in the FEIS.

When the NRC staff prepared the transportation analysis for the DEIS, NUREG-6672 was not complete. NUREG-6672 was published in March 2000, when the NRC staff was essentially finished with the transportation analysis.

### **G.3.16.2 Intermodal Facility Operations and Transport Segments**

#### **Comment Summary:**

One commenter stated that, historically, most heavy-haul movements of commercial SNF have been either on the site of a commercial nuclear power plant, or off-site a relatively short distance to a nearby rail or barge facility. The commenter stated that on-site heavy-haul movements of SNF at licensed nuclear power plant facilities have generally not had to address the heavy-haul constraints such as

impacts to traffic, need for road improvements, and transporter (heavy-haul) design. The commenter stated that wheel spacing and load distribution requirements for a single-purpose, on-site and/or near-site road can be quite different from those for public highways and roads. The commenter also stated that for off-site movements of SNF, as a general rule, the longer the heavy-hauling distance, the more difficult it is to implement such movements on a routine basis. The commenter asserted that most heavy-haul movements of SNF have been over relatively short distances and that movements of up to 10 miles have been conducted without major issues arising; but beyond that, the impediments have mounted exponentially. The commenter added that these are associated logistical problems, and that some heavy-haulers have stated categorically that hundreds, or even dozens, of repetitive movements of large SNF casks (the current proposal anticipates hundreds per year) over public roads would simply not be tolerated by most public highway officials. (0198i)

**Response:**

The DEIS addressed the heavy-haul transportation option. Movement of large loads is a mature technology and the distances being proposed are not excessive or unprecedented for large loads. The DEIS discussed the impacts to traffic on Skull Valley Road from heavy-haul transport of SNF. The NRC staff concluded that the impacts would be small. The NRC staff has determined that there is no basis to conclude that the amount of heavy-haul transport of SNF being proposed would not be tolerated by most public highway officials, and that such a conclusion is speculative.

**G.3.16.2.1 The DEIS Overlooks the Need to Use Heavy-Haul Trucks Near Reactors****Comment Summary:**

One commenter stated that the DEIS underestimates the risks posed by transportation of SNF to the proposed PFSF because it ignores the impacts of intermodal transfer at the reactor end of the transportation activities, from heavy-haul trucks to railheads near reactor sites. The commenter also stated that the STB regulations require the applicant's ER to "describe any effects of the proposed action on public health and safety," and thus these effects should have been addressed in the DEIS (49 CFR 1105.7(e)(7)(i)). The commenter stated that the DEIS is completely inadequate, in that the analysis failed to consider the radiological impacts of intermodal transfer near reactor sites, and failed to provide a consequence analysis that shows the potential health effects of serious accidents. (0198g)

The commenter also asserted that the route from Maine Yankee to the proposed PFSF, chosen for specific analysis by the NRC staff, is not representative of intermodal transfer near reactor sites because the Maine Yankee reactor has a rail line directly into the plant. The commenter stated that, based on Table J-12 of the DOE's Yucca Mountain DEIS, 17 of the 22 reactors owned by the applicant's members cannot accommodate the rail cask proposed for use in the transportation campaign, due to lack of a direct rail connection, insufficient bay size, or insufficient crane capacity. Therefore, the commenter added that these sites would require intermodal transfer to move SNF from heavy-haul truck or barge to rail. The commenter further stated that there would be the additional doses to workers during the transfer of casks to rail cars at intermodal transfer points, and that heavy-haul truck transportation involves greater incident-free radiation exposures to workers and the general public than does rail transportation. The commenter stated that the analysis in the DEIS of these potential exposure risks is insufficient, and incident-free risks have been underestimated. (0198g)

The commenter stated that the additional exposure to workers from these operations on the reactor end of the SNF transport would mirror exposure on the Timpie end and, therefore, an equivalent amount of exposure, adjusted for the smaller number of affected reactors, should be added to the calculations. Specifically, the commenter stated that 17 of the 22 reactors owned by the applicant's members will require intermodal transfer from a heavy-haul truck to a rail line, and an additional dose to crew members of 9.64 person-rems per year (17/22ths of 12.48) should be expected. (0198g)

The commenter stated that near the reactors shipping to the proposed PFSF, the population density is expected to be closer to suburban densities and much greater than that of Skull Valley (1.3 persons/km<sup>2</sup>). The commenter assumed a suburban default population density of 719 persons/km<sup>2</sup> along the heavy-haul routes, and calculated an increased annual population dose of  $719/1.3 \times 0.23$  person-rems, or 127.2 person-rems/year. The commenter, assuming only 17 of 22 reactors would require heavy-haul transport, calculated that the additional population dose due to heavy-haul transport at the reactor sites would be 98.3 person-rems/yr. The commenter included its calculated additional exposures arising from heavy-haul transport from reactors to railheads to arrive at a predicted increase in latent cancer fatalities from the 20-year operation more than six times greater than that given in the DEIS. (0198g)

**Response:**

The NRC staff reviewed the commenter's concerns on the potential for additional worker dose and public dose resulting from intermodal transfer near reactor sites and has determined that the FEIS adequately addresses them.

The first part of the comment concerns intermodal transfer near reactor sites. The NRC staff used a representative route approach in the DEIS. In this approach, the NRC staff performed its analysis as if all the SNF to be stored at the proposed PFSF traveled from the Maine Yankee nuclear power plant to the proposed PFSF (even though Maine Yankee itself would never possess that much SNF to ship). This route is one of the longest possible routes that any individual shipment could experience, and also passes through some of the most populated regions of the country. Maximizing these factors tends to conservatively overestimate the transportation risks. Thus, the overall risks estimated using this route are expected to be representative of the risks of shipments to the proposed PFSF, regardless of their individual origin, transportation details (such as use of intermodal transfer), and reasonably foreseeable route characteristics.

The NRC staff's use of the representative route approach in the DEIS is further supported by the fact that the volume of SNF, modes (namely, exclusively rail or intermodal including rail), routes, and reactor licensees that could ship SNF to the proposed PFSF are subject to decisions that are yet to be made. Therefore, the impacts of shipments to the proposed PFSF, for reactors that utilize an intermodal transport near the reactor, are accounted for in the nationwide impacts of the representative Maine Yankee to the proposed PFSF route. Nevertheless, in response to the comments in this area, the NRC staff supplemented the DEIS approach in the FEIS by explicitly considering illustrative environmental impacts of intermodal operations near reactor sites considering realistic population densities (e.g., heavy-haul truck to railhead transport and cask transfer). The results confirmed that the representative route adequately accounts for the radiological impacts associated with intermodal transfer of SNF near reactor sites.

The commenter's assertion that the DEIS does not adequately address the consequences of a serious accident is responded to in Section G.3.16.8.7.

The NRC staff finds no basis for the commenter's assertion that 17 of the 22 member reactors require an additional intermodal segment near the reactor. For example, the commenter's reference, the DOE's Yucca Mountain DEIS Table J-12, identifies 13 (of 21, not 22) applicant-member-owned reactors as "commercial sites with direct rail access." The remaining reactors could install direct rail access, use a heavy-haul truck segment with an intermodal transfer to rail, or use a barge segment with an intermodal transfer to rail. In addition, the reactors owned by current applicant members should not be presumed to be the only reactors that would ship to the proposed PFSF. This is reflected by the NRC staff's selection of the Maine Yankee reactor (not currently a member of the applicant), and its representative route, for the DEIS assessments. Based on the information in Table J-12 of the DOE Yucca Mountain DEIS, the majority of reactor sites have direct rail access capability.



While the NRC staff agrees that it is likely that the population along the route from a reactor site to an intermodal transfer point would be higher than that for Skull Valley, Utah, the staff does not believe it is appropriate to generically assume the entire route would be represented by a suburban population density. It is likely that the route would consist of some combination of rural, urban, and suburban population densities.

### **G.3.16.2.2 Truck Transport of SNF to the Proposed PFSF**

#### **Comment Summary:**

Several commenters stated that the DEIS should consider the impacts of truck transport of SNF to the proposed PFSF. One commenter stated that although the applicant states that all SNF would be shipped to the proposed PFSF by rail, some of the plants it serves have no rail access. The commenter stated that those with sufficient crane capability may transfer the casks to heavy-haul trucks, and from the trucks to rail cars. According to the commenter, however, there are some plants, such as Indian Point, that do not have sufficient crane capability to handle heavy shipping casks. The commenter stated that the impacts of these transfers have not been assessed by the applicant, nor have they been assessed in previous EISs. (0198h)

Another commenter stated that the EIS lacks consideration of potential truck shipments to the proposed PFSF. The commenter stated that the DEIS assumed that all shipments to the proposed PFSF would be made by rail, but that at least some member utility reactors (Indian Point, Monticello, La Crosse, and possibly others) are not rail capable, and it would be extraordinarily difficult for geographic and other reasons to move the SNF by truck from these reactor sites to an intermodal transfer point for loading onto trains. The commenter asserted that even if all of the SNF arrived at the proposed PFSF by rail, truck transport, either legal weight or heavy-haul, would be needed at various points in the transportation system. The commenter stated that this may involve heavy-haul shipments from reactors to railheads or legal weight truck shipments from reactors that do not have the capability to handle large rail casks. The commenter concluded that the DEIS should have clearly identified and then evaluated the routes to be used for truck shipments from reactors to railheads, and that such an analysis should have included an assessment of impacts on the communities that would be affected by such shipments. (0204)

One commenter stated that the assumption of 100 percent rail shipment is questionable, and is probably not bounding. The commenter stated that Section 2.1.3.2.3 of the DOE Yucca Mountain DEIS describes a "mostly rail shipping scenario" in which about 80 percent of commercial SNF is shipped by rail and 20 percent by truck, because some commercial nuclear sites lack the capability of loading large-capacity rail shipping casks. Both infrastructure and human health impacts from truck shipment would be different from rail since highways are often closer to populated areas than are rail lines. (0169)

One commenter requested that the DEIS include an analysis of the impact of alternative shipping casks on shipment numbers and safety. (0142)

#### **Response:**

As stated in the DEIS, the transportation analysis considers rail as the mode of transportation for cross-country shipments of SNF. A short heavy-haul truck segment near the reactor or near the proposed PFSF is also possible, and the impacts of these heavy-haul truck segments are analyzed in the FEIS. This approach is appropriate for the following reason.

Truck and rail are the two practical modes of cross-country transportation of SNF. The license application only proposed the Holtec International HI-STORM/HI-STAR dry cask storage system for use at the proposed PFSF. The HI-STAR is the transport cask used in conjunction with the HI-STORM dry storage cask. The large size of the HI-STAR cask would make it impractical to transport

it by truck cross-country, because a heavy-haul vehicle would have to be used to transport these casks and heavy-haul vehicles travel at very low speeds (i.e., 10-20 miles per hour). The applicant stated that SNF would only be shipped by rail from the reactor sites to the proposed PFSF. The applicant stated that for reactor sites that cannot accommodate large rail transportation casks, such as the HI-STAR, SNF would be transferred from the SNF pool to a smaller cask. The SNF would be transferred from the smaller cask using a dry cask transfer system to a larger rail transportation cask. Also, the applicant would need to request a license amendment if it chose to use a different cask design. That license amendment would include an environmental review (and opportunity for public comment) that would consider transportation impacts.

### **G.3.16.2.3 Proposed Intermodal Operations Are in Conflict with Timeliness Rules**

#### **Comment Summary:**

One commenter said that the DOT regulations require freight cars containing hazardous materials to be forwarded within 48 hours (49 CFR 174.14 (a)). The commenter also stated that the NRC regulations require that shipments of SNF be planned in order to avoid storage times in excess of 24 hours (10 CFR 73.26(b)). The commenter stated that these regulations cannot be satisfied for the heavy-haul option. The commenter reasoned that if a 4-cask train pulls into the proposed ITF, only one cask per day could be transferred to the proposed PFSF, that is, 3 cars would remain at the proposed ITF for several days, which is much longer than 24 hours. The commenter stated that the DEIS should address this practical impossibility of satisfying Federal transportation regulations, and evaluate the adverse environmental consequences, such as increased radiation doses to workers and increased vulnerability of transportation casks to sabotage. (0198h)

The commenter stated that the large volume and frequency of proposed rail shipments by the applicant creates the significant potential for backup of trains and casks at Rowley Junction. The commenter reasoned that Union Pacific Railroad has a stated policy of shipping SNF in dedicated trains at 35 miles per hour. The commenter concluded, therefore, that it can be reasonably anticipated that five or more casks would arrive at Rowley Junction at the same time. The commenter asserted, furthermore, the amount of time required to move a cask out of Rowley Junction would be contingent on many factors:

- There is only one crane to unload casks at Rowley Junction;
- The cask must be transported 24 miles by a slow moving heavy-haul truck from Rowley Junction to the proposed PFSF; and
- Once at the proposed PFSF, the cask must be inspected and removed from the truck and shipping container to a transfer container then to a storage container, an operation that could take anywhere from 11 to 22 hours. (See SAR Table 5.1-2.)

The commenter stated that potentially only one cask per day could be moved out of Rowley Junction. The commenter added that, consequently, if casks had to be stored at Rowley Junction, both the radiation doses to workers and the public and the risk of accidents would increase. The commenter concluded that these impacts were not anticipated in previous NRC environmental analyses, and must be considered in the EIS for the proposed PFSF. (0198h)

#### **Response:**

The NRC staff notes that the DOT requirement in 49 CFR 174.14(a), cited in the comment, applies to the forwarding of shipments within the rail mode. Once a rail carrier delivers an SNF shipment to the proposed ITF, the rail mode portion of the shipment is concluded. This requirement does not apply to the storage, incident to transport, that occurs if the shipment must await transfer to the highway mode. The NRC staff also notes that the NRC's physical protection requirement in 10 CFR 73.26(b), cited in

the comment, applies to strategic special nuclear material in transit. This requirement does not apply to irradiated reactor SNF in transit, including SNF shipments to or from the proposed PFSF.

As stated in Section 5.7.2.9 of the FEIS, the proposed ITF was designed to accommodate a maximum of three casks at one time. To achieve the desired receipt rate of four casks per week, two trains carrying two casks would be required. It is anticipated that for a three-cask train it would take 28 work hours to complete transfer of the last cask to the heavy-haul trailer for delivery to the proposed PFSF. For a two-cask train it would take 16 work hours. The environmental consequences of the cask remaining at the proposed ITF while awaiting transport to the proposed PFSF would be negligible. The NRC regulations for physical protection of SNF in transit (10 CFR 73.37) apply while SNF is in storage incident to transportation. The NRC staff considers these regulations adequate.

#### **G.3.16.2.4 EIS Should Compare Dedicated Trains, General Rail Freight, and Truck Service**

##### **Comment Summary:**

One commenter asked about the impacts of using general purpose freight trains to transport SNF, not only through Utah, but across the United States. (0198h)

Another commenter stated that the DEIS failed to appropriately analyze and select a preferred transportation mode for NWPA shipments. The commenter quoted a statement in the DEIS: "Because of the size and weight of the SNF shipping casks included in the PFS license application, shipment by rail is the only viable cross-country transportation option. Therefore, the focus of the cross-country transportation analysis in this chapter is on rail transportation." (DEIS, page 5-1) The commenter stated that while the commenter agrees that there may be several advantages to shipping SNF by rail (including reducing the overall number of shipments), this level of modal analysis in the DEIS is inadequate to ensure that other viable transportation alternatives were properly considered. (0142)

The same commenter stated that the EIS does not adequately address the details of how rail transportation of SNF to the proposed PFSF would be conducted. In particular, the commenter stated that the DEIS did not adequately address how environmental and human health impacts would be altered by the use of dedicated, versus general service, trains to ship SNF to the proposed PFSF. (0142)

The commenter also requested that the DEIS be revised to reflect and address the selection of rail as the mode of transportation. The commenter indicated that rail transportation accidents could result in the casks being subjected to larger physical forces than other modes of transportation; therefore, rail transportation would present different risks than truck transportation. (0142)

##### **Response:**

As stated in the DEIS and the comment, the transportation analysis considers rail as the feasible mode of transportation for cross-country shipments of SNF. This is appropriate for a number of reasons. Truck and rail are the two primary modes of cross-country transportation of SNF. Because the license application identifies only one cask design (HI-STORM) for use at the proposed PFSF, an NRC license, if granted, would only permit use of the HI-STORM storage cask. The canisters used in the HI-STORM dry storage cask system are too large to consider cross-country transport by truck practical. The applicant would need to request a license amendment if it chose to use a different cask design. The license amendment would include an environmental review, which would include consideration of the transportation impacts.

The applicant has committed [PFS/RA11 February 18, 1999] to complying with the Association of American Railroads' Performance Standard for Spent Nuclear Fuel Trains. That standard applies to a dedicated cask/car/train system. As noted in the DEIS (page 2-19), the applicant would use two single-purpose, dedicated trains, which would proceed from an originating reactor site directly to Skull

Valley, Utah, stopping only for crew changes, refueling, and periodic inspections. Therefore, only dedicated trains are assessed in the FEIS transportation impacts.

To provide additional perspective, note that with respect to the RADTRAN analyses, the incident-free general population dose for shipment of 200 casks by general purpose freight trains (i.e., non-dedicated trains) is the same as that for shipment by dedicated trains. Because dedicated trains do not make classification yard stops, use of general purpose trains would increase worker doses due to the doses received at classification yard stops. Because general population exposures at classification yards are minimal, these stops would not increase incident-free general population doses significantly.

The accident risks the NRC staff calculated in the DEIS are based on the shipment of four casks per train and failure of all four casks, should the train be involved in a severe accident. Since a typical train accident involves about 10 rail cars, and cars being shipped to the same destination would be placed together in a general purpose freight train, the use of general purpose freight trains to ship SNF to the proposed PFSF would be expected to yield accident consequences very similar to those calculated for dedicated trains whenever the 10 cars involved in the “typical” accident include all four cars carrying SNF casks. If some of the cars carrying the SNF casks were not involved in the accident, lower consequences would result.

Regular train accident risks might be lower or higher than dedicated train risks, but would most likely be somewhat higher because superior rolling stock (railcars) would likely be selected for a dedicated train and because the cars in the dedicated train would likely have their weights matched to minimize derailments. These two factors together should mean that dedicated trains would be less likely to have accidents than general purpose trains.

#### **G.3.16.2.5 Proposed Action Adversely Affects the DOE’s Repository Options**

##### **Comment Summary:**

One commenter stated that the DEIS has not addressed the fact that the proposed PFSF may all but eliminate several transportation alternatives within Nevada to the proposed permanent geologic repository at Yucca Mountain. The commenter stated that licensing of the proposed PFSF practically forecloses the use of legal weight trucks, and as a consequence, development and operation of the proposed PFSF, in conjunction with development and operation of the proposed permanent geologic repository at Yucca Mountain, may effectively shift transportation risks from other routes to one crossing through Lincoln County and the City of Caliente. One commenter stated that the relationship of the proposed action to Lincoln County and the City of Caliente is evident and should have been considered within the scope of the DEIS. The commenter stated that the NRC, in the DEIS, indicated that national and regional transportation impacts had been addressed in detail in the DOE Yucca Mountain DEIS, but this is inconsistent with the NRC’s comments on the DOE Yucca Mountain DEIS. The commenter concluded that both NUREG-1714 and the DOE Yucca Mountain DEIS fail to adequately consider regional transportation impacts. (0193)

Another commenter asserted that over half of the SNF scheduled to come to the proposed permanent geologic repository at Yucca Mountain is rail-ready and in the west already. The commenter stated that the DEIS did not acknowledge this information, even though this information should have significant impacts on transportation decisions. (0171) Another commenter stated that the DEIS was vague about the transport routes. (SL3-55) One commenter asked how the NRC’s decision about the proposed PFSF could affect the DOE’s decisions about modes and routes, if over half the SNF scheduled to be shipped to Yucca Mountain is likely to be shipped by rail. The commenter concluded that the NRC and the DOE should be communicating more with each other regarding transporting the SNF. The same commenter expressed concern about how the proposed action would affect transportation decisions and routing to the proposed permanent geologic repository at Yucca Mountain and to Tooele County, Utah, through Eureka County, Nevada. The commenter expressed

specific concern about the potential transportation impacts on the commenter's county from building a rail line from the Union Pacific tracks in northern Eureka County, southwest through Crescent Valley and into Lander County to the proposed PFSF. (0171)

One commenter stated that the DEIS assumes that all SNF will be shipped by rail from the proposed PFSF to a permanent geologic repository (pages 1-5 to 1-6; 2-22; 5-39; 5-50). The commenter stated that the proposed permanent geologic repository at Yucca Mountain currently lacks rail access and the DEIS ignores this and underestimates the difficulty of constructing a new rail line to Yucca Mountain. The commenter stated that three of the potential rail access routes identified by the DOE in the Yucca Mountain DEIS (Carlin, Caliente, or Caliente-Chalk Mountain) would constitute a significant new rail construction project, the longest in the United States in quite some time. The DEIS, therefore, cannot assume that loaded dual-purpose canisters could be shipped from the proposed PFSF to Yucca Mountain directly by rail. The EIS must consider an alternative mode of transportation such as legal weight truck. (0204)

**Response:**

The NRC cannot conclude that the licensing of the proposed PFSF would eliminate some alternatives for transporting SNF and other high-level waste to a permanent geologic repository, as the commenter asserted. The NRC staff notes that the Holtec International HI-STORM/HI-STAR dual purpose cask system is currently certified for use at reactor sites. Licensing the proposed PFSF, which would use the same cask technology, would not additionally restrict the DOE's repository options.

In its DEIS for the proposed permanent geologic repository at Yucca Mountain, the DOE considered a mostly rail alternative and a mostly truck alternative for transportation of SNM to its site. As a part of the mostly rail alternative, the DOE is considering several locations for an ITF. Determining the potential routes or the location of an ITF within the State of Nevada would be based on a number of factors, and the commenter did not provide any reason why the DOE might select the location of an ITF or eliminate the mostly legal weight truck alternative based on the presence of the proposed PFSF. Therefore, the NRC staff has determined that the construction and operation of the proposed PFSF would not increase or shift any transportation risk associated with the DOE's permanent geologic repository.

The discussion in the FEIS notes that specific consideration of transportation alternatives within the State of Nevada is being considered as a part of the DOE's proposed action to construct and operate a permanent geologic repository. The FEIS does not summarize the NRC comments on this aspect of the DOE Yucca Mountain DEIS. Detailed consideration of possible transportation alternatives for the proposed permanent geologic repository within the State of Nevada is beyond the scope of this FEIS. Also, contrary to one of the comments, Section 5.7.2 of the DEIS recognized that rail access to the proposed repository at Yucca Mountain does not currently exist. Given the number of factors that are now indeterminate with respect to transportation of SNF from the proposed PFSF to the DOE's proposed permanent geologic repository at Yucca Mountain, further analysis of this matter is not now practical.

In light of the above, the NRC staff concludes that SNF could be shipped (at least the majority of the way) to the proposed permanent geologic repository by rail. The NRC staff did not evaluate transporting SNF from the proposed PFSF to a permanent geologic repository by legal weight truck because the casks are too large. To transport by truck, a heavy-haul vehicle would be needed. Due to the slow speed heavy-haul vehicles travel, transporting SNF from the proposed PFSF to a permanent geologic repository by heavy-haul vehicle is impractical.

### G.3.16.2.6 Accidents on Skull Valley Road or the ITF

#### Comment Summary:

One commenter stated that heavy-haul trucks could make up to 400 trips per year along Skull Valley Road, a secondary two-way paved road, and that the potential for accidents from these vehicles has not been evaluated. (0198a) The commenter stated that the manner and equipment by which the casks would be transferred from the rail line to a heavy-haul trailer were not described. The commenter also stated that the height to which casks would be raised and their orientation are important considerations when assessing impacts. (0198g)

#### Response:

The NRC staff considered the potential accident risk of shipping SNF along Skull Valley Road and concluded that the risk is small. Section 5.7.2.4, on page 5-49, of the DEIS provided radiological accident dose risk estimates for the shipments on Skull Valley Road. Specifically, the estimate of risk is  $1.08 \times 10^{-3}$  person-rem/year which equates to  $2.2 \times 10^{-2}$  person-rem over the 20 year campaign (an LCF risk of  $1.1 \times 10^{-5}$ ). The non-radiological accident risk is the chance for traffic accidents, which was presented in the DEIS in Section 5.7.1.1, page 5-34. Specifically, the estimate of fatal injury during the 40-year period is 0.0023 and the estimate of non-fatal injury for the 40-year period is 0.18. All of these impacts are small.

As stated in the DEIS, SNF would be transferred from the rail car to a heavy-haul vehicle at the proposed ITF. The likelihood of the cask being subjected to conditions that would exceed certification testing limits from this transport activity is very low. Therefore, the NRC staff concludes that the likelihood of an accident occurring during transfer of SNF from the rail car to the heavy-haul vehicle is low.

### G.3.16.3 Estimates of Incident-Free Radiological Impacts and Risks of Transportation

#### G.3.16.3.1 The EIS Results Are Inadequate Because They Are Not Project Specific

#### Comment Summary:

A number of commenters stated that the DEIS does not adequately analyze the risks and impacts of transporting SNF to the proposed PFSF. (0012, 0112, 0139, 0142, 0169, GR-21, SL1-01, SL1-20, SL1-37, SL2-04)

Several commenters stated that the NRC is relying on outdated studies with little project-specific analyses. (0012, 0194, 0198, 0236, SL1-01) One commenter stated that the DEIS tries to downplay the significance of the risk of moving SNF across the country and then storing it about 50-55 miles from downtown Salt Lake City. (SL1-09)

Several commenters expressed concern about the safety of people living along the transportation route who would be exposed to radiation. (0010, 0048, 0149, 0159, GR-16, SL3-02)

Some commenters stated that the DEIS did not address the negative impacts to health, environment, property values, and the economies of cities, counties, and states along the SNF transportation routes. (0012, SL1-01, SL1-05, SL1-10, SL1-37, SL2-12, SL2-14) A number of commenters expressed concern about the health and safety impacts of transporting SNF on communities along the transportation corridor and stated that the DEIS did not adequately analyze these impacts. (0012, 0090, 0135, 0136, 0151, 0156, 0185, 0189, 0194, 0198, 0198h, 0200, 0217, 0257, SL1-01, SL1-05, SL1-10, SL2-04, SL2-05, SL2-12, SL3-06, SL3-18, SL3-26, SL3-27, SL3-49)

**Response:**

The analysis set forth in the DEIS characterized the risks and safety issues associated with transportation of SNF to the proposed PFSF using assumptions that reflect the number of shipments that would be required, and the fact that transport to a permanent geologic repository would eventually be necessary (see DEIS Section 5 and Appendix D).

Contrary to the comments, the NRC staff did provide a project specific analysis. The DEIS and FEIS contain a RADTRAN analysis, which provides an estimate of the nationwide and regional transportation impacts associated with the proposed action. The analysis provides a conservative estimate of the radiological impacts from transportation of SNF to the proposed PFSF and, based on the analysis, the NRC staff concluded that the transportation impacts from the proposed action would be small.

Because the exact routes and volume of SNF that would be shipped from each reactor site are unknown, the NRC staff made several conservative assumptions to attempt to reasonably bound the transportation impacts. Section 5.7.2 of this FEIS discusses many of these assumptions and Appendix D provides additional information regarding the assumptions used in the analysis. Previous studies were used for some of the accident analysis assumptions, such as train accident rates, accident consequences, and severe accident probabilities. However, the NRC staff concluded that using these studies for some key assumptions resulted in a conservative estimate of the risk of an accident, and adequately characterized the risks and safety issues associated with transportation aspects of the proposed action.

The potential radiological impacts to persons located within 800 m (0.5 mi) of the representative route were calculated and are described in the DEIS and the FEIS (Chapter 5 and Appendix D). In no case would the maximum individual dose for an off-link member of the public exceed  $1.11 \times 10^{-4}$  rem (0.111 mrem). This dose is extremely low, far below the thresholds for acute effects (fatalities or injuries) and applicable regulatory dose limits. The average annual background radiation dose to an individual in the United States is about 300 mrem. Thus, the annual dose to the maximally exposed individual from SNF transportation to the proposed PFSF would be negligible in comparison to the average individual background dose.

Regarding property values and certain economic impacts upon cities (e.g., tourism), under NEPA, the NRC is obligated to consider the effects on the physical environment that could result from the proposed action. The risk of an accident, however, is not an effect on the physical environment. See Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766 (1983). To warrant consideration in an EIS, environmental effects must have a reasonably close causal relationship to a change in the physical environment. Therefore, in order for a proposed action to have an adverse impact on tourism or property values, it must have an actual effect on the physical environment. Because the risk of an accident from SNF transportation is not such an effect, it is not required that agencies consider the impacts on tourism and property values, if any, resulting from the public's perception of such risk.

**G.3.16.3.2 Regional Impacts Are Understated and Overlook Important Issues****Comment Summary:**

Two commenters stated that the number of trips per day transporting SNF would pose an unacceptable risk to the communities along the Wasatch Front. (0113, 0198) One commenter stated that the DEIS failed to discuss the substantial transportation impacts to the Wasatch Front. (0198) One commenter stated that people live within 20- to 40-feet of the railway tracks up Spanish Fork Canyon, Utah County. (SL3-14)

One commenter was interested in the health risks to people who reside in Salt Lake City where the rail lines pass close to residences. The commenter indicated that the increase in radiation would result in a higher incidence of cancer for those living along the corridor. (SL1-05)

One commenter questioned whether there would be additional impacts from transporting SNF from Southern California Edison's nuclear power plants, stating that the SNF from these facilities would not otherwise travel through Utah on its way to deep geologic storage at the proposed site at Yucca Mountain, Nevada. (0198h)

The same commenter questioned what the impacts would be of shipment along a corridor which is not, and would not likely be, proposed for shipment of SNF to the proposed permanent geologic repository at Yucca Mountain, Nevada. (0198h)

One commenter also stated that the population affected is directly dependent on the mode of transportation selected. The commenter expressed concern that some of the region's largest populations would be exposed to thousands of "nuclear waste" shipments if rail is selected because Western urban areas grew around rail centers. The commenter stated that consideration of these different risks should be included in the EIS. (0142)

**Response:**

As set forth in the FEIS in Section 5.7, any increase in cancer resulting from the proposed action for individuals living along the transportation routes would be small and, hence, would be even smaller for any fraction of the route, such as the segments mentioned in various comments. These small increases in latent cancer fatalities were based on the estimates of radiation exposure to individuals within 0.8 km (0.5 mi) on either side of the rail line (1.6 km [1 mi] bandwidth). The dose to individuals further away than that would be negligible. The proximity of residences to the rail line in sections of Salt Lake City, and in other locations on other potential routes, was accounted for by the calculation methodology described in Appendix D. That methodology identified high-density route segments in urban areas and treated them accordingly. Therefore, the NRC staff's analysis considered these locations appropriately.

Section 5.7.2.10 of the FEIS includes an analysis of the impacts of transporting SNF in the region of the proposed PFSF, which includes Salt Lake City (the region is considered to be in and near the State of Utah). The analysis considered the five different access routes within the region that could potentially be used to transport SNF to the proposed PFSF. The analysis assessed the environmental impacts along each of these routes as if all 40,000 MTU of SNF was transported on each route, even though it is unlikely that any one of the five routes would be used to transport all 40,000 MTU of SNF. The highest annual incident-free dose for any one of the five routes was estimated to be 0.00619 person-Sv (0.619 person-rem). For accidents, the highest dose risk was 0.0022 person-Sv (0.222 person-rem) per year. From these results the NRC staff concluded that the environmental impacts from transporting SNF within the region of the proposed PFSF would be small.

The NRC staff used a representative route approach in the DEIS to assess the cross-country transportation impacts. In this approach, the NRC staff performed its analysis as if all the SNF to be stored at the proposed PFSF traveled from the Maine Yankee nuclear power plant (even though the Maine Yankee plant itself would never possess that much SNF to ship). This route is one of the longest possible routes that any individual shipment could experience, and also passes through some of the most populated regions of the country. Maximizing these factors tends to conservatively overestimate the transportation risks. Thus, the overall risks estimated using this route are expected to be representative of the risks of shipments to the proposed PFSF, regardless of their individual origin, transportation details, and reasonably foreseeable route characteristics. The routes for neither the proposed PFSF nor the proposed repository at Yucca Mountain are known at this time. However, as noted by one commenter, it is possible that shipments to the proposed PFSF would use different routes than shipments to a permanent geologic repository, resulting in impacts to groups of people



who might not otherwise be affected. The NRC staff maintains that such impacts would be small as demonstrated by the FEIS representative route impacts assessment.

Both shipments to and from the proposed PFSF are assessed in the FEIS. The evaluation in the FEIS accounts for the possibility that a given cask might travel a given route twice (for example, once from California through Nevada to the proposed PFSF, and then from the proposed PFSF through portions of Nevada), and the NRC staff concluded that the overall impacts would be small. Therefore, the impacts of shipments to the proposed PFSF from California are included in the nationwide impacts of the representative Maine Yankee to the proposed PFSF route.

### **G.3.16.3.3 Issues Related to Shipments from the Proposed PFSF Are Overlooked**

#### **Comment Summary:**

One commenter stated that a major problem with the transportation risk estimates in the DEIS is that they seem to focus almost exclusively on getting the SNF to Utah. The commenter indicated that there seems to be very little risk or dose analysis included for removing the SNF from Utah. The commenter reasoned that it would take as many shipments to empty 4000 canisters from the site as it would to fill it. The commenter questioned whether the "exiting" transport risks and "incident-free" doses at least double all risks and "incident-free" doses reported in the DEIS. (0194) Three commenters stated that the DEIS should have examined the costs and implications of returning the SNF from the proposed PFSF back to the reactors or to alternative storage sites in the event that Yucca Mountain is not available, since this situation would double the number of shipments of SNF. (0142, 0204, SL2-17)

One commenter requested that the EIS include an analysis of the impacts of alternative shipping casks on shipment numbers and safety and analysis of the impacts of moving the SNF after its storage period (believed to be 20 years or possibly 40 years, under the license) either back to its origin or to a permanent geologic repository. The commenter indicated that such an analysis should include: a) the effects of SNF decay and degradation; b) an examination of where the SNF would be shipped, if, after 20-40 years, the reactor site where the SNF originated has been decommissioned; and c) an analysis comparing the impacts of extended at-reactor SNF storage to transport to a centralized interim SNF storage facility. (0142)

One commenter stated that the EIS should evaluate the environmental impacts that would result if the SNF could not be transported to the originating plant because the plant had closed, and no other nuclear licensee would accept the SNF for repackaging. (0198h)

#### **Response:**

In its evaluation in the FEIS (page 5-39), the NRC staff assesses the impacts of eventual rail transportation of SNF to and from the proposed PFSF. That assessment utilizes a conservative population and route. The assessment of removal of SNF stops at the Utah border. As noted in the FEIS, the plans beyond the Utah border for the transport of SNF are subject to decisions that have not yet been made. However, the NRC staff believes it is reasonable to assume that the impacts of future transportation to a repository would be encompassed by the impacts of the representative Maine Yankee to the proposed PFSF route. Therefore, contrary to some comments, if SNF were transported to a permanent geologic repository at the proposed Yucca Mountain site, or to another site for permanent storage, or back to the originating reactor site, the transportation risks and incident-free dose would be small. These issues are discussed more fully in the FEIS.

The primary cost associated with transporting SNF to the proposed PFSF would be the capital cost of the canisters and casks and the cost of loading the un-canistered SNF into canisters. These large costs would have already been incurred when the SNF was initially shipped to the proposed PFSF and would not recur for subsequent transportation.

The FEIS does not explicitly address future transportation of SNF with cladding that has degraded during the storage period, because environmental conditions (e.g., temperature) are established as part of the licensing (safety review) of the SNF storage systems with the objective of preventing such degradation. The transportation of SNF that is degraded to the point where sufficient confinement must be analyzed prior to shipment must be specified on the certificate of compliance along with a description of the authorized contents of transportation casks. The canisters are quite robust and should more than make up for the condition of the SNF. Thus, damaged SNF does not produce any increase in consequence or risk in an accident.

One commenter hypothesizes that after a period of storage at the proposed PFSF, some SNF might need to be returned to the original plant, but that plant might have closed; the commenter also postulates that a permanent repository would not be available. The NRC staff notes that the disposition of the SNF that is owned by a licensee (e.g., the SNF owned by a particular reactor licensee, including that in dry storage) is a matter that is considered during the necessary decommissioning approvals. However, even in a hypothetical situation such as presented in the comment, an alternative destination could be ordered consistent with the need to protect public health and safety, common defense, or the environment. This issue is further discussed in Section G.3.4 of this FEIS.

#### **G.3.16.3.4 The Risk is Lower if the SNF is Not Transported from its Current Locations Until a Permanent Repository Is Available**

##### **Comment Summary:**

One commenter stated that the risks to transport the SNF across the United States are greater than maintaining the SNF on the sites where it was produced. (SL2-05) Another commenter asserted that the benefit of decentralized ISFSIs is that SNF stored at reactor sites would be allowed to cool until a permanent repository were available. The commenter stated the following: "if temporary storage took place over a 25-year period, five half-lives for Co-60, then 1/32 of the original Co-60 activity would remain. The activity of Cesium-137 would decrease by approximately one half-life. Other radionuclides would decline as well, although not as dramatically. This would significantly decrease the dose rates outside of shipping casks, thus greatly reducing radiation exposures to workers and the public during an accident or during incident-free transport." (0198g) A few commenters said that the proposed PFSF and the transport of SNF could have a strong overall negative environmental and public health impact, and specifically in Indiana. (0117, 0131, 0135, GR-19)

Another commenter stated that 53,000,000 people would be at risk due to transportation across the country. (SL2-12)

Several commenters stated that the proposed action increases health and safety risks because the SNF is moved twice, first into Skull Valley and then later to the proposed permanent geologic repository at Yucca Mountain. (0077, 0249, SL1-16, SL3-02) Several commenters stated that since the proposed PFSF is a temporary storage facility, the SNF would have to be moved to a permanent repository in the future, resulting in additional risk. (0153, 0142, 0217, GR-01, SL1-10, SL3-02) Another commenter stated that there is significant cost and inherent risk in transporting SNF these great distances, then transporting it again to a permanent repository when one is available. The commenter asserted that transportation of this magnitude, frequency, and high-risk has never been tested by the appropriate agencies; therefore, the risk evaluation in Appendix D yields non-representative results. The commenter concluded that there would be a strong inherent risk in shipping the proposed amounts of SNF cross-country for 20 years without suffering a serious accident. (0166)

One commenter requested that the EIS include an analysis comparing the impacts of extended SNF storage at the reactor to the transport of SNF to a centralized ISFSI. (0142)

One commenter stated that shipping SNF to Utah is an unnecessary risk. (0249)

One commenter questioned the logic behind putting the SNF into storage in Utah and then transporting it to Yucca Mountain in a few years. The commenter stated that there would be only health and safety risks without economic or health and safety benefits. (SL1-16) One commenter stated that the proposed PFSF project puts every Utah resident at risk. (0038)

**Response:**

The NRC has established regulatory programs for both the transport and storage of SNF. Both of these programs provide adequate protection of the public health and safety. The risks associated with either SNF storage or transportation are small. To date, more than 1,300 SNF shipments have been made in the United States and no accident resulting in a radiological release has occurred. Also, the NRC and the DOT have completed several analyses of the potential impacts of SNF transport. Many of these analyses, such as NUREG-0170, serve as the basis for the current regulatory programs.

Even if the risk from transport of the SNF is greater than the risk of continuing to store it at its present location, the risk from transport is still small. There is no requirement in NEPA to choose the alternative that minimizes risk. The NRC must assure that it does not authorize an action that would pose an undue risk to public health and safety. Provided all applicable NRC requirements are satisfied, there is reasonable assurance that the public health and safety are adequately protected whether the SNF is transported or stored. However, the NRC staff anticipates that SNF would ultimately be transported from reactor sites, for example, to a permanent geologic repository.

The NRC and the DOT have specific requirements that govern the movement of SNF. With such standards in place, SNF can be transported without creating an undue risk to public health and safety. In Section 5.7.2 of the FEIS the NRC staff has evaluated the environmental (radiological) impact to human health of transporting SNF from reactor sites to the proposed PFSF and then transporting the SNF from the proposed PFSF to a permanent geologic repository. The NRC staff has concluded that the environmental impact to human health would be small.

### **G.3.16.3.5 Risk of Large SNF Shipping Campaign**

**Comment Summary:**

Several commenters expressed concern about the risk associated with shipping such a large volume of SNF. One commenter stated that 1,000 rail cars or 2,000 18-wheel over-the-road units would be needed to transport the SNF, and noted that with so many units, there would be a high risk of accident. (GR-09) Another commenter stated that, mathematically, it seems that at least one of the shipments would have some form of accident resulting in a spill. (0118) One commenter stated that the risk of accident increases the more frequently SNF is transported. (SL3-32) One commenter asserted that the risk of rail accidents is too dangerous and unnecessary. (0249)

**Response:**

As noted in the FEIS (page 2-16), “the applicant would use two single-purpose, dedicated trains which would proceed from the originating reactor site directly to Skull Valley, Utah, stopping only for crew changes, refueling, and periodic inspections.” Thus, there would be a limited number of transportation casks and rail equipment in service at any given time and the equipment would be reused for multiple dedicated train shipments. About 50 shipments per year would be received at the proposed PFSF (averaging 4 casks per shipment), which would be about one shipment per week. The FEIS analysis accounts for the probability of a transportation accident, based upon the number of railcar-miles or truck-miles traveled, not on the number of individual conveyances. As set forth in the FEIS, the NRC staff concludes that the impacts of accidents would be small and within previous NRC risk estimates that have been found acceptable.

### G.3.16.3.6 Comments on the Radionuclide Inventory of Spent Fuel to Be Shipped

#### Comment Summary:

One commenter said that the EIS should take into account the characteristics of the SNF shipments, such as the burn-up level of the SNF and the weight of SNF shipments. (0198h) Another commenter stated that the contents of every transportation cask should be characterized. (SL2-12)

One commenter wanted more data pertaining to isotopic decay. (0096)

#### Response:

Burn-up level and SNF age both affect the amounts of radionuclides present in SNF at the time it is shipped. The FEIS does consider the burn-up and weight characteristics of the SNF. The inventory examined in the DEIS was calculated for 5-years-cooled SNF with a burn-up of 40,000 MWD/MTU. These assumptions are conservative with respect to estimating impacts because as stated in Section 4.7.2 of the DEIS, the applicant estimates that the average SNF that would be stored at the proposed PFSF is expected to be 20-years-cooled and have a burn-up of 35,000 MWD/MTU.

The weight of the SNF shipment would be determined by the SNF cask in which the SNF is shipped (the Holtec International HI-STORM/HI-STAR dual purpose cask system). Differences in cask weight would not affect transportation or storage radiological risks. The SNF characteristics for a cask are included in Appendix D of the DEIS. Also, the inventory of Co-60 was adjusted to account for its presence in CRUD (CRUD is not part of the SNF, but is deposited on the outside of the rods).

The NRC staff reviewed the request for additional isotopic data and determined that it is not directly related to the environmental review. However, there are several publications related to this subject; for example, Schleiien, B. Ed., 1998, *Handbook of Health Physics and Radiological Health*, 3<sup>rd</sup> Ed., Williams and Wilkins, Baltimore, MD, Tables 8-7 through 8-10 and Table 8-13.

### G.3.16.3.7 The EIS Contains Premature Assumptions for the Proposed Repository

#### Comment Summary:

One commenter stated that, due to the explicit determination made by the NRC in its Waste Confidence Decision, it is arbitrary and capricious for the NRC staff to assume that the proposed permanent geologic repository at Yucca Mountain is not only "a" possibility to consider, but the "only" possibility. The commenter stated that this assumption is integral to the DEIS's analysis of both the proposed PFSF and the Wyoming alternatives, and its conclusion that the Wyoming Alternative is not "obviously superior." (The commenter references the Executive Summary of the DEIS, page xli.) (0198)

The commenter stated that since most of the nation's commercial reactors are located to the east of Utah (the commenter references DEIS, page 5-1), and closer to the alternative site in Wyoming (the commenter references Map, DEIS, page 5-41), it is quite possible that a permanent repository site other than at Yucca Mountain would enhance the transportation benefits of the Wyoming site in relation to the proposed site. (0198)

One commenter asserted that the Cooperating Agencies should revise the analysis without the assumption that Yucca Mountain is the site of the permanent geologic repository. The commenter stated that, at the very least, the Cooperating Agencies should consider another site, either a specific site or a composite location, and provide a full sensitivity analysis. The commenter stated that the NRC staff used such an approach in its choice of the Maine Yankee location as the composite location of the nation's reactors for the purpose of its incoming SNF transportation analysis. The commenter

asserted that it would be easy to take some centralized major rail center as the composite location and re-run the NRC staff analysis with the new location. (0198)

One commenter expressed concern that the scope of the proposed action includes transfer to the proposed permanent geologic repository at Yucca Mountain by rail. The commenter stated that there is currently no rail transportation route to Yucca Mountain and questioned the effect on the proposed action if such routes are not approved. (SL2-12)

One commenter stated that, based on recent NRC documents, "the NRC has not committed to a specific repository, and thus the DEIS errs by assuming that Yucca Mountain will be the chosen repository." For example, a recent NRC document assessing the risk of SNF transportation (NUREG-6672) considers three potential sites for an ultimate repository, one each in the southeast, south-central, and southwest. The commenter stated that both the NRC and the applicant have relied on the flawed assumption that a permanent repository will be built at Yucca Mountain, something the NRC does not concede anywhere else. The commenter stated that the EIS should evaluate the applicant's proposal in light of a variety of potential locations for the permanent repository, including Nevada. (0198g)

One commenter asserted that the DEIS analysis of transport-related costs and risks incorrectly assumes that the permanent geologic repository will be at Yucca Mountain. (The commenter stated that this assumption can be found in the DEIS page 5-39, lines 41-46.) The commenter stated that this is contrary to the NRC's position in the 1990 Waste Confidence Decision. (The commenter stated that the decision was affirmed without change in its December 6, 1999, review, and references 64 Fed. Reg. 68005 et seq.) The commenter quotes the following from the Waste Confidence Review, 55 Fed. Reg. 38505, September 28, 1990: "In order to obtain a conservative upper bound on the timing of the repository availability, the Commission has made the assumption that the Yucca Mountain site will be found to be unsuitable. If DOE were authorized to initiate site screening for a repository at a different site in the year 2000, the Commission believes it reasonable to expect that a repository would be available by the year 2025." (0198)

**Response:**

In general, these comments assert that the DEIS prematurely presumed that a permanent geologic repository will be sited at Yucca Mountain, Nevada, and, therefore, other options for ultimate disposition should be assessed.

The sections of the DEIS that refer to the proposed permanent geologic repository at Yucca Mountain have been rephrased in the FEIS to clearly indicate that Yucca Mountain is a candidate or proposed repository that is being studied pursuant to the NWPA, as amended.

For shipments to the proposed PFSF that would pass through the State of Nevada, impacts in the State of Nevada would be bounded by the nationwide transportation impacts presented in Chapter 5 and Appendix D of the FEIS.

In the DEIS (page 5-39), the NRC staff also assessed the impacts of eventual rail transportation of SNF from the proposed PFSF to a permanent geological repository. The NRC has not received an application requesting a license for permanent geologic repository, and the NRC has not made any determination regarding any proposal to construct such a repository at Yucca Mountain, Nevada, or any other location. DOE is not currently considering any other location. However, the NRC staff recognized that Yucca Mountain may not be selected or approved as the final repository, and the assumption made is for analytical purposes in this FEIS. Further, this EIS does not dictate any particular result for future actions taken with respect to other nuclear waste management facilities (including a repository or other storage facility).

The NRC staff considered the issue raised by the commenter of including an analysis of the potential impacts of transporting SNF from the proposed PFSF to a permanent repository site other than the proposed Yucca Mountain site.

The NRC staff believes it is reasonable to assume that the impacts of future transportation to a repository, regardless of its location, would be encompassed by the impacts of the representative Maine Yankee to PFS route. As discussed above in Section 5.7.2.3, the route chosen for analysis is one of the longest potential ones between a power reactor and the proposed PFSF, passing through a significant number of large population centers. Therefore, the estimated potential dose to the public would be conservative. Further, the potential effects of anticipated accidents would also be maximized since the number of accidents is proportional to the length of the route. Consideration of SNF shipment to a particular alternate permanent repository location would not add meaningful information to the FEIS evaluation.

The NRC staff acknowledges that NUREG/CR-6672 considered multiple locations for a permanent geologic repository. NUREG/CR-6672 was intended to serve as a generic study with the purpose of determining if the results of NUREG-0170 were still conservative. In contrast, the purpose of this FEIS is to assess the impacts of the proposed action. The NRC staff has determined that the transportation analysis adequately evaluated the transportation impacts of the proposed action, and analyzing the impacts of transporting SNF to other possible locations for a permanent repository would not result in significantly different impacts.

The NRC staff has also concluded that the impacts of transporting SNF from reactor sites to an ISFSI at the alternate Wyoming site would also be small. The additional transportation impacts associated with transporting SNF from the alternate Wyoming site to the Utah/Nevada border do not result in a significant impact, and were not the basis for concluding that the Wyoming site was not obviously superior to the Skull Valley site.

Finally, the NRC staff notes that this FEIS does not dictate any future actions to be taken with respect to other waste management facilities (such as a repository EIS or EIS for another ISFSI).

### **G.3.16.3.8 Nevada-Specific Impacts Are Not Considered**

#### **Comment Summary:**

One commenter stated that Yucca Mountain is repeatedly named in the DEIS as the final repository site, but asserted that the DEIS does not provide estimates of risks to Nevadans from unloading the SNF from the proposed PFSF into Nevada. (0194) Two commenters wanted to know if the State of Nevada and its residents were considered by the NRC to be impacted by the proposal. (0171, 0193) One commenter stated that there could be significant and long-lasting negative economic impacts to the State of Nevada in the event of a serious accident or terrorist incident. (0204)

One commenter expressed confusion about whether the State of Nevada and its residents are considered by the NRC to be impacted by the proposed action. The commenter explained that pages 5-37 and 5-39 of the DEIS refer to radiological impacts, and analyze only as far as the Nevada-Utah border, at the most likely entry point for rail. The commenter further stated that the document does not address the impacts on the other side of the border that could be caused by the facility locating in Utah. The commenter also referred to page C-2, which states that SNF stored at the proposed PFSF would be transported to Yucca Mountain. The commenter stated that whether or not the NRC has prematurely determined that the SNF would be moved to Yucca Mountain, the failure of the EIS to include impacts in and on Nevada is a major flaw in the document. (0171)

The commenter stated that the NRC justified the absence of analysis by stating that the DOE is doing their own route analysis within Nevada. Yet the DOE is not even listed as an agency consulted in the preparation of the proposed PFSF document. In addition, the commenter stated that in its own review

of the DOE's Yucca Mountain DEIS, the NRC raised serious concerns about the adequacy of the DOE's transportation analysis. The commenter asserted that by its own admission, the NRC knows the DOE's Yucca Mountain DEIS is flawed, and yet is relying on the DOE to do the Nevada analysis. (0171)

One commenter stated that the final version of NUREG-1714 should include an analysis of the impacts to Nevada corridor communities of transporting SNF from the proposed PFSF to the proposed permanent geologic repository at Yucca Mountain. The commenter stated that limiting the analysis to the Utah State line represents a severely incomplete assessment of transportation impacts, unless the applicant and the NRC intend to permanently dispose of SNF at the Utah state line. (0193)

**Response:**

For shipments to the proposed PFSF, the representative route is used to estimate nationwide impacts, regardless of the origin and route used for any given shipment. Impacts within the State of Nevada would be less than the nationwide transportation impacts presented in Chapter 5 and Appendix D of the DEIS, because there would be fewer shipments through Nevada than assumed in the transportation analysis, and the route through Nevada would be shorter than the route from Maine Yankee to the proposed PFSF. For rail transportation of SNF from the proposed PFSF, the DEIS (page 5-39), assessed the impacts using a conservative population and route that stops at the Utah-Nevada border. The reasons the NRC staff chose this route are set forth in Section G.3.16.3.7 of this Appendix.

As noted in the FEIS, the plans beyond the Utah border are subject to decisions that have not yet been made. However, the NRC staff has determined that it is reasonable to assume that the impacts beyond the Utah border would be no greater than the impacts of the representative Maine Yankee to the proposed PFSF route. This is clarified in the FEIS. The details of potential repository design and operations (e.g., use of a direct rail route or an ITF with heavy-haul segment) that are not yet certain are beyond the scope of this FEIS. The DEIS noted that the Yucca Mountain DEIS considered several possible rail routes and ITFs.

The NRC has not received an application requesting a license for permanent geologic repository, and the NRC has not made any determination regarding any proposal to construct such a repository at Yucca Mountain, Nevada, or any other location. DOE is not currently considering any other location. However, the NRC staff recognized that Yucca Mountain may not be selected or approved as the final repository, and the assumption made is for analytical purposes in this FEIS. Further, this EIS does not dictate any particular result for future actions taken with respect to other nuclear waste management facilities (including a repository or other storage facility).

**G.3.16.3.9 Dose Rates from Casks Inadequately Identified**

**Comment Summary:**

A number of commenters asserted that the DEIS does not adequately identify the "routine" doses or levels of radioactivity to the public from casks in transit. (0084, 0118, 0121, 0135, 0139, 0157, 0180, 0185, 0194, 0195, 0217, 0257)

One commenter questioned whether the Holtec transport casks would function properly. The commenter stated that flawed shielding materials in transport and storage containers may cause an increase in "incident-free" doses to workers and members of the public. (0194)

Two commenters asserted that dense shielding material such as lead would be required to completely contain all the radiation emanating from the SNF, and that this shielding material would be too heavy to transport. (0194, 0257, GR-16) The commenters indicated that the shipment casks would be like mobile x-ray machines, exposing everyone along the routes to gamma and neutron radiation. As an

example, the commenters described a scenario involving a car driving on a nearly 50-mile stretch of Interstate 15 in Utah that closely parallels the proposed rail route to Skull Valley, potentially exposing the driver for a full hour. (0194, 0257)

One commenter expressed concern that a shipment could get stopped in transit for an indefinite period of time thus posing a greater risk to people along the transportation route. (GR-05)

One commenter asserted that standing near a cask loaded with SNF is four times as hazardous as flying in an airplane. (0017)

**Response:**

Section 5.7.2 of this FEIS includes an estimate of the radiological doses associated with routine “incident free” transportation of SNF from reactor sites to the proposed PFSF. The radiation field that surrounds the cask decreases markedly as the distance from the cask increases. At distances from 30 m to 800 m (98 ft to 0.5 mile), the cask would appear almost like a point source and, therefore, the dose rate would decrease as the square of the distance from the cask. In the NRC staff’s analysis, each cask was assumed to have a dose rate of 0.13 mSv/hr at a distance of 1 m (13 mrem/hr at 3 ft) from the cask surface, which is approximately equivalent to (slightly higher than) the regulatory limit of 0.1 mSv/hr at 2 m (10 mrem/hr at 6.5 ft); therefore, any SNF cask with a higher dose could not be shipped. The NRC staff conservatively assumed that the source term consisted entirely of gamma radiation for calculation of the incident-free dose. Actual cask radiation levels would be measured prior to each shipment and, in practice, are expected to be lower than the regulatory limit.

Appendix D of the FEIS notes that the collective dose to the public consists of the dose to persons living or working near the route, persons traveling on the route, and persons at stops. The sum of these three doses is given in Table 5.9 in Chapter 5 and Tables D.6 through D.9 in Appendix D of the FEIS. The total annual incident-free (“routine”) population dose is 9.18 person-rem (Table 5.9). This dose would be distributed over the entire potentially exposed population (members of the public within 800 m on either side of the track; crew and general public on the same train as the SNF shipment or on trains that pass by the SNF shipment; persons in all vehicles sharing the transportation route, and individuals at stops). Section 5.7.2 of this FEIS also provides the radiological dose for the “maximally exposed individual. The NRC staff concludes that the radiological impacts to the maximally exposed individual or any member of the public from routine transport of SNF would be small. Therefore, exposure of individuals traveling on Interstate 15 would be small. For more information on the details of these exposure situations, see the RADTRAN 4 Technical Manual.

The design of the cask including the shielding has been approved by NRC in accordance with 10 CFR Part 71. It is very unlikely that an SNF shipment could get stopped in transit for an indefinite period of time. As noted in the DEIS (page 2-16), “The applicant would use two single-purpose, dedicated trains which would proceed from the originating reactor site directly to Skull Valley, Utah, stopping only for crew changes, refueling, and periodic inspections.” The RADTRAN analysis included in the DEIS accounts for stops in transit, because this is part of normal rail movement. Stops or delays are included in the model to account for both expected and unexpected delays. The transportation risks presented in Section 5 of this FEIS indicate that such risks would be small.

In response to one comment, the dose rate near a loaded SNF cask is greater than the dose rate in airplanes at cruising altitude, but the NRC staff has not evaluated the overall risk of flying, as compared to the risk from such exposure. (Although comparisons such as in the comment can offer perspective, they are not material to the analyses and conclusions in the FEIS.)



**G.3.16.3.10 Magnitude of the Shipping Campaign Is Unprecedented****Comment Summary:**

A few commenters stated that the proposed PFSF would require transportation of more SNF for longer distances than has ever been transported in the past or stored in one location, and this represents unknown risks. (0012, 0198, SL1-01, SL2-12, SL3-31) One commenter stated that the experience to date with transportation of commercial wastes involves short distances compared to the cross country route required for the proposed PFSF. (0012)

Another commenter stated that the movement of these amounts of high level SNF is unprecedented. The commenter stated that, furthermore, each cask contains 40 times the radioactivity of the Hiroshima bomb. The commenter stated that utility companies plan to move two to six casks per week through Salt Lake City and the Wasatch front, that these casks have been in use for 14 years, and the license is for 25 years, then another 25 years. (SL1-10)

Two commenters stated that the use of the proposed PFSF would require transportation of more SNF across the nation than has been transported before, creating risks that may, in the end, turn out to have been taken unnecessarily. (0012, 0198) One commenter stated that the proposed temporary site provides a significantly greater risk, since 27 times more SNF than has been transported in the past would be moved to the proposed PFSF. (SL3-02) Another commenter stated that casks should be moved as little as possible to avoid possible dangers and damage. (SL1-20)

One commenter stated that, contrary to what nuclear industry supporters say, the casks are definitely not infallible, and the applicant has no track record of being able to transport, handle, or manage such a vast quantity of SNF. The commenter asked if it would be double or triple jeopardy for the applicant to assure that, if any of the casks arrived in Utah damaged, they would send them back to the site of origin. The commenter stated that not only has the applicant admitted there would be a danger, but they would have that danger traverse populated areas and watersheds three times. Furthermore, the commenter stated that it is reprehensible that the applicant is planning to ship this waste through Utah's most populated communities and portions of the watersheds. (SL1-20)

**Response:**

The risks from SNF shipments to the proposed PFSF can be estimated using standard techniques, as documented in the DEIS. These techniques take into account the radionuclide inventory of the cask. The DEIS estimates indicated that the total risk (product of the risk per shipment times the expected number of shipments) would be small (see Table 5.9 and Section 5.7.2.4 of the DEIS). The NRC staff notes (in contrast to one comment) that the license, if approved, would be for 20 years, not 25 years, and could be renewed.

All SNF shipments to the proposed PFSF would meet the NRC and the DOT regulations that assure minimal risk to the public for any single shipment and for the entire shipping campaign. The shipment of SNF is not new or unproven. In more than 20 years of shipments in the U.S. and around the world, the safety record of SNF shipments has been excellent (no fatalities or injuries due to cargo, and no releases of radioactivity). Regarding the response of a damage cask, see Section G.3.16.1.8.

**G.3.16.3.11 DEIS Transport Worker Doses Not Adequately Defined****Comment Summary:**

One commenter mentioned that the DEIS did not define anticipated hours of exposure per train crew. One commenter expressed concern that the DEIS did not address the extensive duration of time that rail workers would be subjected to radiation. (0112)

**Response:**

Regarding exposure to transportation crews, the relevant parameter is the accumulated dose and not the number of hours of exposure. Section 5.7 of this FEIS presents the potential (accumulated) doses to transportation crew members and workers at the proposed PFSF.

**G.3.16.3.12 Effects on Populations More Sensitive to Radiation****Comment Summary:**

Two commenters stated that the EIS does not adequately consider the health risks of radioactivity exposure to sensitive populations like pregnant women and their unborn children from transportation of casks. (GR-16, SL1-05) Another commenter stated that the DEIS did not adequately analyze the risks to children and the elderly. The commenter stated that the DEIS assumed on page D-5, lines 11-16 that the person exposed would be the age of the average worker, between 20-45. (0096)

**Response:**

The NRC staff estimated in the DEIS the risks to the general population (including pregnant women, children, and the elderly) from transportation accidents that are so severe that there would be a release of radioactive material, and the radiological exposure to the general public from routine (incident-free) transport of SNF. The estimated population dose risks are small. The estimated dose to the general population encompasses doses to pregnant women and their unborn children. Since the estimated risk to the entire population and the maximally exposed individual has been found to be small, the risk to any population subgroup, such as pregnant women, would also be small.

The NRC staff explained in the DEIS (page D-21, lines 9-11) that the transportation analysis accounts for health effects to young and elderly persons by its choice of a dose to health effect conversion factor (risk factor). The risk factor of  $5.0 \times 10^{-4}$  LCF per person-rem for public exposure is 25 percent higher than the worker risk factor ( $4.0 \times 10^{-4}$  LCF per person-rem), because the general population includes persons above (the elderly) and below (children) the worker age range of 18 to 65, who could be more sensitive to the biological effects of radiation. For a more detailed discussion on this subject see comment response G.3.15.5.2.

**G.3.16.3.13 Comments That Generally Agree with EIS Assessments/Conclusions****Comment Summary:**

One commenter asserted that experience will allow the project to be successful. The commenter stated that the DEIS review of the transportation impact is thorough and complete, and clearly supports moving the SNF from nuclear power plants to the Reservation as proposed by the applicant. The commenter stated that the DEIS review is supported by the practical knowledge that over the past 35 years more than 3,800 shipments of SNF and more than 10,000 radioactive materials shipments have been made in this country without a single radiation injury. The commenter concluded by stating that panels of national experts have repeatedly found that it is safe to transport SNF, and to store it at a centralized interim storage facility without impairing the local citizens and the environment. (0070)

A few commenters stated that SNF can be transported safely. (0014, 0017, 0170, 0236, GR-12, SL1-08, SL1-25, SL1-40, SL2-03, SL2-04, SL3-58) One commenter stated that DOT and NRC regulations for transporting radioactive material ensure public health and safety. (0014, SL1-40) Two commenters noted that shipping casks are built to meet high safety standards established by the NRC. (0014, 0017)

Other commenters stated that SNF can be transported more safely than other materials. (0017, SL1-08, SL2-03) Several commenters noted that the radiological impacts from the transportation of SNF

are small, and accidents involving SNF would not lead to significant environmental impacts. (0014, 0017, 0170, 0179, GR-12, GR-24, SL1-08, SL1-25, SL1-40, SL2-04, SL3-53)

One commenter stated that shipping SNF is safer than shipping a rocket motor. (SL2-03)

Another commenter stated that radiation from SNF casks is not comparable to bomb test fallout. The commenter stated that once the cask has passed by, no radioactive material is left behind and the area is as clean as before. The commenter similarly explained that the gamma ray dosage received as the cask goes by is gone with no residue. The commenter explained that SNF transport is not comparable to an above-ground bomb test that produces large quantities of dust mixed with radioactive isotopes (fallout), which settles out over the countryside. (0170)

Another commenter stated that a canister could not "leak." The commenter described the SNF inside the rods as solid pellets of ceramic (uranium dioxide), each about as large as two aspirin tablets or a small rock. The commenter stated that these are inside stainless zirconium tubes called SNF rods, welded shut. The commenter continued by stating that the rods are arranged into bundles and sealed inside a stainless steel canister. The commenter stated that the word "leak" is usually reserved for liquids, gases, or powders, which might escape through a small crack. The commenter asserted that no pellets could escape in any of the credible "severe" accidents, and if any ever did escape, they could be located by Geiger counter and retrieved. (0170)

One commenter indicated that plutonium in microscopic particle-size escaping from the spent reactor rods is not realistic. The commenter asserted that it is only unsafe in terms of direct radiation for two or three meters from the container. The commenter stated that, if there were an accident, it would not be a nuclear explosion like in Nevada, that thrust radioactive particles into the atmosphere and scattered them downwind, nor would it be a wide area contamination or a meltdown. Rather, the commenter stated that there might be a breakage of the container and a spillage of metal pieces from that container, and that the problem would be very local. The commenter stated that clean-up crews would come in with a Geiger counter, find those pieces, pick them up, and take them away. (SL1-25)

Some commenters stated that people living near the transportation route would be exposed to less radiation than they would from flying in an airplane or from a chest x-ray. (0014, 0017, GR-12, GR-24, SL1-08, SL1-40, SL2-04, SL3-53) One commenter asserted that, although standing one meter away from a cask is four times more hazardous than flying, the risk is the same at five meters and at 10 meters there is no risk. (0017) One commenter stated that it would take the passage of 19,000 shipping casks at 30 miles per hour to give one person leaning against the fence an exposure equivalent to one chest x-ray. Such exposure, the commenter stated, could not happen. (0017, 0170, GR-24, SL1-08, SL2-04, SL3-53) The same commenter asserted that one would receive more exposure in a brick house because of isotopes in the brick. (GR-24) One commenter noted that the potential radiation exposures to the public from transporting, handling, and storage of casks have been estimated to be less than 2 percent of naturally occurring background radiation. (0179) One commenter challenged claims that residents within a half-mile to two miles of the transportation route could be affected by radiation and devalued property. (SL3-53) One commenter stated that a person who spends 15 minutes standing 6 feet away from a vehicle carrying radioactive materials would only receive 2.5 mrem, approximately the equivalent received by the commenter on the flight from Washington to the public meeting in Utah. (GR-12, SL1-40)

One commenter noted that the casks are built and tested to withstand 30 mph train wrecks against unyielding concrete structures in addition to a thirty minute gasoline fire and eight hours under water. The commenter believes it would be a simple task to keep the public at a safe distance if a wreck at 30 mph were to occur. (0017)

Several commenters stated that nuclear SNF can be transported safely. (0014, 0017, GR-12, SL1-08, SL1-25, SL1-40, SL2-03, SL2-04, SL2-10, SL3-58) Other commenters added that there are strict DOT and NRC standards for transporting SNF that ensure safety during transportation, and that much

experience has been gained in shipping SNF; and, as a result, there have been no major accidents. (0014, SL1-41, SL2-10, SL3-58) One of these commenters noted that no harmful levels of radioactivity have been released in the eight transportation accidents that have occurred in 35 years involving radioactive materials. (0014)

In addition, two commenters stated that extensive studies have been conducted to ensure safety in the event of an accident while the waste is being sent to the storage facility. (0179, SL3-50)

Two commenters noted that past NRC transportation studies used conservative assumptions that overestimated the frequency and consequences of potential accidents. (0179, SL1-40) Another commenter made the point that radioactive material was already being transported on Utah's highways, specifically I-80. (GR-08) One commenter stated that moving and storing SNF can be done more safely than moving the same energy-equivalent amount of coal. (0017, SL1-08)

Another commenter stated that the risk of transportation and storage of SNF should be evaluated realistically and not exaggerated. This commenter stated further that a factor of 10,000 is an exaggerated risk factor. (SL3-53) One commenter indicated that studying international experience in the transport of SNF could be an asset in the EIS. The same commenter noted that there has never been an accident involving a commercial SNF transportation package. (0179) One commenter noted that he was aware of the local, state, and Federal requirements for the shipments and the training requirements for shippers, as well as the safety record for previous shipments of SNF. This commenter expressed concern that misinformation about the very safe transportation of the SNF would lead us to solutions that are actually less safe. The commenter encouraged the careful study of all disposal options so that SNF can be transported and stored in a consolidated location. (SL1-41)

One commenter cited specific NRC and DOT regulations that govern the shipment of used SNF and other radioactive material. The commenter stated that these regulations are sufficient to ensure that the chance of radioactive release in transport would be minimal. (0014-11)

One commenter added that in the event of an accident, people would only need to be kept back 30 feet, and workers limited to two hours per day within arm's length of the shipping casks to ensure safety. (SL2-04)

#### **Response:**

The NRC staff notes the comments. The NRC staff has determined that the DEIS did not require modification to reflect the information in these comments. No further response is required.

### **G.3.16.4 Route Selection**

#### **G.3.16.4.1 Identification of Specific Routes Is Necessary for this EIS**

##### **Comment Summary:**

A number of commenters expressed concern that interstate transportation routes were not specifically identified or evaluated in the DEIS, and concluded, therefore, that impacts to communities along the transportation routes were not adequately considered. A few commenters stated that the lack of national route information disadvantages some states that would be affected by the proposed project, whose residents may not be informed or familiar with the issues. (0012, 0042, 0112, 0142, 0166, 0194, 0198, 0201, 0204, SL1-01, SL2-12, SL3-55) One commenter asserted this was a political ploy to keep concerned citizens in the dark until it is too late for them to voice effective opposition. (0194) Another expressed the view that people and communities in states that would be affected by the major and unprecedented spent nuclear SNF shipping campaign are deprived of the opportunity to review and comment on the proposed action, and this is required under NEPA. (0204) Two commenters believe that lack of specific routes prevents consideration of important safety information related to

transportation infrastructure. (0142, 0166) One commenter stated that the representative route approach is ineffective to bound the potential impacts because it does not take into account accident and recovery issues related to elevated roadways, bridges, tunnels, and steep grades, or the existence of rivers or other bodies of water. (0142)

**Response:**

The NRC staff disagrees with the comments and believes the representative route approach used in the DEIS was appropriate for estimating nationwide impacts of transportation associated with the proposed action. As summarized below, the FEIS provides sufficient information from which to estimate that the nationwide transportation impacts are small.

The NRC staff used a representative route approach to evaluate transportation impacts of the proposed action. In this approach, the NRC staff analyzed transportation of SNF to the proposed PFSF as if all the SNF to be stored there would travel from the Maine Yankee nuclear power plant (even though Maine Yankee plant itself would never have that much SNF to ship). This route is one of the longest possible routes that any individual shipment could experience, and also passes through some of the most populated regions of the country. Maximizing these factors tends to conservatively overestimate the transportation risks.

Even including these conservative factors in the evaluation, the NRC staff concluded that risks along the route from Maine-Yankee to the proposed PFSF would be small. In reality, any route, from any reactor, would carry less than the total 4000 cask transits, and therefore, the risks along any other route, from any other reactor would be a fraction of the risk along the Maine-Yankee to Skull Valley route. Thus, the overall risks estimated using this route are expected to characterize overall risks of shipments to the proposed PFSF, regardless of their individual origins, transportation details (such as use of intermodal transfer), and reasonably foreseeable route characteristics. Use of the representative route approach in the FEIS is further supported by the fact that the volumes of SNF, modes (exclusively rail or intermodal including rail), routes, and reactor licensees that could ship SNF to the proposed PFSF are subject to decisions that are yet to be made.

The NRC believes that there has been an adequate opportunity for public involvement. The DEIS was available for a 90 day public comment period, which is double that required by NRC regulations. The NRC staff believes the DEIS was clear in that the nationwide impacts of transportation included impacts in many states, and that the representative route was not the only route that might be utilized for potential shipments to the proposed PFSF. For a more detailed response on public participation see Section G.3.7.

**G.3.16.4.2 DEIS Should Consider Route Possibilities from All Reactors**

**Comment Summary:**

One commenter indicated that the analysis in the DEIS failed to use "reactor-specific shipment numbers and route-specific inputs resulting in a technically indefensible and legally deficient transportation risk analysis." Since the proposed action could result in shipping SNF from any reactor site, the commenter stated that the DEIS should have identified and analyzed the probable rail routes from all 72 reactor sites, using an accepted routing model such as INTERLINE. The commenter went on to state that the DEIS should then have used a bounding scenario approach to transportation risk analysis, using reactor-specific and route-specific data for minimum (12 site owned by PFS members) and maximum (72 site) national transportation scenarios. The commenter stated that such an analysis could have and should have been done and included in the DEIS. The commenter indicated that failure to include an adequate analysis of potential national transportation routes is, of itself, sufficient to require that this DEIS be withdrawn, redone, and reissued for an additional public comment period. (0204)

**Response:**

The representative route approach used in the FEIS characterizes overall risks of shipments to PFS, regardless of their individual origins, transportation details (such as use of intermodal transfer), and reasonably foreseeable route characteristics. Although likely routes from each reactor site to the proposed PFSF can be predicted using the existing railroad system and industry practices (this is precisely the method used to predict a route from Maine Yankee site), it is not possible to assign specific, required routes at this time. Rather, specific routes are identified in the transportation plan prepared prior to each shipment. Accordingly, railway routing practices are beyond the scope of this FEIS. The NRC staff concludes that use of predicted routes from each reactor would not provide additional insight on the impacts, beyond the FEIS' single representative route.

**G.3.16.4.3 DEIS Lacks Criteria for the Selection of Routes and Modes****Comment Summary:**

One commenter stated that the transportation analysis contained in the DEIS lacked depth. The commenter stated that of greatest concern to western states is that the DEIS fails to establish any credible criteria for the selection of shipping routes and transportation modes. (0142)

The commenter stated that the analysis of routes should include not only the traditional assessment of distance, population exposure and time in transit, but should also examine factors which could (a) threaten the integrity of the cask, (b) pose problems in the recovery from an accident that did not result in a release of radioactive materials, and (c) cause delays in transit or impede interstate commerce. The commenter stated that analysis of modes and routes should take into account recent work by the U.S. Department of Transportation under the Hazardous Materials Transportation Uniform Safety Act. (0142)

One commenter stated that the DEIS did not include any analysis that provides a sound methodology for evaluating optional mixes of routes (and transportation modes). The commenter stated that the size and scope of the proposed PFS shipping campaign is similar to that of a potential NWPAC campaign, and the commenter asked that the DEIS be amended to: 1) include the development of a sound methodology for evaluating optional mixes of routes (and transportation modes); 2) provide route-specific analyses and a specific evaluation of the impacts on states along transportation corridors; and 3) identify preferred routes from each potential reactor shipping site to the proposed PFSF. The commenter recommends that the NRC work together with western states and tribes to develop an acceptable methodology for evaluating routes. (0142)

**Response:**

As set forth in the DEIS, the NRC staff evaluated the environmental impacts of transporting SNF to the proposed PFSF using a representative route analysis. The NRC staff concluded that the environmental impacts are small. The DEIS clearly indicated that the applicant intends to ship SNF by rail. The DEIS also explained why the transportation analysis only considered rail as an alternative for cross-country shipment of SNF. The purpose of the DEIS is not to establish criteria for the selection of shipping routes and transportation modes. However, Section D.3, "Regional Transportation Risks Near Skull Valley, Utah," investigates possible rail routes to the proposed PFSF from points on an approximately 250 mile radius circle around the proposed PFSF.

Selection of rail transportation routes is beyond the scope of this FEIS. As long as the applicable regulations, including DOT regulations under the Hazardous Material Uniform Safety Act, are satisfied, shipments could utilize any route. In addition, the reactors that may utilize the proposed PFSF are not specified at this time, and the routes used may change over time. The NRC staff has concluded that the representative route that was assessed results in a reasonable bound to the potential

transportation impacts of the proposed action. Additional analysis has been provided in FEIS Appendix D.1.5.2.

#### **G.3.16.4.4 Shipping Distances Must Be Considered**

##### **Comment Summary:**

One commenter stated that the EIS must consider the distances over which SNF will be shipped to the PFS facility. (0198h)

##### **Response:**

As noted in the DEIS, the Maine Yankee to Skull Valley route was selected as the representative route for study because it is one of the longest shipment routes to the proposed PFSF site and also passes through a large number of urban areas. The specifics of this route are presented in Section 5.7.2 and Appendix C of this FEIS.

#### **G.3.16.4.5 DEIS Does Not Satisfy Federal Highway Administration Requirements**

##### **Comment Summary:**

One commenter stated that the logical termini of the project may not be adequate. FHWA regulations state the following:

In order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are evaluated, the action evaluated in each EIS or finding of no significant impact shall connect logical termini and be of sufficient length to address environmental matters on a broad scope (23 CFR 771.111(f)).

Based on the above, the commenter stated that the study of the environmental consequences may not be limited to just the immediate location of the proposed action. Since this project proposes the transport of nuclear waste by rail, a more appropriate study area would be from where the waste is loaded by train to where it is removed from the train. (0198)

##### **Response:**

The regulations cited by the commenter are the Federal Highway Administration regulations for implementing NEPA. This regulation is not applicable to any of the cooperating Federal agencies. The comment does not warrant any change in the DEIS. However, the cooperating Federal agencies interpret the comment to mean that the NEPA analysis of the proposed action should not be segmented. The analysis in the FEIS includes the entire scope of the proposed action. The FEIS considered the environmental impacts of constructing and operating the proposed PFSF and rail line and the impacts of transporting SNF to and from the proposed PFSF. The transportation analysis considers transporting SNF from reactor sites to the proposed PFSF. This analysis was done by using a representative route. Please see comment response G.3.16.4.1. Accordingly, the proposed action is not segmented in the analysis.

#### **G.3.16.4.6 The EIS Overlooks Demographics along the Routes**

##### **Comment Summary:**

One commenter stated that the NRC should evaluate the demographics of transportation corridors proposed for use by the applicant. The commenter was concerned, for example, that large quantities of SNF will pass through Salt Lake City, a major population center. (0198h)

**Response:**

The effects of population densities along transportation corridors were captured in the FEIS by determining mileage and weighted population densities for the rural, suburban, and urban route segments of the transportation routes examined. If, by demographics, the commenter means the characteristics of the along-route populations (income level, minorities), the NRC staff examined these demographics in the FEIS for the potential routes within the State of Utah in Section 6, which discussed environmental justice considerations relative to the impacts of the proposed PFSF.

**G.3.16.4.7 The DEIS Should Include a Detailed Transportation Plan****Comment Summary:**

One commenter stated that a comprehensive, detailed and cooperatively developed transportation plan for the proposed PFSF should be provided to all potential corridor states and tribes and that all provisions of the Nuclear Waste Policy Act should be met by the applicant. The same commenter further requested that an additional, comprehensive transportation and handling plan should address all aspects of the additional rail spur required or intermodal transfer of the high level waste at Rowley Junction, including but not limited to infrastructure improvements, handling equipment and protocols, security and sabotage safeguards, inspection of shipping casks, vehicles and carriers, and state oversight and regulation. (0198h)

**Response:**

The staff believes that a detailed transportation plan is not necessary for an adequate EIS. In estimating impacts, the NRC staff presumed that the applicant would meet all current regulatory requirements for PFSF-related transportation. As required, transportation plans will be developed and applied to each shipment, but they are not relevant to the FEIS analyses. Accordingly, the issues raised in this comment are beyond the scope of the FEIS.

Provisions of the NWPA, as amended (P.L. 97-425) [including the provisions of Section 180 that apply to transportation of SNF and high-level waste by, of, and for the DOE], are not the subject of the environmental review and do not apply to the proposed action. The comments do not warrant any change to the FEIS.

**G.3.16.4.8 Additional States Could Be Affected If Additional Reactor Licensees Ship to PFSF****Comment Summary:**

One commenter was concerned that, as the DEIS case study of SNF shipment from the Maine Yankee reactor shows, if the proposal is approved then new reactor licensees would attempt to send their SNF to the proposed PFSF. The commenter states that this could result in dozens of more states finding themselves subject to unprecedented numbers of commercial SNF shipments. The commenter concludes that the NRC should consult with and notify public and elected officials in these States, stating that these communities along the transportation routes deserve hearings just as much as Utah does. (0257)

**Response:**

Neither the application nor the DEIS indicated that the proposed PFSF would receive SNF only from PFS-member reactor licensees. As stated in the DEIS, if the PFSF is licensed, reactor licensees that are not members of the PFS consortium are expected to ship SNF to the proposed PFSF. However, the amount of SNF that can be accepted by the proposed PFSF would be fixed by the licensed capacity of the facility. A representative route approach was used in the DEIS. In this approach, the NRC staff analyzed transportation of SNF to the proposed PFSF as if all the SNF to be stored there



would travel from the Maine Yankee nuclear power plant (even though Maine Yankee plant itself would never have that much SNF to ship). This route is one of the longest possible routes that any individual shipment could experience, and also passes through some of the most populated regions of the country. Maximizing these factors tends to conservatively overestimate the transportation risks. Thus, the risks estimated for this route are expected to encompass risks of shipments to the proposed PFSF, regardless of their individual origins and reasonably foreseeable routes. Therefore, the impacts of shipments to the proposed PFSF, through varied regions across the country, are included in the nationwide impacts of the representative Maine Yankee to proposed PFSF route. Regarding the comment on public hearings along transportation routes see comment response G.3.7.6.

### **G.3.16.5 Transportation Safety Standards**

#### **G.3.16.5.1 Consistent Safety Standards Should Apply to All Spent Fuel Shipments**

##### **Comment Summary:**

One commenter stated that the transportation of SNF might not be subject to the same safety standards as a Federally-owned project such as Yucca Mountain because the proposed action is an agreement between a private company and Native Americans. (SL1-10)

##### **Response:**

The commenter's concern is based on an inaccurate premise with respect to SNF transportation. All commercial radioactive material transportation (including SNF) is subject to the same applicable NRC and DOT regulations as well as relevant state requirements. As stated in the FEIS (page 5-1), the SNF must be shipped in packages (i.e., casks) which have been certified by the NRC under 10 CFR Part 71. Section 180(a) of the NWPA, as amended (42 USC 10175) mandates that the DOE transport SNF to a permanent repository (if one is licensed) using packages that meet the NRC's standards (i.e., Part 71). Thus, the proposed PFSF and the geologic repository transportation programs are subject to the same transportation standards.

#### **G.3.16.5.2 DEIS Does Not Recognize Inadequacies in DOT Regulatory Program**

##### **Comment Summary:**

One commenter questioned the effectiveness of DOT safety regulations, particularly in the area of enforcement. The commenter suggested that the DOT evaluate the need for a citizen oversight board for the radioactive waste transportation safety program or perhaps the remedy of citizen watches to enforce the regulations, if the DOT refuses to enforce them. The same commenter stated that the changes in the transportation industry between 1986 and 2000 might result in a possible "regulatory lapse." The commenter suggested that the FEIS should describe the changes in the transportation industry during this time period. Also, the commenter stated that last year Congress eliminated funding for the DOT's Radioactive Waste Transportation Safety Program. The commenter concluded that this would have an impact on the safety of transporting nuclear waste to the proposed PFSF and that this should be addressed in the FEIS. (SL3-09)

##### **Response:**

The adequacy of DOT radioactive material regulatory programs and suggestions for a citizen's oversight board for implementing DOT rules are not the subject of the FEIS. DOT has a transportation safety program covering radioactive materials, and the NRC staff is not aware of any Congressional action that has eliminated funding for that program. In fact, DOT has a regulatory program in place that includes inspection and enforcement for transportation of radioactive materials. Further, pursuant to an NRC-DOT interagency agreement, NRC also inspects for, and enforces, compliance with DOT requirements by its licensees. The millions of shipments of radioactive materials that occur each year,

with an exceptional record of safety, verify the effectiveness of the NRC/DOT regulatory approach. Based on the above, the NRC staff has concluded that transport of SNF in accordance with existing regulatory programs would provide adequate protection of the public health and safety.

In contrast to the comments, the NRC staff concludes that the FEIS reflects the relevant, current transportation industry practices and regulatory requirements that are within the scope of the FEIS analyses. Further, the applicant has committed [PFS/RA11 February 18, 1999] to complying with the Association of American Railroads' (AAR's) "Performance Standard for Spent Nuclear Fuel Trains," developed in 2000. Absent additional and more specific information, no change to the conclusions of the FEIS is required.

### **G.3.16.5.3 Buffer Cars Between Cask-Carrying Railcars Are Not Required**

#### **Comment Summary:**

One commenter stated that on page 5-45, Section 5.7.21.4, line 37 of the DEIS states that the casks being transported by rail will be "widely separated from each other on the train (usually by a buffer car between each cask-carrying railcar)." The commenter further stated that applicable regulations do not require that a buffer or spacer car be positioned between cask-carrying railcars, and the applicant does not plan to provide buffer cars between cask cars. (0163)

#### **Response:**

The NRC staff agrees that buffer cars are not required between SNF cask-carrying railcars. The presence of buffer cars between SNF cars (or lack thereof) does not impact the RADTRAN analysis. The NRC conclusion that the impacts are small remains valid. The casks are widely separated without buffer cars because of the size of the casks in relation to the size of the railcar. As indicated in the DEIS on page 5-45, the DEIS conclusions are based on assessments that assume that all four casks on the train are damaged and release material for any accident of a given severity. The NRC staff, however, notes (DEIS pgs 5-45 to 5-46) that it is reasonable to expect that all four casks would not be damaged to such an extent in an accident. Therefore, the NRC staff analyzed a supplemental case, in which one cask is damaged, and the NRC staff believes that the most reasonable estimate of risk lies somewhere between the two cases. The NRC staff revised the FEIS to remove the parenthetical discussion on buffer cars.

### **G.3.16.6 Economic Consequences**

#### **G.3.16.6.1 Economic Impacts of Severe Transportation Accidents in Urban Areas**

#### **Comment Summary:**

Several commenters stated that the DEIS is deficient because it does not discuss the economic impacts of a severe rail transportation accident [Category 6] in an urban area. (0183, 0198g, 0204a, 0257) Commenters stated that the public must be informed that one severe rail cask accident could cause 115 latent cancer fatalities and cost tens or hundreds of billions of dollars to clean up, and thus the DEIS must include this information. Two commenters also provided their own estimates of the economic impacts from calculations they performed using various computer codes such as RADTRAN4, RADTRAN5, and RISKIND. (0198, 0204) These estimates range from \$31 billion to \$313 billion. One commenter added that the RADTRAN 5 model estimates the cost of emergency response, surveying, evacuation, and cleanup, based on the calculated concentration of radioactive material following an accident. The commenter pointed out that the stand-alone economic model found in RADTRAN 5 is currently available to NRC and the public on the Sandia National Laboratory's Transnet system (<http://td.sandia.gov/risk/tnet.htm>); and, therefore, this readily available information should be included in the EIS for the consideration of Federal decision-makers, as it has been in other EISs. (0198g, 0198h)

One commenter stated that for the most economically severe rail accident in an urban area under weighted average meteorological conditions, the RADTRAN 5 analysis has estimated the associated costs to be on the order of \$270 billion for 10-year cooled SNF and \$145 billion for 25.9-year cooled SNF, present-day value. The commenter also stated that for the most economically severe truck accident, a RADTRAN 5 analysis estimated the associated costs to be on the order of \$36.6 billion for 10-year cooled SNF and \$20.1 billion for 25.9-year cooled SNF. Another commenter stated that the economic impacts of a severe GA-4 truck cask accident containing 4 PWR SNF assemblies range from \$7.3 billion for SNF aged 25.9 years to \$12.9 billion for SNF aged 10 years, all under weighted average meteorological conditions. (0204a)

The same commenter stated that the DEIS also fails to provide any estimate of the economic impacts of the maximum severity rail accident reported in Section 5.7.2 and in Appendix D. The commenter stated that Radioactive Waste Management Associates (RWMA) prepared an estimate of the economic impacts of a similar accident involving a similar large rail cask, using the 6 RADTRAN 4 & 5 models and a range of alternative assumptions about cleanup levels, SNF age and radiological characteristics, atmospheric dispersion, and population densities. The commenter stated that RWMA concluded that the economic impacts of cleanup and other post-accident costs in an urban area would range between \$9.4 billion and \$145 billion for a rail cask loaded with 26-year-old pressurized-water reactor (PWR) SNF. The commenter also indicated that for a rail cask loaded with 10-year-old PWR SNF, economic impacts could be as high as \$270 billion. (0204)

- Two commenters stated that it is unclear whether the Price-Anderson Act will cover accidents that occur during transportation of high level nuclear waste to or from the proposed PFSF, but that, even if it does, nuclear reactor licensees would only be liable for a maximum of \$9.43 billion of accident costs. The commenters asserted that the Federal government - U.S. taxpayers - would be responsible for the rest, and the rest could be significant. The commenters also asserted that the estimated economic costs for a transportation accident in a metropolitan area ranges from \$14 to \$313 billion. (0012, 0198, SL1-01)

Many commenters stated that the DEIS did not address the economic consequences of an accident. (0012, 0096, 0136, 0204b, GR-16, SL1-01, SL2-05, SL3-04, SL3-18)

A few commenters asserted the DEIS does not adequately address the economic costs associated with transportation accidents or accidents at the proposed PFSF.

- The commenters stated that the cost of an accident requiring emergency evacuation and cleanup is estimated to be as high as \$300 billion in a dense urban area. (0130, 0136, SL1-05, SL2-05)

### Response:

The comments indicate that costs in urban areas for an accident (a Modal Study Category 6 accident) that involves a high speed train derailment, a long duration fire or both, might range from \$30 to \$300 billion dollars.

The NRC staff considers such accidents to be very unlikely. For example, the NRC's staff estimates that the probability of having a Category 6 accident in an urban area is  $5.4E^{-7}/\text{yr}$  or 1 in 1.8 million per year,<sup>1</sup> if one assumes the FEIS accident rates, route fractions and distances for the Maine Yankee to Skull Valley route. Notwithstanding the fact that the NRC staff believes the Modal Study conservatively estimates the probability of a Category 6 accident, it is likely that most routes to the proposed PFSF would be shorter, and/or have a smaller urban fraction. Therefore, the contribution to the overall accident risk (including costs) of these accidents is small due to their low probability of

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<sup>1</sup> Total route length(4476 km) \* urban fraction of the route (0.043) \* number of rail cars per year (200) \* category 6 accident rate per rail car-km ( $1.4E^{-11}$ ).

occurrence. Based on the above, the severe accidents for which the commenters believe the NRC should consider costs are remote and speculative, and there is no requirement to consider the cost of such accidents.

As stated in the transportation response in Section G.2, the methods currently available to calculate the economic cost are dependent upon several uncertain variables and the calculated cost can vary significantly depending on the location of the accident. To quantify the risk, the NRC staff would have to speculate on the location of the accident. Therefore, economic costs for an accident are not explicitly quantified in the FEIS. As an example, using the Chanin and Murphin model (the model used in conjunction with RADTRAN 5) to calculate costs for this very improbable accident (category 6), the costs would be at the bottom of the commenter's range if the level to which property was decontaminated (cleaned-up) was based on long term exposure to groundshine and the inhalation of resuspended radioactive materials. Costs at the top of the commenters range would occur only if exceedingly stringent decontamination standards were used. Such decontamination standards would only be needed to prevent persons who grow or raise most of their own food from receiving total exposures of concern not only from groundshine and inhalation of resuspended radioactive materials but also from the consumption of home grown contaminated foods, which represents a potentially dominant (but highly uncertain) exposure pathway.

In addition, the cost of disposal for low-level radioactive waste generated during cleanup is subject to large uncertainties such as the actual volume of material to be disposed of, how far it would be transported, and the nature of disposal fees. The NRC staff determined that accidents that are more likely in an urban area would have costs that are far less than those estimated by the commenter. Few people in urban centers will raise and grow a significant portion of their own food, however, other location dependent and unforeseeable variables, such as (1) the choice of a cleanup standard (primarily determined by how much food is obtained from backyard farming) and (2) the cost of waste disposal (which depends on waste volume and the disposal method and location) would also influence the economic cost of clean-up.

Finally, the costs of less severe accidents that have a small but more realistic chance of occurring in an urban area (a Modal Study Category 5 accident; accident probability about  $10^{-8}$  per transit of Salt Lake City) are likely to be at least an order of magnitude less than those estimated above. The costs of such accidents depend on the same factors identified above. Because these variables are so uncertain, the resulting cost estimates would also be uncertain. For a response to the comment regarding accidents at the proposed PFSF and liability for accidents at the proposed PFSF see Sections G.3.15.6 and G.3.21.

### **G.3.16.6.2 Economic Impacts of Severe Accidents in Salt Lake City**

#### **Comment Summary:**

One commenter stated that health and cost impacts of a severe transportation accident in Salt Lake City are significant. A contractor for one commenter prepared an assessment of the health impacts and economic costs of a severe accident involving transportation of spent nuclear SNF to the proposed PFSF. The commenter stated that the evaluation shows that the consequences of a potential accident or sabotage event are significant, and should be fully evaluated in an EIS. The results of this analysis of a severe transportation accident in Salt Lake City, ranged from \$31.9 billion (RADTRAN 4 code) to \$300 billion (RADTRAN 5 code), assuming 5 year cooled SNF, average weather conditions, and 1344 persons/km<sup>2</sup>. (0198g)

Several commenters expressed concern about the effects an accident might have in an environment having a population density similar to Salt Lake City Utah. (0084, 0127, 0135, 0185, 0194, 0195, 0198g, 0257, GR-16) One commenter stated that under average atmospheric conditions, a severe accident [Category 6] resulting in a release of a small fraction of the radioactive contents of a rail cask carrying 5-year cooled SNF would result in 115-117 additional latent cancer fatalities to the population

of exposed individuals, and the economic impacts associated with evacuation, interdiction, and restoration are calculated by RADTRAN 4 would be on the order of \$14.3 billion dollars, ranging up to \$23.9 billion. The commenter's analysis is based on a population density of 567 persons/km<sup>2</sup>, corresponding to a low-density urban area such as Salt Lake City. The commenter stated that population doses will scale with population density. (0198g) One commenter noted that a state's consultant estimated that the cost for disruption and clean-up, if there is a train accident along the Wasatch front, would be between \$100-300 billion. (0015, GR-13)

**Response:**

A severe (e.g., Category 6) rail accident in Salt Lake City is very improbable. Using the Modal Study data, the probability of a severe rail accident in Salt Lake City involving SNF shipments to the proposed PFSF is  $7 \times 10^{-10}$  per transit of Salt Lake City.<sup>2</sup> Assuming 200 annual transits (number of railcars carrying casks) the probability is  $1.4 \times 10^{-7}$ /yr or about 1 in 7 million chance over the proposed 20 years of SNF shipment. Therefore, given the low likelihood of occurrence, to estimate the economic cost of such an event is not very meaningful in the context of EIS conclusions or selection among EIS alternatives. Furthermore, the methods currently available to calculate the economic cost are dependent upon several variables and the calculated cost can vary significantly depending upon the location of the accident (see Section G.3.16.6.1).

**G.3.16.6.3 Cost of a Severe Accident in Rural Area****Comment Summary:**

One commenter stated that the NRC must calculate and publish the full economic and health impacts from a severe accident, either storage or transportation, in both urban and rural settings for all the projected transport routes. (0012, SL1-01) Commenters defined full health impacts as including latent cancer fatalities, non-fatal cancers, birth defects, genetic damage, lowered immunity, and other diseases. (0127, 0136, 0139, 0157, 0180, 0183, 0194, 0195, 0257) One commenter stated that one severe rail cask accident could cause over one hundred cancer deaths and cost tens or hundreds of billions of dollars to clean up. The commenter stated that NRC's DEIS does not describe the potential environmental and economic impacts of rail accidents bound for the proposed PFSF. (0183)

**Response:**

It is likely that most rail routes used to ship SNF to the proposed PFSF will consist of a large rural fraction, and therefore, the likelihood of a severe accident in a rural area is higher than an urban area. However, the NRC considers a severe rail accident unlikely anywhere. Using the FEIS accident rates and the Maine Yankee to the proposed PFSF route, the probability of a Category 6 rail accident in a rural or suburban area is  $1.1 \times 10^{-5}$ /yr (which is about one in 90,000).<sup>3</sup> Notwithstanding the fact that the NRC staff believes the Modal Study conservatively estimates accident severity fractions and the probability of a Category 6 accident, it is likely that most routes to the proposed PFSF will be shorter than the FEIS representative route. As stated in the transportation response in Section G.2, the costs associated with clean-up from a severe transportation accident are dependent upon several uncertain variables and the calculated cost can vary significantly, depending upon the location of the accident. Therefore, they are not explicitly quantified in the FEIS.

As set forth in the FEIS, the NRC staff estimated latent cancer fatalities as a measure of the overall accident dose risk. As described in the transportation response in Section G.2, the accident dose risk

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<sup>2</sup>  $1.4 \times 10^{-11}$  accidents/railcar-km \* 50 km traveled per transit in Salt Lake City.

<sup>3</sup> The value  $1.1 \times 10^{-5}$ /yr is calculated as follows:  $1.4 \times 10^{-11}$  category 6 accidents per kilometer, times 4476 km per shipment, times 200 shipments per year, times the rural and suburban route fraction (1-.044). [0.044 is the urban fraction]

describes the consequences of an accident while appropriately considering the likelihood of the accident. The health impacts from radiation exposure during transportation is estimated using factors that convert population dose to latent cancer fatalities. The NRC does not develop these factors, but rather uses those provided by the International Commission on Radiological Protection (e.g., ICRP Publication 30). These factors are generally accepted as providing a conservative estimate of the significant health impacts associated with radiation exposure.

For a response to the comment regarding accidents at the proposed PFSF and liability for accidents at the proposed PFSF. See G.3.15.6 and G.3.21, respectively.

#### **G.3.16.6.4 Responsibility for Accident Costs and Clean-up**

##### **Comment Summary:**

One commenter asked the question who would be responsible for a cleanup if an accident occurred on route since the applicant is a limited liability corporation. (0042)

Two commenters stated that a single severe rail cask accident could cause 115 latent cancer fatalities and cost tens or hundreds of billions of dollars to clean up and this needs to be made clear to the public, as well as the fact that any costs over \$7 billion become the liability of the American taxpayer under the Price-Anderson Act. (0084, 0127) Several commenters stated that the DEIS must report that the public will have to pay any cleanup costs over \$7 billion. (0136, 0139, 0183, 0194, 0195, 0257) Some commenters stated that clean up costs could be as high as \$270 billion to \$330 billion and taxpayers might have to pay up to \$321 billion of that for the cleanup of an accident. (0198, 0204, SL2-20)

One commenter suggested that some things are outside of human control, and thus there are no guarantees that an accident will not happen, and if one does, it will be the taxpayers who will foot the bill. (SL3-18) Another commenter stated that homeowner and health insurance exclude the costs of nuclear accidents. (0260) One commenter stated that the responsibility for transportation related accidents should be solely and completely borne by the applicant. The commenter noted that the DEIS should evaluate the economic and health impacts if cleanup costs cannot be paid promptly by responsible parties. (0198h)

##### **Response:**

The response in Section G.2 provides some clarification on these points, particularly the cost estimates provided by the commenters. As stated in the response in section G.2, the Price-Anderson Act provides for financial protection to cover public liability claims arising from activities of the nuclear power industry to a maximum per incident dollar level of \$9.1 billion. Transportation of SNF to and from a reactor is covered by the Price-Anderson Act. The entire \$9.1 billion would come from private sources. Furthermore, Congress enacted legislation in 1988 that developed a method to promptly consider compensation claims of the public for liabilities resulting from nuclear accidents that exceed the \$9.1 billion limit. As it relates to accidents at the proposed PFSF, though not required by NRC regulations, the applicant has indicated that it will carry both off-site and on-site liability insurance for the proposed PFSF. For more detail on liability insurance for the proposed PFSF, see Section G.3.19.

#### **G.3.16.6.5 Economics of Transporting Fuel to PFS**

##### **Comment Summary:**

One commenter asked NRC to consider that there has been a lot of controversy over the amount of money required to transport SNF to the proposed PFSF. The commenter asks if on-site reprocessing or recycling might be a better use of the money that will have to be spent to transport SNF to PFS and store it. (SL3-57)

One commenter asserted that there is a high economic and health cost in transporting the SNF long distances. (0077)

**Response:**

Transportation of SNF to the proposed PFSF is a private activity. The NRC does not have any authority to redirect the use of private funds in such a manner. As explained in Section G.3.5, reprocessing of SNF is not considered a reasonable alternative for the proposed action.

Regarding the latter comment, the PFS FEIS and other SNF transportation risk assessments conclude that SNF shipments do not have associated high economic or health cost-risk. The health impacts of the proposed transportation were calculated and are described in the FEIS (Chapter 5 and Appendix D); the economic costs of incident-free transport (capital cost of transportation cask, loading SNF, etc.) are calculated and were considered in the cost-benefit analysis in Chapter 8 of the FEIS. The majority of the direct economic cost of the proposed transportation does not depend on the distance traveled. That is, the cost of cask acquisition, inspection, etc. would be the same regardless of distance traveled. The differential cost of longer trips consists primarily of proportional increases for expenses such as fuel, labor charges, and vehicle amortization. These expenses have little effect on capital costs and only an incremental effect on operating costs. Thus, trip distance is not an overriding factor in the overall cost of SNF transportation. The health impacts are estimated to be small, as are the associated costs. The economic costs of transportation accidents are discussed in Section 5.7.2 of the FEIS and in comment responses G.3.16.6.1-G.3.16.6.4.

**G.3.16.6.6 Computer Codes That Estimate Accident Costs**

**Comment Summary:**

One commenter stated that the economic consequence estimates are significantly higher for the RADTRAN 5 economic model than the RADTRAN 4 economic model. The commenter also stated that the RADTRAN 5 economic model admittedly does not attempt to account for a large number of costs associated with a severe SNF accident, such as estimates of the costs associated with determining the level of contamination. The commenter stated that the model assumes that there are no costs associated with areas contaminated with levels below the cleanup criteria, when in reality there would be costs associated with surveying and measuring contamination levels. The commenter also stated that indirect costs, such as costs of litigation, loss of production capacity, and stigma effects are not included in the RADTRAN 5 model. The commenter also stated that the costs of cleanup included in the model for an urban environment were estimated for an average urban population density of 1344 persons/km<sup>2</sup>, less than 30 percent the density assumed in the commenter's previous RADTRAN 4 calculations. The commenter stated that if one were to alter the economic model to consider the effects of an accident using a more realistic urban population density, the economic costs computed by the RADTRAN 5 model would be much greater than those presented in this report. (0204a)

One commenter stated that the economic cost estimates previously recorded for stability class F conditions fall at the low end of the range of values calculated using RADTRAN 4. The commenter calculated economic costs of \$9.4 billion under stable meteorological conditions for SNF aged 25.9 years, and under weighted average meteorological conditions, calculated costs of over \$63 billion. For SNF aged 10 years, the commenter calculated economic cost at \$108 billion under weighted average meteorological conditions. (0204a)

**Response:**

As stated in the transportation response in section G.2, the methods currently available to calculate the economic cost are dependent upon several uncertain variables, primarily related to dispersion and deposition of the contamination, and thus the calculated cost can vary significantly depending on the

location of the accident. In general the calculated cleanup cost would be expected to be lower than that reported by the commenter because of the conservative method RADTRAN uses to determine the dispersion of radioactive material resulting from a transportation accident.

The staff used the RADTRAN 4 code in the FEIS calculations, but did not use the economic consequence modeling features. The NRC staff did not rely upon RADTRAN 5 or RISKIND for this FEIS. Therefore, any differences in the economic model between RADTRAN 4 and RADTRAN 5 would not be relevant. Each of these codes employ estimation methods that are believed to be extremely conservative, and, because of the uncertainties described above, the NRC staff believes these can only be considered rough estimates for the accident scenarios considered.

### **G.3.16.6.7 Accidents Could Disrupt Commerce in Certain Areas**

#### **Comment Summary:**

One commenter was particularly concerned that the railroad runs through the center of the town of Clearfield and that the Freeport Center, Utah's largest manufacturing center, is located close to the railroad and therefore is at risk in the case of a leak or accident. The same commenter expressed concern about the possibility of an accident near the Freemont Manufacturing Center and the impacts from such an accident on the greater Salt Lake City area. (SL2-01)

One commenter stated that the DEIS must include both the short and long term costs for a severe accident in Salt Lake City, including the loss of income to local businesses and the State of Utah due to an evacuation of the city and the costs of decontaminating a major urban area including decontamination of streets and buildings. The commenter stated that the further cost to the railroad of tying up the rail lines while restoration of the accident scene and decontamination takes place must also be considered. The commenter stated further that the lost revenues alone are estimated by the Association of American Railroads at \$1 million an hour. (0198i)

The same commenter stated that the proposed spur will cross numerous streams along the route. The commenter stated that the DEIS does not adequately address the cost of cleanup and re-routing traffic. (0198)

#### **Response:**

The health impacts aspects of these comments are dealt with in other responses. Those responses describe that the risk assessment in the FEIS (Chapter 5 and Appendix D) shows that the total risks are small and, hence, even smaller for a small fraction of the route such as the portion of the rail route passing through Clearfield, near the Freemont Manufacturing Center, or through Salt Lake City. This reasoning also applies to the economic risk. As set forth in Section G.3.16.6.2 of these comment responses, the probability of such an accident is  $4 \times 10^{-7}$ /year or about 1 in 7 million chance over the proposed 20 years of SNF shipment. Accordingly, such an accident is not reasonably foreseeable.

Disruption of commerce and loss of business associated with SNF transportation accidents involving SNF costs are considered to be very unlikely. For the improbable accidents that could lead to a radioactive release, an attempt to calculate the economic costs of these unlikely accidents with any precision is speculative and difficult, for the reasons discussed in the transportation response in Section G.2. A quantitative estimate of cost would require the NRC to speculate on many of the key variables, including the location of the accident. Therefore, the NRC staff has not attempted to quantify the economic cost of any particular accident in the FEIS. Furthermore, if such an event occurred, transportation accidents are covered by liability indemnification and Price-Anderson Act. As discussed in the transportation response in Section G.2, the NRC believes it is unlikely that the economic impact of a transportation accident would exceed the amount of coverage provided under the Price Anderson Act because only a small fraction of accidents would result in any release of radioactive material and a significant release is considered very unlikely. Consequently, for minor



accidents where there is no radioactive release, it is unlikely that recovery and restoration of the accident scene, for an accident involving one or more SNF transport casks, would be significantly different than restoration of other derailment accidents.

#### **G.3.16.6.8 Economic Impacts to Transportation Infrastructure**

##### **Comment Summary:**

One commenter stated that neither the license application nor the ROW application provides sufficient detail concerning the costs associated with constructing, operating, and closing the proposed rail line or ITF. The commenter gives the example that there is no performance or design specification information, such as whether the quality of the rail meets the minimum Class 2 track rating established by AAR Circular OT-55 for hazardous materials shipments, switching needs at interline connection and facilities, signaling capabilities, and travel grades. According to the commenter, those are only a few of the many missing details necessary for an adequate analysis of costs and benefits. (0198i)

One commenter requested that the DEIS take into account the impact of transportation accidents on the reliability of the transportation corridor. (0198h)

One comment asked that for every alternative, including the proposed plan amendment for the proposed rail line ROW, the BLM estimate its economic impact upon the economic potential of nearby trust lands. (0198i) The same commenter stated that the proposed rail line would begin in the vicinity of Interstate 80, which is the principal east-west highway corridor for the State of Utah and Wasatch Front, and that closure of I-80 due to a SNF accident could create serious public safety and interstate commerce problems. (0198)

##### **Response:**

The NRC staff has determined that sufficient information was provided by the applicant to determine the cost of these facilities in the cost-benefit analysis. The applicant provided estimates of the cost of the proposed rail line, and these costs have been included in the cost benefit analysis. Further, the cost of the proposed rail line were considered and reviewed as a part of the NRC staff's evaluation of the applicant's financial qualifications. There would be no impact to State of Utah trust lands in the vicinity of the proposed PFSF or new related transportation facilities from normal operations, so the NRC staff has concluded that there would be no economic impact to these lands. The NRC staff concluded that the risk of a severe rail accident involving SNF in transit to the proposed PFSF would be small. Therefore, the risk of public safety and interstate commerce problems resulting from the proposed action is small.

#### **G.3.16.6.9 Costs of Training and Providing for Emergency Response Functions on the Routes**

##### **Comment Summary:**

Several commenters stated that the economic impacts of transportation accidents and the trained personnel to respond to those accidents are not adequately considered. (0012, 0171, 0198, 0230, SL1-07, SL1-39, SL2-05, SL3-04) Two commenters claim that few, if any, of the hundreds of communities through which shipments of nuclear waste would pass have the equipment or trained personnel necessary to respond to a major accident or terrorist incident. (0198, SL2-05) A commenter asked what the impacts might be of not providing funding for emergency response along the transportation corridor throughout the United States. (SL3-04) One commenter stated that the EIS should include discussion of the liability issues related to the involvement of volunteers responding to an accident. (0171)

**Response:**

Data developed by Sandia National Labs indicate that current capabilities for emergency response throughout the United States provide for rapid response times and adequate evacuation training.<sup>4,5,6</sup> Personnel trained to provide adequate emergency response were not explicitly considered in the FEIS because they are already available and therefore result in no additional economic impact. Currently, there are shipments of radiological materials within the State of Utah, for which the state already provides capable emergency response.

The 2000 Emergency Response Guide book (ERG2000) for first responders to incidents involving hazardous materials, developed in part by the U.S. Department of Transportation, does not distinguish between the actions needed for a SNF shipment and other shipments containing radioactive materials (i.e., Guide No. 165 applies to fissile radioactive materials of low to high level radiation, including SNF). As noted in ERG2000, according to the requirements of the U.S. Department of Labor, Occupational Safety and Health Administration (29 CFR 1910.120) and the U.S. Environmental Protection Agency (40 CFR Part 311), first responders must be trained in how to respond to expected emergencies. Therefore, the proposition that additional cost will be incurred, for unique or different training to respond to potential transportation accidents involving SNF, does not appear to be justified.

In most cases, consistent with ERG2000, a first responder to an accident involving a SNF cask will cordon off an area around the accident site, maintain access control, and measure radiation levels to confirm there has been no increase in cask radiation levels, and no release of radioactive material.

More than 3 million radioactive material packages are shipped nationwide each year. Also, SNF continues to be shipped across the U.S. each year for activities unrelated to the proposed PFSF. Because of this existing commerce in radioactive materials, the training necessary to perform survey measurements is readily available. Most local hazardous material response authorities maintain the capability to survey radioactive material shipments. Should a very unlikely SNF shipment accident occur in which a release of material is suspected or confirmed by a first responder, the state would be called upon to render additional assistance. First (local) responders are not expected to be trained to respond further for this unlikely situation. Again, states already maintain staff trained in dealing with radiological transportation accidents. Should the state decide it needs to call on Federal agencies, that assistance is available, and already maintained, by the Federal agencies. For more detail on emergency response see Section G.3.16.11.

**G.3.16.7 Comments Related to Fuel Behavior, or Cask and Carriage Performance, During a Transportation Accident****G.3.16.7.1 Transport Cask Designs****Comment Summary:**

Two commenters stated that the DEIS fails to consider that the transportation casks are not designed or tested to withstand transportation accidents or sabotage. (0012, 0198h, SL1-01)

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<sup>4</sup> G.S. Mills, et al., "Study of Evacuation Times Based on General Accident History," Proceedings of the 11<sup>th</sup> International PATRAM Conference, Las Vegas, NV, 1995.

<sup>5</sup> G.S. Mills, et al., "Study of the Components of Evacuation Times," Proceedings of the 12<sup>th</sup> International PATRAM Conference, Paris, France, 1998.

<sup>6</sup> "1992 Traffic Safety Facts Annual Report," U.S. Department of Transportation, Bureau of Transportation Statistics, BTS-CD-04-01.

**Response:**

Transportation casks are designed to withstand transportation accidents, and this is considered in the FEIS. The NRC staff's assessment of accident risks in the FEIS is based, in part, upon Modal Study and upon the RADTRAN code. The Modal Study investigated the ability of casks that minimally meet NRC's standards to withstand forces that could be anticipated in transportation accidents. Those results are used in the DEIS' application of the RADTRAN computer code. Section 5.7.2.7 of the DEIS (Section 5.7.2.10 of the FEIS) addresses the potential for sabotage of a cask. Although the NRC's cask design standards (in 10 CFR Part 71) were established with transportation accident safety in mind, the rigor of the standards is such that the designs inherently provide a measure of protection from sabotage as well. As mentioned in Section 5.7.2.10 of the FEIS, the NRC has previously evaluated the consequences of sabotage attacks upon casks and concluded that the likelihood of a successful sabotage event is low. The NRC staff responds to the testing aspects of this comment below. See G.3.16.10 below.

**G.3.16.7.2 Testing of Transport Casks****Comment Summary:**

One commenter stated that the transport accident risks in the DEIS are severely underestimated and asks if NRC and DOT have tested to destruction the Holtech HI-STAR casks that would be used. The commenter asked if there are combustibles on the rails that could achieve such destructive forces. (0194) Two commenters stated that transport containers are not required to undergo full-scale physical tests, that tests have only involved computer simulations, and that this is far from a rigorous cask safety testing program. (0142, 0194) One commenter stated that there are conflicting reports about the testing of the shipping casks. This commenter asked whether the casks are designed with site specific criteria in mind, including Utah's seismic activity and possible misfired missiles from the Utah Testing and Training Range. This commenter also questioned who is responsible for ensuring the design meets safety standards, and if the responsible party has a conflict of interest in performing this duty. This commenter questioned how the NRC handles "cask design criteria concerning hydrogen build-up and cracking of the SNF plating," and criticality accidents. This commenter also questions where the public can view this information. (SL3-04)

Another commenter was concerned that the film 'Safety Every Step of the Way' [referenced by another commenter] does not accurately portray crash tests performed on casks in the 1970's at Sandia National Laboratory. (GR-16) The commenter stated that the testing standards are outdated and in particular, the crash test for a cask crashing into an unyielding surface going 30 mph is not an adequate test. A few commenters indicated that railway accidents could involve crashes into bridge abutments or drops from ridges onto rocks at speeds higher than 30 mph. (0112, 0170, GR-16)

One commenter stated that the citizens of Clearfield are concerned that nuclear waste will be transported through Clearfield, stating that there is no certainty that the containers are safe and that the containers have never been tested in severe accidents. (SL2-01)

Another commenter stated that casks have been tested by computer simulation modeling to withstand an impact resulting from a drop from 30 feet onto a concrete surface. However, the commenter says that this, in no manner, is comparable to the discharge of a cask from a rail car traveling at conventional speeds, should such car become derailed on relatively flat terrain. The commenter stated that should the train collide with another train approaching at a commensurate rate of speed, or should the cask fall from an elevated bridge or overpass, the magnitude of impact could exceed the computer simulated estimation by a factor of at least 10 times. The commenter asserted that while a reduction of rate of speed for the "single purpose" train may serve to partially mitigate this, the cask would nevertheless be fractured to an unknown extent, allowing for an unknown displacement of nuclear waste. The commenter also stated that reduction in speed of the train would also cause a significant socioeconomic impact related to an overall reduction in the efficiency of rail delivery of all

other goods throughout the country. The commenter asserted that these impacts are not addressed in the DEIS. (0112)

One commenter was concerned about the cumulative effects of shipments of casks containing nuclear waste passing close to or through population centers. The commenter did not think computer modeling of this risk is appropriate and that actual tests should be conducted. One commenter was concerned that computer modeling of the long-term cumulative effects of shipping SNF is inadequate, because modeling is not an "actual test." (SL3-06)

Finally, a few commenters stated that the risk of transporting nuclear waste has only been subjected to simulated tests and that the applicant does not have a history of shipping as large a quantity of SNF as proposed in the DEIS. (0039, 0077, GR-21, SL1-20) One of the commenters asserted that because transportation of this magnitude has never been tested, the risk evaluation in Appendix D yields non-representative results. The commenter stated that there is a strong inherent risk in shipping the proposed amounts of SNF cross-country for 20 years and not suffering a serious accident. (0039, 0077, 0166)

**Response:**

As is reflected by the FEIS, only NRC certified cask designs can be used for transportation of commercial SNF. Cask performance for the hypothetical accident conditions of Part 71 can be evaluated through testing, engineering analyses (e.g., computer modeling), comparison to similar designs, or by combinations of these methods. The NRC could require scale or full-sized testing or both as a part of certification review, if a design has unique features that introduce uncertainty or that have not been previously analyzed. Typically, SNF cask designs have been certified using engineering analyses supplemented by physical testing of certain cask components (e.g., the impact limiters). The testing is used to support the validity and conservatism of the engineering analyses, and to support more detailed analyses which form the basis for the NRC staff's finding with respect to certification. The HOLTEC HI-STAR system, which is the system to be used by PFS, was certified using this approach.

The hypothetical accident conditions in 10 CFR Part 71 are a set of repeatable engineering tests that were developed to produce the damage seen in severe transportation accidents. They are not intended to mirror any specific accident scenario, but to envelope the damage seen in all but the most severe accidents. Thus, possible impact speeds during SNF transit may exceed the impact speed in the test, but an accident is not likely to exceed the combination of speed, impact surface hardness, orientation to produce maximum damage, and very low allowable leakage in the impact tests.

It is very unlikely that a rail cask would be hit by a misfired missile. The NRC staff safety review considered a misfired missile or an aircraft hitting the proposed PFSF and concluded that such an event was not credible. The likelihood of hitting transportation casks is at least as low, since they would not always be present at the proposed PFSF (rail shipments one to two times a week), are much smaller than the proposed PFSF, and are moving.

Regarding the adequacy of the 10 CFR Part 71 standards, the Commission has previously determined that transportation regulations in 10 CFR Part 71 provide a reasonable degree of safety, based in part on the *Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes*, NUREG-0170, published December 1977. NUREG-0170, which included an estimate of impacts from large-scale SNF shipment campaigns, shows that environmental impacts from the transportation of all radioactive material is small (46 FR 21619, April 13, 1981). Subsequent studies have reaffirmed this conclusion. For example, the 1987 Modal Study concluded that the impact and thermal forces that are represented by the NRC certification tests in 10 CFR Part 71 encompass 994 of every 1,000 accidents. In addition, cask response to impacts more severe than those specified in the 10 CFR Part 71 certification tests has been investigated in several risk studies.

The tests shown in the 1970's films were not used in preparing the DEIS or FEIS and have not been used by NRC in cask design certification activities. Therefore, the films are not material to the matters discussed in the DEIS and no further response is not required.

The comments regarding the cask response to sabotage are addressed in G.3.16.10. However, the NRC staff notes that previous studies have concluded that casks designed to the hypothetical accident tests also inherently provide a measure of protection from sabotage.

In summary, the need for cask testing is considered in NRC cask design reviews, which is a safety review that is separate from the preparation of the FEIS. Cask testing is not required to analyze transportation accidents in the FEIS. The NRC regulations governing cask certification are adequate. The regulations do not require full scale physical testing or testing of the cask to destruction.

### **G.3.16.7.3 Human Error in Cask Construction**

#### **Comment Summary:**

One commenter stated that the EIS should consider the risk of accidental radiation exposure caused by human error in the design and construction of casks. The commenter stated the EIS should also identify and evaluate a bounding accident, taking into account the maximum hazards and demographic conditions of the environment. (0198h) The commenter indicated that WASH-1238 assumes a perfect container and perfect operation in an imperfect world, casks are not necessarily built according to design. (0198a)

#### **Response:**

The NRC staff considers the potential for human errors in cask construction to be low for two primary reasons. First the NRC staff reviews and approves the cask design and the cask manufacturer's quality assurance program. Second, the NRC staff determined that significant design faults that could lead to external dose rates exceeding the regulatory limits would not pass the cask prototype testing and cask certification processes. To the extent that faulty packaging is a cause of or contributor to the occurrence of accidents in general, they are already included in the overall accident frequency data used in the FEIS. Since there is no reason to expect the severity distribution for accidents caused exclusively by human errors to be different from the overall severity distribution for all accidents, the NRC staff believes that the contribution of human errors to accidents has been considered adequately.

### **G.3.16.7.4 Railcar Properties**

#### **Comment Summary:**

One commenter stated that the DEIS does not describe the type of railroad cars to be used for transporting casks to the proposed PFSF, or evaluate the accident risks posed by putting extremely heavy loads on the rail. The commenter stated that the DEIS uses an average accident rate, eliminating certain minor accidents, such as grade-crossing and rail yard accidents. The commenter asserted that the standard railroad car is a two-axle trolley; therefore the accidents in this accident database will primarily relate to this standard car. However, the commenter stated that the applicant is considering the use of flat-bed rail cars with 3-axle fixed trolleys (also known as "Maxson-type" cars). The commenter asserted that regardless of the applicant's recent claims that it will be using different cars, no information has been provided to indicate that the applicant will in fact use a rail car other than the 3-axle fixed trolley. The commenter indicated that Maxson-type 3-axle fixed trolleys can be expected to have a higher accident rate than the standard rail cars evaluated. The commenter stated that the DEIS is inadequate because it fails to address the contribution to accident risks caused by the potential use of Maxson-type 3-axle fixed trolley cars. The commenter stated that the DEIS does not

describe the types of cars carrying the casks and that safety practices and safety records on derailment of those cars are not described. (0198g)

The same commenter stated that the EIS must fully examine the safety of all the equipment to be utilized in the transportation of the SNF, including canisters, trucks, railroad cars, loading and unloading equipment, etc. The commenter also stated that the EIS must determine the accident rates associated with each type of equipment to be utilized in the transportation of HLW, the probability of each type of accident event, and its impact upon each proposed transportation route. In assessing the impact, the commenter states that the EIS must assess any economic impact that may occur as a result of the closure of each proposed transportation route to facilitate the containment and cleanup of any contamination. (0198h)

One commenter wanted to know what type of railroad cars are to be used for transporting casks to the facility. The commenter stated that the DEIS should discuss the types of cars that the applicant will use. (0198g)

The same commenter stated that 49 CFR 1105.7(e)(11)(iv) requires that the DEIS describe the following rail operations: the estimates of freight to be transported (in carloads and tonnage), the anticipated daily and annual number of train movements, number of cars per train and motive power requirements. However, the commenter added that the DEIS does not describe the type of cars, which is important for safety considerations, the labor force requirements and the proposed maintenance of way practices, which are also required by §1105.7(e)(11). The commenter asserted that the applicant may be using Maxson-type rail cars with 3-axle fixed trolleys which have higher accident rates. The commenter added that although the applicant has stated more recently that it does not intend to use Maxson-type cars with fixed 3-axle fixed trolleys, it has not made any firm commitment in this regard. In addition the commenter stated that the applicant may be forced to use Maxson-type rail cars because the load of a shipping cask may be too heavy for other types of rail cars. The commenter stated that the SAR Section 4.5.4.2 describes the proposed use of a six-axle rail car carrying a 142-ton loaded rail cask, but not all rail line segments can accommodate these weight loads (greater than 400,000 lbs.), nor the six-axle flat car dimensional clearances. (0198g)

**Response:**

The applicant has committed to using the AAR performance standard for SNF trains. That standard does not require Maxson-type cars. Since dedicated trains will likely use superior rolling stock, rely upon the most up-to-date railway technologies, and have carefully matched weights, the NRC staff believes it is reasonable to assume they will have accident rates lower than or similar to the rates for general use freight trains. Further, derailment-type accidents represent only a small percentage of the severe accidents that could challenge a cask. Therefore, the staff believes these aspects of the FEIS analysis remain sufficient.

The AAR performance standard does not explicitly specify an acceptable railcar maximum weight. Based on the Holtec HI-STAR FSAR and railroad industry information on depressed flatbed rail cars, the staff estimates a loaded rail car could weigh approximately 195,000 kg (430,000 lbs gross weight on rail) This is more weight than the weight of a "typical" loaded railcar (which is about 129,730 kg [286,000 lbs gross weight on rail]), but comparable to that of a modern rail locomotive. (See AAR Manual of Standards and recommended practices, Section C -Car Construction - Fundamentals and Details (200 and 2000 Series)) Information obtained from locomotive manufacture websites indicate modern locomotives can weigh approximately 195,000 kg (425,000 lbs) gross weight on rail (<http://www.gmemd.com/locomotives/naf/sdgo90mac/basic.html>). There would only be about four railcars per train and only about 50 trains shipped per year. Therefore the staff concludes the trains will not be significant with respect to increasing the rate of rail wear and degradation.

The risk of a severe rail accident involving a SNF cask in transit to the proposed PFSF is small. Therefore the likelihood that a transportation route would be closed to facilitate the containment and

cleanup of contamination-associated accidents resulting from SNF shipments to the proposed PFSF is low.

#### **G.3.16.7.5 Shipment of Damaged Fuel**

##### **Comment Summary:**

A commenter indicated that the EIS should evaluate the impacts of transporting SNF whose cladding is known to be damaged, and therefore less capable of performing its safety function. (0198h)

##### **Response:**

An individual SNF assembly or bundle that is damaged to the point where cladding may not provide confinement, must be placed into an inner sealed (single assembly) metal canister before inserting into the HI-STAR/HI-STORM dual purpose canister, which is placed into the HI-STAR shipping cask) prior to shipment. These additional inner metal canisters are robust and compensate for the condition of the SNF. Thus damaged SNF does not produce any increase in consequence or risk in an accident.

#### **G.3.16.7.6 Return of Damaged, Leaking, and Contaminated Casks**

##### **Comment Summary:**

Several commenters stated that the DEIS does not adequately address the risks associated with returning leaking casks to the point of origin. (0077, 0084, 0096, 0118, 0121, 0127, 0135, 0157, 0166, 0180, 0182, 0183, 0185, 0194, 0198, 0211, 0215, 0257, GR-05, SL1-06, SL1-20 ) Commenters cited the practices described on page 2-19, lines 20-22 of the DEIS. (0096, 0193) One commenter questioned the legality of this practice and asked that the responsibility for a leaky cask be identified. (0171) One commenter questioned what would happen to the SNF if another state resists sending a leaking cask through their jurisdiction or if the place of origin is decommissioned (SL3-04), and one commenter expressed concern that SNF could be stranded indefinitely on the Wasatch Front, increasing the risks there. (GR-05) Another commenter added that additional discussion needs to address the safety risk of returning a canister to the shipper, if contamination on the canister is above acceptable levels. (0230) Another commenter stated that the transportation casks shipped to the proposed storage facility would not arrive contaminated because they will not have been in the SNF pools at the various nuclear power plants. (SL1-23)

Other commenters stated that the applicant has no plan to build a SNF pool or a hot cell for dealing with contaminated or defective casks at its interim storage site in Utah. The commenters asserted that contaminated casks are a significant issue, and note that 49 incidents of "accidental surface contamination" have occurred between 1965 and 1992, according to the DOE, and even more incidents have occurred in Europe and Japan. (0194, 0257) One commenter stated that if the contamination is allowed to remain on the canisters, it may be shaken loose during transportation and transfer, and contaminate workers and the site of the proposed PFSF. The commenter stated that the applicant has no effective means of determining whether the canisters are contaminated, or removing the contamination. (0198a)

One commenter stated that the DEIS does not address the multiplication of transport risks to Nevadans. The commenter asserted that the applicant plans to return any contaminated or problematic shipping containers or canisters to the reactor at which they originated, and the NRC has apparently decided to prematurely declare Yucca Mountain the nation's permanent repository for high-level nuclear waste. Therefore, the commenter stated that it is possible that Nevadans could see single shipments of high-level nuclear waste pass their doorstep a total of four times each. The commenter also asserted that licensing the proposed PFSF would have very significant political consequences for Nevada, because once high-level nuclear wastes are transported 7/8ths of the way

from eastern reactors to Utah, the political pressures to go ahead with Yucca Mountain despite its severe scientific unsuitability would be immense. (0194)

One commenter asked what would be the impacts of being unable to repackage a cask which is damaged or leaking, during transportation and storage; explaining that the EIS should indicate what permits, licenses, regulation, and procedures, at a minimum, would be required to ensure that these impacts can be mitigated. One commenter said that because PFS is designated to be a “start clean, stay clean” facility, there is no hot cell, an accident during transportation or cask leaks to deal with. In addition, the commenter asserted that if the casks were leaking, regulatory requirements and opposition from transportation corridor states would likely make it impossible to remove the material from the proposed facility. (0198) Another commenter asked if procedures and regulatory limits are in place for decontamination of transportation casks. (0215)

**Response:**

The comments speak in terms of leaking or contaminated canisters and casks. There are significant differences between a contaminated canister and a leaking cask or canister. The term “leaking cask” can be somewhat confusing since it may be misconstrued. Since there is no water or other liquid in the cask, “leaking” in the sense of liquids escaping from the cask is not a problem. Leaking in this context generally refers to integrity of the confinement boundary or whether the cask meets the regulatory requirements associated with acceptable levels of radiation emanating from the cask.

The applicant intends to employ a Holtec International canister-based storage design. The steel canister that contains the SNF is compatible with the HI-STORM storage overpack (i.e. storage cask) proposed for use at the proposed PFSF and the HI-STAR transportation overpack (i.e. transportation cask) proposed for use for shipments between the proposed PFSF and the originating utility. The NRC staff evaluated the canister design and found that it is highly unlikely that it will leak radioactive contents during storage within the HI-STORM. As discussed in Section 4.2.7.1 of this FEIS, the canister is closed and sealed with redundant confinement welds and leak tested at the utility. Further, the staff determined the probability of canister leakage to be very low ( $9.7 \times 10^{-6}$  per cask).

The FEIS states that if contaminated canisters (i.e., those with unacceptable removable surface contamination) are found during the receipt inspection at the proposed PFSF, then the canister would be repackaged into its shipping cask and returned to the originating reactor. The shipping cask is designed to contain any such surface contamination. The return shipment would not cause any significant exposure to the general public from the contaminated canister. Section 2.1.2.1 of the FEIS has been revised to better explain the terminology concerning repackaging and return of casks and the resulting consequences. In any case, the applicant could return a canister to a reactor site only in a cask that satisfies all NRC and DOT regulations (including radiation level limits, contamination limits and leak rate). Provided these regulations are met, this practice is legal. In the RADTRAN 4 analysis performed for this FEIS, the risks of the shipment of such a canister would be equivalent to the risks of other SNF shipments (i.e., the incident-free dose is the same because it is based on the maximum cask exterior radiation level permitted by the regulations, and the accident risk is the same because - to be conservative - no credit was taken for the canister providing an additional barrier to release in accidents). Accordingly, there is no reason for a canister being returned to its point of origin to be stranded along the way or remain at the proposed PFSF.

In accordance with NRC and DOT regulations, the exterior of the HI-STAR transportation cask will be surveyed prior to transport to and from the proposed PFSF to assure that all standards, including contamination limits, are satisfied. The transportation cask can only be shipped if it satisfies all appropriate NRC and DOT regulations. If necessary, the applicant would decontaminate the exterior of the transportation cask below regulatory limits prior to shipment back to the utility. Neither a hot cell nor pool is required for such operations. However, the NRC staff determined that the likelihood that the exterior of the HI-STAR 100 transportation cask being contaminated at the proposed PFSF is low because the cask must be decontaminated at the utility prior to its shipment to the proposed PFSF



and it should not be exposed to any external radioactive material during both shipment and processing at the proposed PFSF. This is a significant difference between the HI-STAR cask and previous cask contamination incidents that are discussed by one commenter.

The NRC staff has reviewed the comments that indicated the transport risks would significantly increase (by as much as a factor of three or four), for 'returned' casks (as indicated above only contaminated canisters might need to be returned). The NRC staff has concluded that based on cask and canister design and reactor procedures for loading canisters that very few canisters are expected to arrive at the proposed PFSF contaminated to the extent that it would be necessary to return the canisters to the originating reactor site. The canisters and casks are surveyed and decontaminated at the reactor sites using standard health physics techniques prior to shipment. In Section 5.7.2 of the FEIS, the NRC has determined that the risk is acceptable. Because it is expected that only a fraction of canisters would need to be returned, the incremental increase in radiological impacts resulting from the additional shipments associated with returning contaminated canisters is considered to be insignificant.

The FEIS does not evaluate the impacts of being unable to 'repackage' a canister that is damaged during transport or storage, into another transport cask, because the staff believes the likelihood of such occurrences are remote and speculative. However, even in a hypothetical situation such as presented in the comment, an alternative approach could be ordered consistent with the need to protect the public health and safety, or the common defense and security.

As discussed in G.3.16.3.7, the NRC has not made any decision with respect to the permanent repository proposed for Yucca Mountain. Section 2.1.2.1 of the FEIS has been revised to further clarify that the applicant intends to return contaminated canisters, not a contaminated or leaking transportation cask.

### **G.3.16.8 Comments Related to Transportation Accident Risks**

#### **G.3.16.8.1 General Comments on the Accident Risks of Proposed Action**

##### **Comment Summary:**

Several commenters stated that there is a high risk of accidents along the transportation route. Some of these commenters said that the risk of an accident or the health and safety impacts of the accident are not fully addressed. (0005, 0054, 0058, 0062, 0067, 0080, 0083, 0084, 0090, 0135, 0136, 0185, 0257, GR-09, SL1-01, SL1-09, SL3-11, SL3-18, SL3-32) Some commenters believed that the DEIS does not adequately address the risk of an accident or the health and safety impacts in the event of a storage or transportation accident. (0005, 0054, 0058, 0084, 0090, 0135, 0170, 0185, 0198g, 0204, 0249, GR-09, SL1-05, SL1-09, SL2-01, SL2-05, SL3-11, SL3-14, SL3-18, SL3-19, SL3-25, SL3-32) Some commented that the transportation of the waste across the nation poses significant risk to citizens along the routes, especially if there are accidents severe enough to release radiation or result in spills and leaks. (0042, 0054, 0201) Other commenters were concerned with the health impacts from radiological poisoning if there is a leak. (SL2-04, SL3-21) One commenter stated that NRC has chosen to rely on outdated studies with "little project specific analysis." (0198)

One commenter stated that the EIS should identify and evaluate impacts from accidents that could occur during SNF transfer, transportation and storage. (0198h) The commenter stated that accidents evaluated should include, but not be limited to, cask drop, collision during transportation, collapse of or fall from railroad trestle (including impacts of burial in sediment and water intrusion into cask), and major fires. (0198h)

The same commenter requested clarification on the types of transportation accidents possible, mitigation strategies, responsibility for financial and other losses due to accidents, payment assurance, and cumulative impacts for SNF transportation accidents and other accidents from existing

and currently known activities. The commenter asked that the transportation modes to be used by PFSF be identified, as well as alternatives evaluated. (0198h)

**Response:**

The analysis in the FEIS addresses the potential releases and resulting health impacts that could result from transportation accidents. Accident risks during storage at the proposed PFSF and during canister transfer at the ITF or site are also addressed. SNF transfer (e.g., loading SNF into canisters) can only occur at the originating reactor facilities, and is not addressed by this FEIS because its risks have already been addressed during the licensing.

Although specific transport accident scenarios, such as described in the comments, are not considered, the NRC staff evaluated cask performance (including possible releases and consequences) for several severity categories of accidents. These categories are defined by the ranges of impact and thermal forces a cask could experience. Appendix D explains this approach. The general approach in the FEIS is based in part on the generic Modal Study of severe accidents, which is based on conservative assumptions as described in Section G.2. The Modal Study did investigate a sample of historical, very severe accidents and concluded that SNF casks meeting the requirements of Part 71 would have performed favorably had they been in those accidents. Although information and results from the Modal Study were used, the information and results are supplemented in this FEIS with project-specific information. The NRC staff concluded that the EIS reference to the Modal Study information is appropriate and that the EIS approach adequately and conservatively estimates the risk of severe accidents.

The modes of transportation that could be used for the carriage of SNF from originating reactors to the proposed PFSF are discussed in the DEIS. The types of accidents that are possible are discussed in the DEIS, and the impacts are included in the severity categories described in the DEIS. In order to be conservative, the impacts of accident mitigation measures or accident response measures are not included in the accident consequence analysis. Therefore, any consequences that might result following prompt and effective accident response measures would be less, perhaps greatly less, than those calculated in the DEIS. Moreover, most of the costs associated with any accidents that might occur during SNF transportation would be covered under the Price-Anderson Act. This issue is further discussed in Section G.2. The probability of a transportation accident or an accident at the proposed PFSF occurring at the same time an accident occurs from other activities is low. The possible modes of SNF transportation proposed by the applicant and alternative modes are discussed in Chapter 2 of the FEIS. Also, Section 6.1.7 of the FEIS discusses the cumulative impacts of SNF transportation to the proposed PFSF.

**G.3.16.8.2 SNF Can Be Transported Safely**

**Comment Summary:**

Some commenters expressed the view that severe transportation accidents involving SNF casks would not result in a significant radiological release. (0020, 0170, GR-24, SL1-25, SL2-04) One commenter stated that for catastrophic accidents that break open a canister and expose SNF rods, the prudent distance would be half a mile, until the radiation can be measured and the canister could be approached. The commenter stated that robots would need to be employed to pick up the SNF pellets or rods, and Geiger counters would need to be used until they were all picked up. (SL2-04) One commenter stated that if an accident does occur, there will not be a meltdown or white-area contamination. The commenter also stated that the container would break and metal pieces from the container would spill and clean up would be localized. (SL1-25) Another commenter expressed the view that from the transportation of SNF, there would be less than one death per century. The commenter stated that shipping SNF yields less risk than shipping coal since the volume of SNF to be transported is so small compared to coal. (GR-24) One commenter stated that SNF is in the form of heavy pellets contained in SNF rods sealed in canisters and that in the engineered storage

configuration, the SNF is never exposed to the outside atmosphere. (0020) Another commenter stated that the accident that requires \$14 to \$320 billion for cleanup is not credible. The commenter argued that such an accident would involve a cask colliding at over 75 mph with a direct hit to a hard surface (not a glancing blow), followed by a sustained fire hot enough to oxidize or burn the zirconium cladding on any exposed SNF rods. The commenter stated that the small amount of radioactive waste on the inside surface of the cladding would thus go up in smoke and contaminate a large area with the equivalent of fallout. However, the commenter asserted that with 30 mph dedicated trains, this extremely severe accident would be impossible. The commenter also stated that no radioactive dust cleanup would be needed in any credible accident. (0170)

**Response:**

The FEIS presents the transportation accident risks associated with the proposed action and concludes those risks are small. Some of these comments deal with mitigation measures and accidents that the NRC staff does not believe are credible. For example, all containment barriers (cladding, canister, and the cask itself) would have to fail catastrophically for SNF pellets to spill onto the ground. This is a remote and speculative accident scenario that need not be analyzed in the FEIS.

**G.3.16.8.3 Assumptions Input in the EIS' RADTRAN Accident Analysis****Comment Summary:**

One commenter stated that the following issues related to RADTRAN as it is used in the DEIS need to be critically examined: accident severity fraction; locations of severe accidents; unrealistic accident scenarios; rail accident rates; all radionuclides not included; sabotage not evaluated. (0198i)

One commenter stated that the DEIS employs the average rail accident rate, not the rail accident rate for specific rail lines that will be used. (0201) The commenter stated that similar to accident rates the NRC employs for different types of highways (interstate rural, interstate urban, rural, urban, and so on), the staff must discuss the accident rates for different types (quality) of rail lines if the DEIS is to comply with NEPA. (0198g) Another commenter stated that the assessment of accident risk is based on statistics from the 1960's of traffic density, driving speeds, etc. (0201) Another commenter requested that the NRC identify (and use in the accident study) the unyielding surfaces along the route from eastern reactors to Utah. (0194) One commenter indicated that rail transportation accidents could result in a cask being subject to large physical forces, and therefore, presents different risks than truck transportation. The commenter also stated that the population affected is directly dependent on the mode of transportation selected, because Western urban areas grew around rail centers. (0142) One commenter stated that people live within 20 to 40 feet of the railway tracks up Spanish Fork Canyon, Utah County. (SL3-14) One commenter stated that the EIS should take into account the contribution to the risks and impacts of SNF transportation caused by current and anticipated conditions on interstate highways and rail corridors, and stated that congestion increases the potential for accidents and sabotage against unprotected railroad cars that are either moving very slowly or sitting on railroad sidings for extended periods of time. (0198h)

One commenter stated that the DEIS underestimates the likelihood of the occurrence of a Category 6 accident because the database from which the accident rates was obtained does not include specific minor accidents, such as grade-crossing or railyard accidents. The commenter stated that, if one employs the Saricks and Kvittek study of accident rates, then one must also change the accident severity distributions to reflect the fact that minor accidents have been removed. The commenter concluded that if this is done, the likelihood of a severe accident is then too low. The commenter opposed the use, concurrently, of accident rates developed from an Argonne National Laboratory study and accident distributions from the Modal Study. (0198g)

**Response:**

These issues have been reviewed by the staff and, as set forth below, the NRC staff has concluded that they do not warrant changes to the assumptions or methodology of the DEIS. In some cases, however, the NRC staff made clarifying changes in the FEIS. The justifications for this conclusion are presented below by topical area, with the exceptions of radionuclide inventory and sabotage (which are responded to in Sections G.3.16.3 and G.3.16.10, respectively).

In its analysis of the transportation impacts for the proposed action, the NRC staff used a rail accident rate derived from the Modal Study rail accident rate of 0.11 accidents per million railcar-kilometers. The FEIS clarifies this matter. Rail accident rates have been studied (for example, by Saricks and Kvitek) and the staff believes further study could develop more detailed accident rate data including dependencies on track type, train consist (i.e., the set of rail cars as presented for transport), and terrain. However, because all of these effects are included in the current data, breaking out separate accident rates that reflect each of these characteristics would only provide more detailed information about the range of rail accident risks without significantly altering predictions of mean rail accident risk. Thus, while the comments are correct in stating that the DEIS uses this 'average' rail accident rate, applied over the representative (Maine Yankee to the proposed PFSF) route, this does not mean that the likelihood of an accident is "too low."

The NRC staff believes that the use of single railway accident rate for purposes of the DEIS analyses is appropriate and conservative as follows. The overall risks estimated using the DEIS representative route are expected to characterize risks of shipments to the proposed PFSF, regardless of their individual origins, transportation details (such as use of intermodal transfer), and reasonably foreseeable route characteristics. For example, the accident rate used in the DEIS includes accidents for general freight service and accidents that occur in classification yards. Accident rates for general freight service are higher than those for dedicated trains, and accident rates for trains in classification yards are higher than those for trains on main line tracks. Because dedicated SNF trains will be used for shipments to the proposed PFSF and will almost always travel over mainline rail routes, and generally not through classification yards, the accident rates are conservative.

As noted in the DEIS (page 2-16), "PFS would use two single-purpose, dedicated trains which would proceed from the originating reactor site directly to Skull Valley, Utah, stopping only for crew changes, refueling, and periodic inspections." Because of the commitment to meet the AAR Standard, the applicant's dedicated trains should have superior rolling stock. If it can be assumed that dedicated trains consist of superior rolling stock, accident rates for such a dedicated train traveling on main line tracks should be lower than those for regular freight trains traveling on main line tracks. The Modal Study accident rate was developed from Federal Railway Administration statistics for the years 1975-1982. A study performed by Argonne National Laboratories (Saricks and Kvitek, 1994), estimated accident rates of about half the value used in the DEIS when all tracks are considered, and about one quarter that value when only mainline tracks are considered. In fact, the accident rate of 0.11 accidents per million railcar-kilometers encompasses about 90 percent of the distribution of main line regular freight train accident rates documented in the Argonne study.

Both the Saricks and Kvitek study and the Modal study used FRA rail accident data to develop their results. The FRA defines an accident as an event that leads to cost damages above a cost damage reporting threshold, which has been increased over the years to correct for inflation. Although the older FRA accident data used by the Modal Study and the newer accident data used by Saricks and Kvitek are keyed to different cost damage thresholds, the older and newer data are believed to be based on accidents with quite similar severities. Both the more recent study by Saricks and Tomkins (ANL/ESD/TM-150) and recent FRA Accident/Incident Bulletins show about the same number of grade crossing incidents and the number of those incidents is much larger than the total number of all other train accidents. This is to be expected because the FRA requires that all grade-crossing incidents be reported (i.e., there is no damage threshold for grade crossing incidents).

Inspection of the Modal Study rail accident event tree shows that only 3 percent of all of the accidents on the event tree are grade crossing accidents. Thus, although not explicitly stated in the Modal Study, grade crossing incidents must have been excluded if they did not appear to be severe enough to possibly be of concern with regard to cask damage. Accordingly, the treatments of accidents in the Saricks and Kvitek study and in the Modal Study are quite consistent, and use of the Modal Study rail accident scenario conditional probabilities with accident rate data taken from the Saricks and Kvitek study is acceptable for the analysis in the DEIS. Based on the above, the NRC staff concludes that the use of this accident rate for purposes of the PFS DEIS is valid.

Regarding the accident severity fraction in the DEIS, the NRC staff examined a set of six categories of representative severe accidents with severities and conditional probabilities of occurrence that range from moderately severe and somewhat probable to extremely severe and highly unlikely (see DEIS Tables D.3 and D.4). The Modal Study used a very wide range of accident scenarios to construct a 20 category accident matrix, which was collapsed into the six DEIS categories. That range contained a variety of collision-only, fire-only, and collision plus fire scenarios. These scenarios had accident severities and conditional probabilities of occurrence that ranged from the moderately severe and somewhat probable to the extremely severe with very low probability. Thus, this set of scenarios more than adequately represents the variety of real accidents that might lead to the release of radioactivity from a SNF cask, including releases caused by very improbable accidents. The FEIS clarifies this process in Appendix D. The NRC staff believes this set adequately captures the range and probabilities of severe accident radioactive release. The occurrence of features (such as hard surface) that might approximate unyielding surfaces along transportation routes are inherently considered in the accident severity categories (from the Modal Study) used by the NRC staff. The NRC staff used the values from the Modal Study in lieu of values specific to the Maine Yankee to the proposed PFSF route (which could have been obtained, for example, through GIS data), because this route was intended to represent shipments from any location in a reasonable and conservative manner.

As for locations of severe accidents; to capture the effects of population density on accident consequences, RADTRAN 4 divides a transportation route into aggregate urban, suburban, and rural segments. The RADTRAN 4 analyses performed for the FEIS also did this for all of the routes examined (e.g., representative nationwide route and regional routes). The impacts were evaluated to everyone in a one mile wide pathway centered on the rail line. Thus, the NRC staff considered the appropriate population along the rail routes. In addition, because rail traffic densities are not expected to depend significantly upon population density beside rail routes, the use of a single average rail accident rate that does not vary with location is unlikely to have a significant affect on the risk results calculated in the FEIS.

Current conditions on interstate highways and rail lines were captured by the FEIS analyses by the use of accident statistics to estimate accident rates and the fractions of all accidents that lead to different types of accidents (different accident scenarios). Collisions at slower speeds (such as in traffic congestions) would not generate forces significant enough to damage a cask. As highway and railway accident rates have been declining for several decades, it is likely that risks and impacts will be lower for shipments in the far future than for those that occur in the near future.

#### **G.3.16.8.4 DEIS Release Fraction for CRUD**

##### **Comment Summary:**

One commenter stated that the DEIS underestimates the radiological consequences accidents, by underestimating the release fraction for CRUD. The commenter believes the DEIS release fractions do not properly take the behavior of CRUD into account, because Cobalt-60 that adheres to the outside of SNF assemblies and Cobalt-60 within the SNF should have different release properties. The commenter stated that the DEIS uses a release fraction for Co-60 that is equivalent to that for SNF particulates. (0198g)

**Response:**

CRUD is a colloquial term for corrosion and wear products (rust particles, etc.) that become radioactive (i.e., activated) when exposed to radiation in the reactor vessel. The term is popularly considered to be an acronym for Chalk River Unidentified Deposits, the Canadian plant at which the activated deposits were first discovered. CRUD can plate out on hot surfaces in the primary reactor coolant system such as fuel rods. Activation of nickel in the corrosion products produces Co-60 which, after 5 years cooling time out of a reactor, is the only significant constituent in CRUD in terms of the FEIS' transportation risk assessment. This FEIS accounts for the presence of CRUD, and its decay, in its inventory quantity for Co-60 for 5 year cooled fuel ( $5.23 \times 10^2$  curies, see Table D.3).

CRUD will not effect the FEIS incident free analysis, but some CRUD could be released in a severe accident. The FEIS applied the Modal Study release fraction for fuel rod particulates to Co-60. The FEIS therefore treats the Co-60 inventory as if it were another fission product contained inside the fuel rods, rather than a deposit on the external surface of the fuel rods. The Modal Study release fractions are based on the experimental studies (Lorenz, 1990), which did not examine spallation of CRUD from rod surfaces.

To determine if the assumption of using modal study release fractions for CRUD was appropriate, or if it could lead to a significant underestimate of accident dose risk, the NRC staff further investigated this issue, as described below.

Following issuance of the DEIS, the NRC staff reviewed other available studies for estimates of the possible impacts of CRUD releases. The phenomena that would govern spallation of CRUD from spent fuel rod surfaces when subjected to accident loads, its transport through the spent fuel cask, and release to the environment, were examined in NUREG/CR-6672 (Sprung, 2000). That examination suggests that CRUD release fractions for spent fuel, when transported in a rail cask, could range from  $10^{-3}$  to  $10^{-1}$  depending on accident conditions and severity. In contrast, the FEIS release fractions for particulates range from  $6 \times 10^{-8}$  to  $2 \times 10^{-5}$ .

To determine an absolute upper bound for the effects due to various CRUD release fractions, the Maine Yankee-to-PFSF RADTRAN rail calculation performed for this FEIS was repeated by using a 100 percent CRUD release, which bounds the assumption in NUREG-6672. This repeat calculation produced a single shipment accident population dose risk (adjusted by a factor of 1.3 to account for future population) of 0.000806 person-Sievert (0.0806 person-rem). This value can be compared to the single shipment accident population dose risk of 0.000236 person-Sievert (0.0236 person-rem)<sup>7</sup> reported in FEIS Section 5.7.2.5. Thus, in this example, where all 523 Curies of Co-60 (i.e., all the CRUD) is assumed to be released for any category 2 through 6 accident, the accident population dose risk would increase by a factor of 3.4 (0.0806/0.0236). However, as shown in Table 5.7, the transportation accident population dose risk associated with the proposed PFSF is a small fraction of the values reported in NUREG-0170. If the dose risk for the transportation of SNF to the proposed PFSF in Table 5.7 is increased by a factor of 3.4 above the value shown in the DEIS, the resulting population dose risk would still be a small fraction of the NUREG-0170 value, and the FEIS conclusion that the accident population dose risk is small would be unchanged.

In reporting the results for this FEIS, the NRC staff considered the above information but has chosen, as the base-case, to retain its application of Modal Study release fractions for particulates to CRUD. There are several reasons for this decision. First, the NRC staff does not believe that 100 percent

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<sup>7</sup> The value of 0.0236 persons-rem is the single cask result reported in FEIS Section 5.7.2.5. Assuming four casks per train, an additional factor of 3.58 could be applied to the 0.0236 value, and the 0.0806 value, to obtain a result that assumes four casks have releases (as explained in FEIS Section 5.7.2.5). An additional factor of 50 (the number of 4-cask trains per year) could be applied to each value to obtain annual impacts (annual impacts are presented on many of the tables in this FEIS). In all cases the ration between the example case of 100 percent CRUD release, and the FEIS methodology, will remain 3.4.

release of CRUD in any accident is physically possible, because (1) much of the CRUD is chemically bonded or tightly adheres to the fuel rod surface, (2) a leak pathway large enough to let 100 percent escape is not credible, (3) the particle size distribution of spalled CRUD would be expected to include larger particles that would settle out inside the cask or possibly plug leak paths, and (4) a driving force - pressure differential - does not exist that could enable a 100 percent release). Second, in performing the FEIS accident risk assessment, the NRC staff ignored (i.e., did not allow credit for the presence of the welded canister of the HOLTEC HI-STAR system, which will in practice provide a significant additional barrier to the release of radioactive materials in transportation accidents). Third, Co-60 has a radioactive half-life of 5.27 years, and its radioactivity decreases quickly in relation to the radioactivity in the spent fuel pellets. Therefore, CRUD importance to transport accident risk declines as cooling time increases, whereas the FEIS maximized its importance by conservatively assuming that the fuel is cooled for only five years even though PFS has indicated the average cooling time of SNF expected to be shipped to PFSF is 20 years. Fourth, the CRUD surface concentration on fuel assemblies of  $140\mu\text{ Ci/cm}^2$ , was conservatively selected based on the upper value observed by measurements of CRUD on rod surfaces (Sandoval et al., 1991). Finally, the NRC staff believes that the Modal Study release fractions provide adequate estimates for the purpose of this FEIS of the releases of important nuclides for a range of severe accidents (because, for example, the study does not allow credit for nuclide retention in the cask). In light of the above, the radionuclide inventories and release fractions chosen in the FEIS provide better perspective regarding the importance of CRUD in relation to other radionuclides in spent fuel, while at the same time not resulting in CRUD inappropriately dominating any decisions that are based upon the risk assessment results.

#### **G.3.16.8.5 Transportation Accident Scenario**

##### **Comment Summary:**

Some comments stated that the accident analysis in the DEIS is deficient because the accident analyzed in the "Accident Scenario" is a severe rail accident in which one of the four casks carried by a typical rail shipment of spent nuclear SNF is damaged sufficiently to cause the release of a fraction of its contents. (0198g)

##### **Response:**

These commenters have misunderstood the DEIS. As indicated on DEIS page 5-45, the DEIS conclusions are based on assessments that assume that all four casks on the train are damaged and release material for any accident of a given severity. The NRC staff, however, notes that it is reasonable to expect that all four casks would not be damaged to such an extent in an accident. (DEIS, pages 5-45 to 5-46) Therefore, the NRC staff analyzed a supplemental case, in which one cask is damaged, and the most reasonable estimate of risk lies somewhere between the two cases. The analysis in the FEIS remains unchanged in this respect.

#### **G.3.16.8.6 Derailments Due to Specific Localized Conditions**

##### **Comment Summary:**

Many comments expressed concern about possible derailment and safety. (0096, 0210b, SL1-09, SL1-11, SL2-05, SL3-04, SL3-18, SL3-19) One commenter stated that many of the proposed routes will be shared with Utah's mining industry and that these tracks bear constant heavy coal loads. The commenter asked whether there will be any studies conducted concerning the condition of the railroad tracks and the risk of derailment. The commenter stated that recently Utah experienced a major derailment because of the weakened condition of tracks. (SL3-04) A few commenters asked what measures will be taken to avoid transportation accidents. (SL1-09, SL3-18, SL3-19) Specifically, one of the commenters asked how accidents due to rail defects will be prevented, noting that there was a train accident in the local area that was due to a rail defect rather than human error. (SL3-18) One commenter stated that the issue of derailments, which are often caused by human error, has not been

addressed. (SL1-11) Another commenter stated that although rail transport is relatively safe, the derailment of a train near Scofield illustrates that no one can guarantee the safe transport of radioactive materials. (SL2-05) Another commenter questioned pages 5-35 and 5-36, lines 43-12 in Section 5.7.1.3 of the DEIS, saying that the DEIS assumes that there will be no train derailments that could cause shipping cask valves to open and allow the contents to be lost into the ambient environment. (0096)

**Response:**

Railroads have track maintenance and inspection programs that the NRC does not regulate. The railroads' interests, in continued economic viability, are a reason to believe that no degradation of facilities that would lead to significantly higher accident rates will occur. As highway and railway accident rates have been declining for several decades, it is likely that risks and impacts will be lower for shipments in the far future than for those that occur in the near future.

Notwithstanding the above, the NRC staff's conclusion that the transportation accident risks are small, using historical accident rates, does not indicate that enhancement of existing track maintenance programs would be warranted because of SNF transportation plans. The accident rates and severity fractions used in the DEIS are from the Modal Study, which was developed using Federal Railway Administration (FRA) data collected for 1975-1982. The Modal Study train accident rate and derailment fractions are national averages; the staff believes that use of more detailed information on segments of the route would not change the FEIS conclusions. The accidents in the database include derailments caused by track conditions and derailments caused by human error. More recent studies have indicated a general downward trend in rail accident rates since the Modal Study was performed.

In addition, the staff believes that the FEIS is conservative with respect to accident rates because the FEIS does not take credit for the fact that a dedicated train traveling almost exclusively on main line tracks will be used (such a train should have a lower derailment rate than regular freight trains traveling on the same tracks). As noted in the DEIS (page 2-16), the applicant would use two single-purpose, dedicated trains which would proceed from the originating reactor site directly to Skull Valley, Utah, stopping only for crew changes, refueling, and periodic inspections. These trains will therefore avoid classification yards and lesser-graded tracks that are often initiators for derailments. Also, the applicant has committed [PFS/RA11 February 18, 1999] to complying with the Association of American Railroads' (AAR's) Performance Standard for Spent Nuclear Fuel Trains. Compliance with this standard results in use of superior rolling stock and consideration of single cars as well as train consists (groups of cars), which is reasonably expected to result in a lower derailment rate. In addition, enhanced quality assurance and maintenance programs applied to the design and use of the equipment.

With regard to the last comment, Section 5.7.1.3 of the DEIS discusses non-radiological latent health effects such as those from vehicular exhaust emissions. The HI-STAR transportation cask does not have valves. The chances for a release, resulting from cask breach (not valves opening), are included in the accident severity and release fractions as discussed in Section 5.7.2.

**G.3.16.8.7 Estimate of Transport Accident Risk**

**Comment Summary:**

One commenter stated that the DEIS tries to downplay the significance of the risk of moving waste across the country and then storing it about 50-55 miles from downtown Salt Lake City. (SL1-09) Another commenter stated that the DEIS underestimates the probability and consequences of most severe transportation accidents (a "Severity Category 6" accident) on DEIS pg D-6, Table D.2. The commenter stated that the DEIS estimates that the probability of an accident of this severity is  $1 \times 10^{-12}$  per mile for shipment by rail, DEIS at D-7, and that this is a significant underestimate. The commenter



stated that calculations are not made for environmental impacts of a maximum reasonably foreseeable credible accident. (0198g)

Another commenter stated that the proposed action involves shipping commercial SNF rods to the Skull Valley Goshute Nation, crossing 42 states and numerous communities, large and small. The commenter stated that rail shipment for the maximum reasonable foreseeable release is 260 times the Cesium released by the atomic bomb at Hiroshima and that the maximum reasonable foreseeable release could happen. The commenter stated that there was a release of GB/Sarin into the ambient environment at the Tooele Chemical Demilitarization Facility, Deseret Chemical Depot, Tooele, Utah on May 8-9, 2000. (0096)

A number of commenters said that a severe rail cask accident, releasing a small fraction of the radioactive contents of a cask carrying 5-year-old cooled nuclear SNF, could result in 115 latent cancer fatalities. (0084, 0127, 0135, 0136, 0157, 0180, 0185, 0195, 0257)

**Response:**

Section 5.7.2 of the FEIS evaluates the risk of transporting SNF to the proposed PFSF. The NRC staff's estimates for the number of cancers that could result from potential severe accidents are stated on an annual basis and for the entire duration of shipments. This approach accounts for the probability of severe accidents, as well as the potential location of an accident (e.g., urban or not) and the associated health consequences. The NRC staff believes the risk stated in the FEIS is conservative and small. As it relates to the risks of the proposed PFSF (i.e., not related to transportation), the NRC staff completed an accident analysis (Chapter 15 of the SER) and concluded that no radioactive material would be released as a result of any credible accident event. Therefore, the NRC staff believes that the proposed PFSF does not present an undue risk to the public health and safety.

The radioactive inventories for the casks are presented in the DEIS Table D-5. Regardless of the inventory of any particular radionuclide, it is physically impossible for the SNF to start a nuclear explosion or release comparable to that from a nuclear weapon. There is also no comparable dispersion mechanism (i.e., the energy imparted by weapon detonation). Therefore, comparison of the inventory to nuclear weapon yields is meaningless with regard to evaluating the FEIS alternatives and such comparisons are inappropriate.

The staff did not consider releases from chemical facilities as affecting the SNF transport risk. The staff believes that a chemical accident occurring concurrent to a SNF transport being in the area, and causing a transport accident that is more severe than the accidents already considered, is a remote and speculative event that would not offer insights regarding the FEIS alternatives.

The correct value for the probability of a category 6 accident per rail car mile is  $2.2 \times 10^{-11}$  rather than  $1 \times 10^{-12}$  as listed the DEIS at D-7. Note that this value was in the DEIS text as illustrative information and was not used in the risk calculations. The NRC staff disagrees that this is a significant underestimate. Using data from the Modal Study, the NRC staff calculates that the probability of a Category 6 accident is the conditional probability of having a Category 6 accident given that a rail accident occurred. This is the product of the probability of a rail accident, which is 0.11 accidents per million rail-car km (0.176 accidents per million rail-car miles) and the probability of a category 6 accident, which is 1.25 in 10,000 or  $(1.25 \times 10^{-4})$ . The correction does not alter the conclusion set forth in the DEIS at D-7 that a Category 6 accident would not be expected during the shipment of SNF to the proposed PFSF. The FEIS will be revised accordingly. The commenters did not provide any specific information that might indicate that these probabilities were otherwise underestimated.

### G.3.16.8.8 Impacts of Natural Occurrences on Transport Accidents

#### Comment Summary:

Several commenters expressed concern that numerous potential natural occurrences such as earthquakes, floods, tornadoes, wildfire, and wind gusts could result in a transportation accident affecting the SNF. (0147, 0198, 0198i, SL3-18, SL3-19, SL3-25) A commenter was specifically concerned that winds might tip over tankers carrying SNF to the proposed PFSF. The commenter asserted that, in such a disaster, all Utah highways would be shut down, and there would be no way to escape. (SL1-29) One commenter was concerned that debris flows and stream floods could pose a hazard to the operation of a rail spur in its path. (0198)

One commenter said that the EIS should consider the impacts of strong ground shaking and the possibility of a surface rupturing earthquake that might occur along the railway. The commenter stated that the DEIS must (1) address environmental consequences of subsurface hazards, including seismic, faulting, and soil/foundation hazards to transportation, transfer, and storage of high level nuclear waste and (2) substantiate NRC's geotechnical analysis. The commenter indicated that the SER does not present an evaluation of site specific seismic, faulting, or soil/foundation hazards and potential environmental consequences along the transportation corridors, including the requested right-of-way for a rail spur on public lands or the requested right-of-way for an intermodal transfer site on public lands. (0198)

One commenter said that seismic risks along the transportation routes need to be determined. (0215) Another commenter stated that either surface rupture or strong ground shaking could be sufficient to cause derailment of a train carrying nuclear materials. (0198)

Two commenters wanted the potential transportation impacts resulting from flooding to be made clear and analyzed. (0051, 0198) Specifically, one commenter stated that text in Section 5.2.2.2, "Potential Impacts of Flooding," (DEIS page 5-9, line 39) states that flows in excess of the 100-year flood could result in overtopping of the railroad embankment at one or more locations. The commenter stated that a cask-specific accident analysis (design event IV) appears to be missing for a scenario involving a train derailment with canister leakage as a result of sheet flooding along the rail spur between the proposed PFSF and Skunk Ridge. The commenter questioned whether risks of radiological effects on the surrounding environment be quantified for such an accident. The commenter concluded that the summary given in Section 5.7.2.4, incident-free and accident dose risks from SNF shipments to the proposed PFSF, does not appear to answer the question presented above, because it is not cask-specific and based on general assumptions that apply to the entire rail corridor from the Maine Yankee plant to the proposed PFSF. (0051)

#### Response:

The impacts of events in which a transport cask might experience large forces of natural origin (earthquakes, tornadoes, etc.) are not explicitly considered in the FEIS because the NRC staff considers these events to be remote and speculative and thus, not warranting detailed consideration. Specifically, natural phenomena would seldom, if ever, result in a cask experiencing larger impact or thermal forces than those to which it is subjected to during regulatory certification testing. Therefore, the consequences of such phenomena would be limited.

Furthermore, there is only a remote probability of a cask being in the exact location necessary to be subjected to large forces as a result of the occurrence of such a natural phenomenon. In the FEIS, risk is the product of the probability of an event and its resultant consequences. Natural events that are severe enough to pose a challenge to cask integrity have such a low probability of occurrence that even a large resultant consequence would represent a negligible contribution to the overall accident risks associated with the SNF. Therefore, effects on casks from natural phenomena of such severity as to cause health or environmental impacts, are not reasonably foreseeable, and need not be

explicitly considered in the FEIS. Accidents caused by more frequent natural phenomena are implicitly included in the data that was used to develop the accident rates used in the FEIS.

#### **G.3.16.8.9 Impacts of Flooding and Impacts to the Great Salt Lake**

##### **Comment Summary:**

A commenter stated that the EIS should evaluate the risks of flooding of transportation corridors by the Great Salt Lake and the likelihood of SNF cladding degradation due to pre-shipment dry cask storage, and its effects on the risk of accidental radiation releases. (0198h) Another commenter asserted that it is impossible to measure the impacts of a possible accident to surrounding populations and the Great Salt Lake. (SL1-15) A commenter expressed the view that previous NRC environmental studies, which assume pre-shipment storage in SNF pools, are inadequate to address the risk of flooding by the Great Salt Lake. (0198h) The commenter stated that the rail route from the west travels parallel to the Great Salt Lake and state-administered sovereign lands, an area impacted by extensive flooding due to rising elevation of the lake. The commenter said that riparian and wetland habitat, brine shrimp farming, mineral and salt extraction, and extensive waterfowl habitat by the Great Salt Lake may be affected by the proposed SNF transportation. The commenter expressed the view that the potential for hazard to human health is too high to allow the transportation of these materials through watershed and other key resource areas. (0198h)

One commenter stated that not only has the applicant admitted there is a danger, but they are going to have that danger traverse populated areas and watersheds three times if damaged or leaking casks are returned to the originating reactor. The same commenter expressed the view that it is reprehensible that the applicant is planning to ship this waste through Utah's most populated communities and portions of the watersheds. (SL1-20, SL3-18)

Two commenters were concerned about the impacts to the watershed in the event of a transportation accident. (0198h, SL1-20, SL3-18) One commenter was concerned that waste would be transported through upland forested areas and associated watershed areas. The commenter indicated that incidents and accidents are not uncommon along the various rail routes throughout Utah. The commenter said that it is estimated by the Nuclear Information and Resource Service that more than 15,000 shipments could be made over the next 30 years, with each train cask carrying the long-lived - radiological equivalent of 200 Hiroshima bombs. The commenter stated that many of the routes cut across key upland watershed areas providing downstream communities with high quality water. (0198h)

##### **Response:**

The NRC staff considers the accident scenarios presented by the commenter remote and speculative for the reasons set forth in Section G.3.16.8.8. Notwithstanding that effects of such accidents are not reasonably foreseeable, in the event of an accident sufficiently severe to compromise a cask seal and disrupt both the canister and some SNF cladding, some particulates might be released that could be deposited in an area drained by a river, creek, etc. The extent of any heavy deposition would be limited, even in severe accidents; and remediation measures would be taken within contaminated areas. Potential environmental consequences are expected to be, at most, minor to undetectable. The aspect of the comment relating to damaged dual shipment is addressed in the next response.

#### **G.3.16.8.10 Shipping Damaged Fuel**

##### **Comment Summary:**

One commenter expressed concern about the applicant's determination that transporting damaged SNF poses no safety concern. Specifically, the commenter disagreed that the transportation of failed SNF poses no safety concern because the canister acts as a replacement barrier in lieu of the failed

cladding; and asserted that risks of shipping failed SNF are higher than stated by the applicant because of the loss of one barrier (the SNF cladding). (0198b)

**Response:**

The NRC staff reviewed the HI-STAR transportation cask that the applicant proposes to use, and concluded that it meets the requirements of 10 CFR Part 71. The type of SNF that can be transported in the HI-STAR transportation cask is identified in the Certificate of Compliance (CoC) issued by the NRC to Holtec International. The SNF transported to the proposed PFSF must be consistent with the types of SNF identified in the CoC. The NRC staff determined that some types of damaged BWR SNF can be safely transported in the HI-STAR provided it is packaged in accordance with the requirements set forth in the CoC. The NRC staff has concluded that the transport of failed SNF in this manner does not increase the dose risks described in the FEIS.

**G.3.16.9 Maximum Credible Accident**

**G.3.16.9.1 Consequences of a Maximum Credible Accident**

**Comment Summary:**

A commenter stated that the analysis in the DEIS acknowledges the possibility of a severe accident, which would result in release of radioactive materials from a shipping cask, but fails to disclose the consequences (human health effects and economic impacts) of the maximum credible accident. The commenter performed what the commenter called bounding calculations using the RADTRAN and RISKIND computer codes, selecting a range of what they considered credible alternative assumptions about SNF age and radiological characteristics, atmospheric dispersion, and population densities. The commenter's analysis concluded that a severe rail accident in an urban area could produce a collective population dose of 144,000-1,080,000 person-rem and result in 72-540 latent cancer fatalities. (0204)

One commenter stated that the accident probabilities used in the DEIS met the criteria used in DOE's Yucca Mountain DEIS to determine a credible accident. The commenter also stated that the NRC often limits consideration of events to those having a probability of greater than one in a million. The commenter stated that a Category 6 accident clearly fulfills this criterion based on the probabilities used in the DEIS. The commenter requested that the NRC staff perform a consequence assessment of severe yet credible accident scenarios, similar to that performed in the Yucca Mountain DEIS but also including an economic consequence assessment. The commenter stated that it is not enough to contend that the risks associated with improbable yet severe accidents have been accounted for through the use of RADTRAN software. The commenter added the consequences of a severe yet credible accident are important to estimate in order to determine emergency response readiness. The commenter concluded that the NRC staff's interpretation of the Yucca Mountain DEIS is incorrect and leads to the wrong conclusion about the DOE's approach to estimating the consequences of severe yet credible accidents. (0198g)

The same commenter stated that the DEIS also wrongly presents information about the risks of such an accident without addressing its consequences. The commenter stated that this violates the NEPA rule of reason that an EIS must be written in a fashion that enlightens and assists government decision makers in weighing the costs and benefits of their actions. The commenter stated further that rather than informing decision makers of the possible health and economic consequences of their decisions, the DEIS requires them to be content with an abstraction of the overall risk. The commenter concluded that this is hardly a sufficient basis for weighing alternatives or evaluating mitigation measures. (0198g)

The same commenter stated that in the DEIS, the NRC staff declined to calculate the environmental and economic impacts of a maximum credible accident. According to the commenter, the NRC has instead calculated the transportation risk. (0198g)

The commenter also stated that the DEIS does not describe or analyze the environmental impacts of a maximum credible accident. The commenter stated that the reader is left with a numerical abstraction that has no factual content, and reliance on a numerical abstraction to describe risks is inconsistent with the approach taken by Federal agencies in other cases. (0198g) One commenter stated that the DEIS does not adequately calculate the casualties from severe transportation accidents. (0189)

**Response:**

As discussed in the general transportation response in Section G.2, the NRC staff transportation analysis includes evaluation of a broad range of accidents and the NRC staff believes it conservatively estimates the risk of a transportation accident. The analysis is not limited to accidents the NRC considers as credible. The NRC believes the approach used in the DEIS and FEIS is appropriate, and provides the decision-maker with an understanding of the risk of the proposed action. An attempt to present the accident consequences independent of their probability, or probability independent of consequences would not provide the decision maker with the appropriate information to make an informed decision.

Section 5.7.2 of the FEIS presents the estimated dose risks of transportation associated with the proposed action. The term 'risk,' as used in the FEIS, is the mathematical product of an event's probability and its consequence. In the FEIS, the NRC staff sums risk over six categories of increasingly severe accidents to arrive at overall accident risk (this is the value that appears in FEIS Table 5.7.2). An EIS is not required to consider the consequences of accidents in isolation from the probability of such accidents. In fact, the consequences of accidents of each severity always are calculated as a part of the risk calculation. These results are included in the supporting risk assessment documentation.

While the NRC staff acknowledges the comment regarding the DOE transportation analysis, the NRC staff has chosen a different approach. The NRC staff believes the FEIS calculation and presentation of accident risks is sufficient, and provides a decision maker with the appropriate information to make an informed decision. Contamination that might be caused in an accident is calculated automatically for all accident severities in which a release has been predicted. Costs are addressed in the responses to other comments (see G.3.16.6).

**G.3.16.9.2 Worst-Case Transportation Scenario**

**Comment Summary:**

A few commenters stated that a worst-case scenario should be used in analyzing the impacts of an accident. (0062, 0147, 0189, 0203, SL1-21)

**Response:**

Analysis of "worst-case" transportation accidents are neither appropriate nor required in the FEIS, as such accidents would be of remote probability, and therefore speculative.

The agency preparing a NEPA document may determine what constitutes a full range of events that have a potential for having impacts on the public. The NRC has determined that the range examined in the FEIS is sufficient. Although early CEQ regulations had required a "worst-case analysis" in such situations, this requirement was eliminated in a 1986 amendment to the regulations. The Supreme Court later approved this amendment of the CEQ regulation, noting that it was not a prior codification

of any judicial determination and there was good reason for the change, thus, the new regulation was entitled substantial deference. (See Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 109 S.Ct 1835 (1988)). The CEQ had explained that the amendment eliminated the distortion of the decision-making process by overemphasizing highly speculative harms. Thus, no “worst-case” analysis is required for the proposed action.

### **G.3.16.10 Sabotage**

#### **G.3.16.10.1 Impacts of Sabotage**

##### **Comment Summary:**

A number of commenters stated that the DEIS discussion of the impacts from a potential sabotage event is inadequate. (0012, 0053, 0112, 0142, 0166, 0198, 0198h, 0198i, 0204, 0204b, 0215-6, GR-05, SL1-11, SL1-22, SL1-32, SL2-05, SL3-12, SL3-14) One commenter cites page 5-53 of the DEIS, which states that “if a sabotage event that results in releases did occur, it is the judgment of the NRC staff that the consequence’s would not be unacceptably large.” The commenter stated that the NRC is down-playing the seriousness of the risk of sabotage, attempting to ignore the issue, and that this is unacceptable. (0194) Another commenter stated that while the risk of an accident may be small, the consequences are large, especially if there were a terrorist attack. (SL2-05) One commenter stated that there is a lack of discussion on the issue of sabotage or terrorism and the measures the applicant would take to prevent sabotage or terrorism at the site and during transportation. (0134)

One commenter provided several reasons why the DEIS should include a discussion of the impacts of sabotage. Specifically, the commenter stated that NRC regulations governing the EIS content require that “[t]o the extent that there are important qualitative considerations or factors that cannot be quantified, these considerations or factors will be discussed in qualitative terms.” The commenter stated that the increasing effectiveness and lethality of terrorist acts has been graphically demonstrated by such incidents as the 1983 bombing of the Marine barracks in Beirut; the 1993 bombing of the World Trade Center; the February 1993 intrusion into the Three Mile Island site, in which the intruder crashed his station wagon through the security gate and rammed it under a partly opened door in the turbine building; the 1995 bombing of the Federal Courthouse in Oklahoma City; the 1995 release of SARIN nerve gas in the Tokyo subway; and the 1998 bombing of the U.S. embassies in Tanzania and Kenya. The commenter asserted that the threat of sabotage is equally applicable to nuclear waste transportation. (0198g)

Another commenter stated that an unidentified document indicates that the threat of sabotage either by an insider or by a terrorist was regarded as an important vulnerability of the facility and of transportation activities. (SL1-22) One commenter stated that the probability of the destruction of railway facilities in an effort to stop the waste from being shipped has not been addressed. (SL3-12)

One commenter stated that the shipment of SNF would be a natural target for terrorists, and doubted that the shipping casks would survive a terrorist attack. (0098) One commenter asked whether the NRC has explained to the Skull Valley Band why a huge parking lot lined with irradiated SNF rods could perhaps be appealing to terrorists or saboteurs, or, referring to 10 CFR 73.37, why the NRC regulations dictate that any rail shipment of irradiated reactor SNF within a heavily populated area must be accompanied by two armed escorts. (0203)

One commenter stated that in addition to the risk of an accident due to natural occurrences, terrorist attacks can also lead to an accident. (0053, 0147, SL1-11)

Two commenters stated that PFS is unable to provide protection from terrorism and sabotage. (SL1-11, SL2-05) One commenter expressed the view that safe transport of the waste cannot be guaranteed, nor can the resources to prevent a catastrophe in the event of a rail accident or terrorist attack be guaranteed. (SL2-05) One commenter stated the EIS should take into account the

contribution to the risks and impacts of SNF transportation caused by current and anticipated conditions on interstate highways and rail corridors, and stated that congestion increases the potential for accidents and sabotage against unprotected railroad cars that are either moving very slowly or sitting on railroad sidings for extended periods of time. (0198h)

Another commenter stated that sabotage of a remote rail line is virtually impossible to predict or control, and in fact, recent experience of transporting nuclear waste in Germany is a clear indication of this likely means of environmental terrorism. (0112)

One commenter stated that the NRC regulations provide for only the most minimal protection against sabotage during transportation of SNF, and the level of protection will not prevent a sabotage event. The commenter expressed the view that the NRC regulations (10 CFR 73.37) are inadequate because they only require a small armed escort crew of two. The commenter stated that the DEIS fails to acknowledge or consider that transportation casks are not designed or tested to withstand transportation accidents and sabotage. (0012, SL1-01)

One commenter also states that STB regulations require contingency planning but the DEIS does not include contingency planning or a discussion of any mitigation measures for sabotage events. This minimal protection will not prevent a sabotage event. 10 CFR 51.71(d)). (0198g)

**Response:**

Since sabotage is an intentional act, there is no method to quantify the likelihood of sabotage, and therefore no method to quantify the risk of sabotage. Consequently, the discussion of sabotage impacts in Section 5.7.2.10 of the DEIS is necessarily qualitative. The NRC staff's qualitative assessment does not indicate that the NRC downplays the seriousness of SNF shipment sabotage. In addition, in light of the attacks on the United States on September 11, 2001, the NRC staff has been directed to review the NRC's security regulations and procedures. If the NRC determines that revisions to NRC's requirements are warranted, such changes would occur through a public rulemaking. The NRC staff, however, has not yet identified any specific additional requirement for storage of SNF with respect to sabotage. Also see Section 6.3.15.6.1.

The extensive security measures required by the NRC minimize the likelihood of sabotage events. First, the NRC currently has in place a set of regulatory requirements specifically for the physical protection of irradiated reactor SNF in transit (10 CFR 73.37). These regulations specify performance objectives, including minimizing the possibilities for radiological sabotage of SNF shipments, that provide a deterrent to possible adversary attack. In addition, the NRC maintains a threat assessment capability that includes close and ongoing contacts with the Federal law enforcement and intelligence agencies. Based on the information available to the NRC, as well as the physical security regulations in 10 CFR 73.37, the NRC staff believes that the current NRC regulations are adequate to protect SNF shipments in transit.

Moreover, the staff has determined by analysis that if a SNF shipment was subject to a successful sabotage attack, the likely consequences would be small. In general, SNF casks must be robust in order to meet NRC's hypothetical accident conditions and acceptance criteria, and are not easily breached. The potential radioactive material releases from a successful sabotage attack on a SNF cask have been quantified in previous studies, and were shown to be a small fraction of the cask inventory. These releases are less than those associated with the very severe transportation accidents considered in the FEIS. Similarly, transportation accidents (e.g., derailments) are considered and evaluated in the FEIS. Sabotage attacks against the railroad infrastructure could reasonably be expected to result in similar consequence events, and would be covered by the FEIS analysis.

### G.3.16.10.2 NRC Sabotage Studies Out of Date

#### Comment Summary:

One commenter stated that since WASH-1238 was prepared, the threat of sabotage has become more real and the technology more sophisticated, as evident by the bombings at the World Trade Center and the Federal Courthouse in Oklahoma City. (0198a) One commenter quoted Resolution 98-008 of the Western Governors' Association: "...the increasing lethality of terrorist attacks in the United States such as the World Trade Center and Oklahoma City bombings, argue for a new, more comprehensive assessment of the risk of terrorism and sabotage against repository shipments." The commenter stated that the resolution also finds that changes in SNF shipping cask designs, and improvements in the capabilities of weapons available to potential adversaries render less meaningful the NRC's previous assessments of terrorism risks to spent nuclear SNF shipments. (0142)

One commenter stated that since the early 1980s, the NRC has relied on an outdated and poorly interpreted set of experiments carried out by Sandia and Battelle Columbus Laboratories. (0198i)

One commenter stated that there were several problems with the DEIS, namely: (1) The DEIS cites no references in support of its assertions about the probability and consequences of radiological sabotage; (2) the DEIS ignores recent reports documenting changes in the nature of the terrorist threat and the increased vulnerability of SNF shipping casks to attacks utilizing current antitank weapons, commercial shaped charges, and other high-energy explosive devices; and (3) the DEIS ignores the Commission's decision to publish for public comment the State of Nevada's petition for rulemaking on SNF transportation safeguards [Docket PRM-73-10]. (0204)

One commenter stated that the sabotage analyses performed by Sandia National Laboratories assume that there will only be one detonation in the event of a sabotage attack, and that this detonation will not completely penetrate a shipping cask. The commenter asserted that potential saboteurs, especially those with access to remote-delivery devices such as anti-tank missiles, will be able to attack a shipping cask using more than one missile. The commenter stated further that the release of radioactive material due to a multiple-missile event has not been approached by Sandia or any other government organization. The commenter asserted that there is no data available to estimate the additional damage to a shipping container that would be caused by a multiple-missile strike. The commenter concluded that it is certain that the damage would be significantly higher for the case of a multiple-missile strike. (0198g) The commenter also expressed the view that consequences may be significant because new armor-piercing weapons are currently available that may easily penetrate the transportation casks. (0198)

The commenter stated that currently available NRC studies do not address the particular circumstances of the proposed PFSF and transportation scheme (to the extent they are known) that render them especially vulnerable to sabotage, such as the shipment of large quantities of SNF at low speeds on rail lines that are easily accessible to saboteurs, the increased vulnerability of transportation casks to sabotage during long layovers in rail yards, and the close proximity of Rowley Junction to 1-80. (0198h)

One commenter indicated that prior NRC/DOE analyses of the impacts of explosive charges on SNF shipping casks are deficient and flawed, leaving open the question of how serious an attack on a SNF shipment could be. The commenter asserted that NUREG-0170 does not address this issue, nor have any subsequent NRC or DOE analyses been instructive as to magnitude or probability. (0198i)

Another commenter submitted an assessment of the consequences of a successful sabotage attack using the RADTRAN and RISKIND models and a range of alternative assumptions about SNF age and radiological characteristics, atmospheric dispersion, and population densities. The commenter's analysis used the constrained attack scenario specified in the Sandia analysis prepared for DOE



[Luna, Neuhauser, and Vigil, 1999 (“Luna Report”)]. The commenter asserted even more severe attack scenarios with even greater health consequences are credible. (0204)

To demonstrate the consequences of a successful sabotage attack, two commenters performed analyses to estimate the impacts of a successful sabotage event. (0198g, 0204) One commenter performed a consequence assessment of the effects of a successful sabotage attack on a rail cask shipment in Salt Lake City, Utah. The commenter used the RADTRAN 4 and RADTRAN 5 programs to estimate the health and economic consequences of the sabotage event described in the Luna Report, assuming a population density of 567 persons/km<sup>2</sup> for the RADTRAN 4 economic analysis and 1344 persons/km<sup>2</sup> for the RADTRAN 5 economic analysis. To provide a range of potential consequences, the commenter used a minimum, average, and maximum release fractions obtained from the computer analyses documented in the Luna Report. (0198g)

Another commenter stated that the analysis evaluated the consequences of possible credible sabotage events and found them to be comparable with the impacts of maximum reasonably foreseeable accident events. The commenter indicated that a study conducted by SNL (Luna 99) considered the effects of two different high-energy devices, and estimated the amounts and characteristics of releases of radioactive materials from rail and truck casks resulting from each device. (0204b)

One commenter believes the EIS should consider a sabotage scenario in which a terrorist incident results in a one-percent release, which the commenter asserts would have radiological consequences far greater than those assumed in the outdated DOE and NRC consequence assessments. The commenter believes the new assessment must employ the following:

- Credible worst-case assumptions about the timing and location of a potential attack, and weather conditions during and after the attack which are important for determining the fate of any releases;
- An attack in which the cask is captured, penetrated by one or more explosive devices, and releases a significant amount (at least one percent) of its radioactive contents;
- An attack in which the cask is perforated by one or more armor-piercing rockets or missiles and releases a significant amount (at least one percent) of its radioactive contents.

The commenter indicated that the reference cask for the above sabotage events should be a NAC-TSC rail cask loaded with 26 Westinghouse PWR SNF assemblies that are 10-year-cooled with a medium burn-up. The commenter stated that this would represent a total radioactivity inventory of about 5.5 million curies. The commenter also stated that the reference weapon should be portable anti-tank missiles for their ability to permeate the strong cask materials, their range and availability. The commenter recommended consideration of either the TOW-2 or MILAN anti-tank weapon. (0198i)

One commenter believes that: (1) the NRC should examine the issue of terrorism and sabotage against SNF and HLW waste shipments, in order to determine the adequacy of the current physical protection regulations under 10 CFR Part 73, and in order to assist in the preparation of a legally sufficient EIS as part of the NRC licensing process for a geologic repository or an interim storage facility; (2) the NRC should conduct a comprehensive assessment of the consequences of attacks that have the potential for radiological sabotage, including attacks against transportation infrastructure used by nuclear waste shipments, attacks involving capture of a SNF shipment and use of high energy explosives against the cask, and direct attacks upon a SNF shipping cask using antitank missiles; and (3) the NRC should conduct the comprehensive reassessment of terrorism/sabotage consequences in a forum conducive to meaningful participation by all stakeholders, including the creation of a stakeholder advisory group to assist the NRC in this task, and publish a full report on all unclassified findings of its consequence reassessment. (0142)

One commenter also provided estimates of the cost and radiological impact of a successful sabotage attack which is based on information provided by the 1999 Sandia Study for the DOE and used in the DEIS for the Yucca Mountain Project. (0204b)

**Response:**

The NRC staff believes that the extensive security measures required by the NRC minimize the likelihood of any sabotage of a SNF shipment (see response to G.3.16.10.1). Previous SNF cask sabotage studies investigated potential radioactive material release following the detonation of large-mass high-explosive shaped charges, precisely placed on the surface of the cask so as to cause maximum damage. The staff finds that previous studies provide an adequate estimate of the source term that might be encountered should a likely sabotage scenario occur. NRC's physical protection regulations for SNF in transit (10 CFR 73.37) are based, in part, on these studies, and the regulations are in use today. The staff does not believe further evaluation of cask response to sabotage is necessary to complete the FEIS. Recently, the NRC conducted a study to determine if the original assumptions underpinning the regulations remain valid. The study determined that those assumptions do continue to remain valid. However, NRC continues to conduct further analysis of the consequences of potential sabotage scenarios. In addition, in light of the attacks on the United States on September 11, 2001, the NRC staff has been directed to review the NRC's security regulations and procedures. If the NRC determines that revisions to NRC's requirements are warranted, such changes would occur through a public rulemaking. The NRC staff, however, has not yet identified any specific additional requirement for storage of SNF with respect to sabotage. The comment on the Nevada Petition for Rulemaking on SNF transportation safeguards is being evaluated under a separate NRC procedure and is beyond the scope of the proposed action and FEIS.

**G.3.16.10.3 Economic Impacts of Sabotage**

**Comment Summary:**

A few commenters were concerned about the costs that might be associated with successful sabotage attack upon a cask (often these comments were expressed in conjunction with the consequences of transportation accidents). In general, the commenters stated that the DEIS should include an estimate of the economic impacts of a successful terrorist attack. (0198g, 0204, 0204b, SL1-32) One commenter indicated that the EIS must estimate the health and economic impacts of a severe, but credible accident and sabotage event that leads to a release of radioactive materials. (0198g)

One commenter stated that the DEIS fails to provide any estimate of the economic impacts of a successful terrorist attack. The commenter's contractor prepared an estimate of the economic impacts of a successful terrorist attack on a large rail cask, using the RADTRAN and RISKIND models and a range of alternative assumptions about cleanup levels, SNF age and radiological characteristics, atmospheric dispersion, population densities, and estimated cleanup costs and other post-incident economic impacts ranging from \$500 million to \$2.15 billion (2000\$) using RADTRAN 4, and \$2 billion to \$7 billion (2000\$) using RADTRAN 5. (0204)

One commenter used the release fractions used in the DOE analysis of a rail transportation sabotage event (SAND99-0963), and then used RADTRAN 4 or RADTRAN 5 to provide an economic analysis of this event. The commenter stated that RADTRAN 4 estimates the population dose in terms of 50-year population dose, and therefore, the health consequences are not immediately comparable with those obtained in the RISKIND analysis. In addition, the analysis assumed a cleanup level of 0.20 Fci/M2. (0204b)

**Response:**

The NRC staff believes that compliance with the current physical protection requirements in 10 CFR 73.37 for SNF in transit and the robust design of SNF storage cask approved under 10 CFR Part 71

provide adequate protection against the event of sabotage. Based on current studies, the consequences of a successful sabotage event on a SNF transportation cask would not be any greater than very severe transportation accidents.

As discussed in Section G.2, the methods for estimating this cost are highly dependent on the actual spread of contamination (most model scenarios overestimate contaminated areas by factors of 3 to 10), land use, clean-up standards, speed of remediation and other factors. Thus, the estimated costs can only be taken as the roughest estimate of the maximum likely cost if the optimally successful sabotage event were to occur.

### **G.3.16.11 Emergency Response**

#### **G.3.16.11.1 DEIS Does Not Adequately Address Emergency Response**

##### **Comment Summary:**

Several commenters expressed concern that the DEIS did not adequately address emergency response plans in the event of an accident. Some commenters stated that communities along the transportation route and in Tooele County do not have the equipment or ability to respond to an accident involving nuclear waste. (0012, 0021, 0246, GR-05, SL1-10, SL1-39, SL2-05, SL2-12, SL3-04, SL3-33) One commenter stated that in addition to human health impacts, shipment of approximately 4,000 casks of SNF (up to 100 through Idaho) to the proposed facility will have an impact on state, regional, and local government agencies that will likely be called on to assist in public information activities and will be required to plan for and possibly respond to transportation emergencies. The commenter added that this impact on government resources does not appear to be addressed in the EIS, and that this impact can be considerable, especially in small rural counties such as many of those in Idaho. (0169) Another commenter stated that Utah taxpayers will have to pay for accidents that could occur during the transportation of the SNF. (SL2-07)

Several commenters discussed emergency response to a fire. (0057, 0096, 0215, SL1-39, SL3-55) One commenter said that a volunteer fire chief from Tooele County stated that none of his emergency response personnel will respond to a fire at the PFSF. (SL1-39, SL3-55) One commenter said that there is little information in the DEIS on emergency response procedures for the rail transport from reactor licensees around the country. The commenter added that the applicant is proposing to “unitize” the shipment rather than mixing the transport with other freight. The commenter asked if unitized shipments will include crews specifically trained in emergency response in addition to their security duties. The commenter further stated that the FEIS should address emergency response plans. (0240) The same commenter stated that the DEIS failed to demonstrate the economic and technical feasibility of recovering and re-shipping such large rail casks in the event of significant loss of shielding and/or containment as a result of a severe accident or terrorist attack. The commenter suggested that the DEIS must further consider the possibility of such incidents occurring in difficult terrain comparable to that found along potential rail routes identified in the DEIS, such as the Union Pacific railroad between Granger, NV and Ogden, UT, between Carlin, NV and Wendover, UT, and between Elgin, NV, and Black Rock, UT. (0204)

Another commenter requested that an analysis be performed of the level of emergency preparedness along the likely shipping routes, and an analysis of requisite coordination and communications with DOE's Civilian Radioactive Waste Management Program and with affected states and tribes. (0142)

##### **Response:**

The issues identified in the comments that are related to emergency response at the PFSF are not directly related to the environmental review and the FEIS, but are instead related to the NRC staff's safety evaluation. Therefore, these comments related to the PFSF Emergency Plan are beyond the scope of the FEIS.

The NRC staff notes that the applicant provided in its application its Emergency Plan for the Private Fuel Storage Facility (Rev 10). The NRC staff has reviewed this document and has found that it meets the requirements of 10 CFR 72.32(a). This regulation outlines the required contents of an emergency plan including the following information: identification of the types of accidents and mitigation measures, notification and coordination with off-site organizations. The NRC staff evaluation of this safety issue is included in Chapter 16 of the SER and does not need to be repeated in the FEIS.

Regarding transportation emergency response, all states provide emergency response for transportation accidents involving hazardous materials. Upon arrival at an accident scene involving any hazardous material in transit, a first responder is expected to protect public safety, secure the area, and call for the assistance of additional response personnel as needed. Vehicle placards, package labels, and shipping papers communicate information about the hazardous material to emergency responders. The DOT published the "2000 Emergency Response Guidebook," (ERG2000) for carriers and State and local first responders to use during the initial phase of an accident involving hazardous materials. ERG2000 is carried by hazardous materials carriers and emergency response personnel, and includes guides for the initial response to accidents involving various types of radioactive materials. Shipments of radioactive materials are already occurring nationwide, including shipments within the State of Utah, and these shipments will continue regardless of whether the proposed PFSF is constructed. In fact, spent fuel was shipped in Utah as recently as June 2001. Therefore, the assumption that additional cost would be incurred for adequate training to respond to potential transportation accidents involving SNF destined for PFS does not appear to be justified.

Given that SNF casks are designed to withstand accidents, the most likely first responder actions at the scene of an accident involving a spent fuel shipment would include confirming that the cask is intact and that there has been no release of radioactive material. At that point, recovery operations, which are the responsibility of the carrier, not the first responder, could commence. Although difficult terrain could complicate recovery operations, there is no reason to believe these complications would be insurmountable, given railroad operational experience with recovery from severe full train derailments. First responders are not expected to be the only responders in the event of an accident so severe that radioactive material is released. Under such very unlikely circumstances, the first responder will call upon additional resources to deal with the event.

Shippers are required to provide an emergency response telephone number with the shipping papers that accompany each shipment. The shipper must also assign a person, who is knowledgeable with the shipment, its potential hazards, and mitigation actions to be taken in the event of an accident to receive calls at that telephone number. Also, driver training is required by DOT, including crew training for emergency situations and contacting and assisting first responders.

Further, states are recognized as responsible for protecting public health and safety during radiological transportation accidents. Each state has established a Radiation Control Program Director, who can advise and assist in transportation emergency response procedures if requested by state and local organizations. Finally, Federal agencies are prepared to monitor transportation accidents, and provide assistance if requested by states to do so. Eight Federal Regional Coordinating Offices, funded by the DOE, are maintained throughout the U.S. In these offices, personnel are on 24-hour call, and are capable of responding to such emergencies with equipment and experts that could advise on recovery and removal of the cask and site remediation.

More than 3 million radioactive material packages are shipped each year in the U.S. When accidents have occurred, the system described above has proven effective in providing emergency response. This system would be used for emergency response involving current SNF shipments, and will be available for shipments of SNF to the PFSF.

### **G.3.16.11.2 Methods to Avoid Rail Transport Fires**

#### **Comment Summary:**

One commenter stated that rail transport fires could be avoided if the applicant accepted long-haul shipments only by railroad and used either a dedicated train or empty buffer cars on both sides of the cask car. The commenter stated that buffer cars could even contain fire fighting equipment and a trained operator to put out any fires if the train wrecks, further improving safety. (0017)

#### **Response:**

The analysis as stated in the FEIS shows that even with conservative assumptions, the cumulative radiological and non-radiological risks of transporting the SNF are small. However, the NRC staff acknowledges the suggestions to reduce the risk of fires and to mitigate accidents with emergency response actions (e.g., firefighting equipment). The commenter cites examples of these opportunities. While the NRC staff believes such measures could be applied as a pragmatic matter, the staff has not proposed that they be required to mitigate environmental impacts because the staff has concluded that these impacts would be small, as described in Section 5.8.4 of the FEIS, even without such mitigation.

### **G.3.16.11.3 Community Notification of SNF Shipments**

#### **Comment Summary:**

Two commenters stated that the DEIS did not address whether communities will be notified that the hazardous materials are being shipped. (GR-05, SL3-21)

One commenter stated that the representative shipment route from the Maine Yankee nuclear reactor discussed in the DEIS shows that once the applicant opened its doors to non-member nuclear reactor licensees' high level wastes, dozens more states could suddenly find themselves subject to unprecedented numbers of commercial SNF shipments and the associated risks to health, property and the environment, without ever having been consulted nor even notified by the NRC. (0052)

#### **Response:**

The FEIS does not consider notification of communities of transport, because communities are not required to be notified of shipment of SNF, or other hazardous material. Reactor SNF shipments are transported under applicable NRC and DOT regulations. The NRC staff believes that SNF can be transported without presenting an undue risk to public health and safety. The NRC regulations do not require consultation with states prior to shipment. However, NRC regulations require notification of governors of states through or in which SNF will travel. Specifically, 10 CFR 73.37(f) requires that each licensee provide advance notification to state governors before the transport of SNF is made through or across state boundaries. There is no requirement for the notification of communities as suggested by the commenter, and such notification is beyond the scope of the FEIS; the FEIS does not address such notification. Also see Section G.3.16.4.8.

### **G.3.16.11.4 PFS Emergency Plan**

#### **Comment Summary:**

One commenter stated that the applicant's Emergency Plan limits transportation planning to the proposed PFSF site itself, and the surrounding Tooele County area. The commenter added that the plan does not consider intrastate transportation and interstate transportation planning requirements. The commenter asserted that this is not satisfactory considering the heavily populated regional transportation corridors along which these dangerous cargoes may move. For example, the

commenter stated that Salt Lake County is likely to be affected, but does not receive any planning consideration. The commenter also asked the following questions: (1) What are the identified transportation routes from the nuclear reactors to the ISFSI site?; (2) What specific Utah communities will be affected, can they deal with a nuclear waste-related emergency, and what remedial or enhanced emergency management measures will be required?; (3) What unique security-related circumstances along the identified routes must be considered, what factors could make the shipments vulnerable to sabotage or accident?; and (4) What is the overall hazard vulnerability of the transfer site at the routes' end? The commenter said that these concerns must receive appropriate emergency planning consideration. (0198h)

**Response:**

The issues identified in the comments that are related to emergency response at the PFSF are not directly related to the environmental review and the FEIS, but are instead related to the NRC staff's safety evaluation. Therefore, these comments related to the PFSF Emergency Plan are beyond the scope of the FEIS.

The applicant's emergency plan is intended to address emergency response activities for the proposed PFSF. The NRC staff reviewed the emergency response plan and determined that it is acceptable as related in Chapter 16 of the SER. While SNF is in transit, it is subject to the emergency response guidelines for hazardous materials in transit. Please refer to comment response G.3.16.11.1 for details on emergency response guidelines for SNF in transit, and G.3.16.4.1 for details on route identification. The NRC staff notes that security related issues for transportation were addressed in the applicant's Security Plan, which is discussed in the SER.

**G.3.16.11.5 Emergency Response for Accidents at the ITF or on Skull Valley Road****Comment Summary:**

One commenter stated that management and handling of such a large volume of material will create a high potential for accidents having significant consequences to public health and safety. The commenter stated that the application does not address response action for accidents and fatalities occurring either in the ITF area or in the applicant's transportation route along Skull Valley Road. (0198a)

**Response:**

The NRC reviewed accidents associated with the transfer operations at the ITF (i.e., removing the cask from the railcar and placing it onto a heavy-haul truck) and concluded that they have a negligible contribution to accident risk, because it is very unlikely that the conditions during transfer will exceed cask design requirements. For example, the maximum reasonable drop height at the ITF would be less severe than the 10 CFR Part 71 cask certification drop test height of 30 feet onto an unyielding surface.

As discussed in the FEIS, the accident dose risk for the transport of SNF on Skull Valley Road by a heavy-haul truck is small, estimated to be  $1.08 \times 10^{-5}$  person-rem annually. Therefore, the NRC staff believes that a significant accident involving emergency response at the ITF or while transporting SNF along Skull Valley Road is unlikely. Nevertheless, the SNF cask is still in transit while it is at the ITF or being transported along Skull Valley Road and emergency response activities and capabilities would be the same as those described in G.3.16.11.1.

**G.3.16.11.6 DEIS Does Not Discuss Contingency Plans for Spills****Comment Summary:**

One commenter stated that the DEIS contains no description of contingency plans to deal with radiation spills. (0198, 0198g)

The commenter stated that one of the STB criteria of great concern is 49 CFR 1105.7(e)(7), which requires a description of “contingency plans to deal with accidental spills.” The commenter further added that the DEIS contains no description of contingency plans to deal with radiation spills, and that this is not just a regulatory violation but a failure to address a major mitigation measure. The commenter suggested that the DEIS be substantially revised to address the potential for accidental spills and contingency planning for those spills. The commenter asserted that in order to describe contingency plans, the DEIS must first describe how material may be released and dispersed, i.e., the extent of the spill, which would involve an analysis of the range of potential credible accidents, and the consequences of these accidents. The commenter also stated that accidents should include credible and foreseeable accidents due to derailments, fire or purposeful sabotage, and that the DEIS should describe the environmental impact of these accidents, including the degree of environmental contamination that can be expected, and the adverse health effects that can be expected. The commenter also suggested that the DEIS describe the type of contingency measures that are needed, including evacuation and cleanup, the cost of those measures, and how and by whom they will be carried out. (0198g)

The commenter further stated that in declining to assess the impact of providing for and training emergency responders and the emergency response plan, the NRC staff has not met the regulatory requirements of one of its Cooperating Agencies, the STB. (0198g)

The commenter also stated that STB regulations at 49 CFR 1105.7(e)(7)(ii) require the DEIS to identify the materials and quantity; the frequency of service; the safety practices (including any speed restrictions); the applicant’s safety record on derailments, accidents and hazardous spills; the contingency plans to deal with accidental spills; and the likelihood of an accidental release of hazardous materials. However, the comment stated the DEIS is gravely deficient on these matters. The commenter agreed that the frequency of service is described, but contended that the safety practices and the safety record on derailments using the 3-axle fixed trolley type of cars the applicant intends to employ, are not described at all. (0198g)

**Response:**

The NRC staff and the Cooperating Agencies reviewed the Application of Construction and Operation Authority submitted to the STB, as well as the ER, SAR, and Emergency Plan, submitted to the NRC. The NRC staff and the Cooperating Agencies determined that the application contained sufficient information to conclude that contingency plans are adequately addressed under existing regulatory requirements. These emergency response requirements are described in Section 5.7.2.5 of the FEIS. The STB’s requirement in 49 CFR 1105.7(e)(7) to describe contingency plans refers to information that should be included in Environmental Reports. The requirement does not refer to EISs.

As described in Sections 4.7.2.3 and 5.7.2.2 of the DEIS, the potential for accidental spills requested by the commenter is considered to be small. As discussed in the general transportation response, in Section G.2, the NRC staff’s transportation analysis considered a broad range of accidents and provided a conservative estimate of the risk of a transportation accident in the FEIS. The analysis is not limited to accidents the NRC considers as credible. The NRC staff believes the approach used in the FEIS is appropriate.

Section 5.2 of the DEIS discussed proposed mitigation activities for non-radiological spills along the proposed rail line. Also, comment response G.3.16.12.8 of this appendix provides a more detailed

discussion of proposed mitigation measures for non-radiological spills along the rail line. The NRC staff believes it is unlikely that an accident resulting in a release of radioactive material will occur on the proposed rail line. However, emergency response for any accident on the proposed rail line will be the same for any hazardous material in transit.

The transportation of SNF is regulated under 49 CFR Part 173 (“Shippers - General Requirements for Shipments and Packages”). Other regulations pertaining to the transport of materials to the proposed PFSF are 49 CFR 172 (“Hazardous Materials Tables, Special Provisions, Hazardous Material Communications, Emergency Response Information, and Training Requirements”), and 49 CFR 174 (“Carriage by Rail”). DOT driver training requirements in HM-164 (49 CFR Parts 171-173 and 177) include crew training for emergency situations, including contacting and assisting first responders. Drivers also must maintain contact information for remediation contractors. The NRC’s physical protection regulations require continuing contact between the shippers and the crew throughout the course of the shipment. In urban areas, armed escorts who can render assistance and summon aid must be available. All of these provisions will ensure prompt notification of proper authorities in the event of accidents or other events of concern. Hazardous material carriers have remediation contractors on call to respond to accidents, as necessary.

The NRC staff and the Cooperating Agencies considered the safety reporting requirements of the STB regulations found at 49 CFR 1105.7. The DEIS described the effects of the proposed action on public health and safety in Section 4.7, “Human Health Impacts,” and Chapter 5, “Transportation Impacts of the Proposed Action.” The DEIS described the amount of SNF to be transported and the frequency of service in Section 2.1.2.1, “Transportation of Spent Fuel to the Proposed PFSF.” Chapter 5 of the DEIS also described that the transport of the SNF is regulated by both the DOT and the NRC. Adequate protection of the public health or safety with respect to SNF shipments is provided, to a large degree, by the casks that contain the SNF. These casks must meet the performance requirements of 10 CFR Part 71. The NRC must also certify the cask design. The NRC staff and the Cooperating Agencies examined safety records, past accidents, and accident scenarios (see NUREG-CR-4929, “Shipping Container Response to Severe Highway and Railway Accident Conditions”) as part of the safety analysis.

### **G.3.16.12 Non-Radiological Transportation Impacts**

#### **G.3.16.12.1 Impact to Transportation Infrastructure**

##### **Comment Summary:**

One commenter stated that the DEIS did not address the impacts to the transportation infrastructure adequately. The commenter also stated that infrastructure costs were ignored. (0012, SL1-01)

##### **Response:**

The NRC staff addressed the impacts to transportation infrastructure in the local impact area in DEIS Sections 4.5.1.6, 4.5.2.6, 5.5.1.1, 5.5.1.2, and 5.5.2. No significant impacts to transportation infrastructure will be incurred outside the local impact area. Other than the cost of the proposed rail line or ITF, no other transportation infrastructure cost are expected to be incurred. The approximately 50 SNF trains per year resulting from the proposed transports does not represent a significant increase in rail traffic. Therefore, it is not expected that significant infrastructure cost would be incurred. The cost of the proposed rail line was included in the cost benefit analysis in the DEIS. While the NRC staff recognizes that if the ITF is used, the State of Utah may require the applicant to improve the road before granting a permit, the NRC staff has not attempted to speculate on the type or cost of road improvements the State of Utah might impose. However, it is expected that the applicant would be responsible for the cost of all road improvements for Skull Valley Road. The NRC staff believes the analysis for this issue in the FEIS is adequate.



**G.3.16.12.2 SNF Transportation Standards and Impacts to Rail Traffic****Comment Summary:**

One commenter stated that the EIS should address the physical clearance limits (height, weight) of the package. The commenter stated that the License Application is silent on whether the proposed SNF shipments will meet the "special train guidelines" established by Union Pacific for hazardous materials (or heavy load) shipments (e.g., would the combined center of gravity [rail car and load] exceed the AAR interchange rules, thus warranting special train consideration, such as speed limits and train delays). (0198i)

The commenter also expressed concern with operational considerations and stated that increasing consolidation and abandonments of rail lines due to mergers has resulted in increasing traffic densities on the remaining lines. Key east-west and north-south interchanges have been experiencing severe-traffic delays and congestion. The commenter stated that these delays directly affect the throughput of proposed SNF rail shipments and increases the statistical probability and severity of potential accidents. (0198i)

The commenter asserted that the poor experience of Union Pacific in meeting (and mitigating) congested bottlenecks suggests the need to significantly improve line haul capacity and supporting infrastructure in the corridor and destination travel lines, and institution of expensive operational improvements (such as in-transit rail welding and "maintenance on the fly"). The commenter stated that these costs have generally been included directly through contributions to transport infrastructure from shippers or have been included in higher rates. The commenter stated that the license application is silent on the proposed project's contribution to reducing such potential bottlenecks in the Salt Lake City metropolitan area, but this should be considered in the EIS. (0198i) The commenter stated that the EIS should also examine the potential bottleneck effect of focusing a large number of SNF shipments, originating all over the United States, on a single geographic area. (0198h) Another commenter stated that an analysis of alternative operating protocols should be addressed. For example, the EIS should consider the impacts of using special train protocols (dedicated trains traveling a maximum of 35 mph with one train stopping when another train passes [referred to as "meets and passes"]). (0142)

One commenter stated that the EIS should address the rail line and highway weight limits and highway heavy-haul requirements associated with the heavy rail casks. The commenter stated that these include the bridges, trestles, switching, and secondary lines (rail), as well as the State bridges and arterial roads in the vicinity of the proposed site, and the feeder lines (rail) throughout the Salt Lake City, Ogden, and Provo interchanges. (0198i)

**Response:**

The applicant has committed [PFS/RAI1 February 18, 1999] to complying with the Association of American Railroads' (AAR's) Performance Standard for Spent Nuclear Fuel Trains. One objective of that specification is to provide a dedicated cask/car/train system that ensures safe transportation of SNF casks and to allow timetable speeds with no restrictions on "meets or passes." As noted in the DEIS (page 2-16), the applicant would use two single-purpose, dedicated trains that would proceed from the originating reactor site directly to Skull Valley, Utah, stopping only for crew changes, refueling, and periodic inspections. Therefore, the applicant's SNF train speeds and operations should not result in bottlenecks, or other disruptions, to overall rail traffic.

Also, the approximately 50 SNF trains per year resulting from the proposed transports does not represent a significant increase in rail traffic. The DEIS (page 5-2) addressed the impacts on proposed rail traffic; specifically, the increases in the number of trains or gross ton-miles do not exceed STB thresholds for determining environmental impacts on operations. Finally, in preparing the DEIS, the NRC staff presumed that as a matter of contracting with a common carrier (e.g., rail

company) in offering the SNF for transport, the shipper will necessarily satisfy each carrier's applicable clearance requirements (such as the Union Pacific railroad's special train guidelines asserted by the commenter), and that such clearance requirements do not significantly affect the DEIS's assessed environmental impacts or the NRC staff's conclusion that those impacts are small.

#### **G.3.16.12.3 Impact of Further Railroad Consolidation on PFS Project**

##### **Comment Summary:**

One commenter expressed concern that the railroad industry has become a monopoly and stated that a few years ago there was a backlog of abandoned freight cars. The commenter was concerned that the impacts to the project if there is consolidation or de-consolidation of the railroad industry in the future should be addressed in the EIS. (SL3-09)

##### **Response:**

The railroad industry continues to provide competitive rail service for shippers across the U.S. The STB is the regulatory agency with responsibility for reviewing mergers of the major rail carriers (Class I). As part of its reviews, the STB considers the impact of a proposed merger on the competitive rail freight industry. The STB is not able to speculate on the potential impacts on this proposed project of future railroad consolidation or de-consolidation, however it has been the STB's practice to implement a review and oversight period after approval of a merger to monitor railroad operations, safety, and competitive service. For the proposed PFSF, the transport of the SNF across the U.S. will be by dedicated train (a train carrying only the SNF) so it will not be affected by the availability of freight cars. As stated above, the volume of train traffic associated with the proposed action would not have a significant impact on the regional or national rail system.

#### **G.3.16.12.4 BMPs and Emergency Response to Spills at ITF and Proposed PFSF**

##### **Comment Summary:**

One commenter stated that explosion and fire hazards from SNF at the ITF area and proposed PFSF location should be addressed. The commenter stated that the DEIS discussion of spill mitigation has inconsistencies as follows:

- Section 5.2.1.4 (page 5-8, lines 30 and 31) states that "spills could be mitigated through implementation of BMPs" to clean up spills "before water quality impacts occur." However, the BMPs list on page 1-26 has no such provision. The commenter asked how a BMP that does not exist can be implemented.
- Page 5-9 (line 23) states that "emergency response could intercept and clean up the spill, contaminated surface water, and contaminated soils to mitigate the impact." However, emergency response is not in the BMPs list. The commenter asked what emergency response provisions this refers to, and who (Utah Division of Environmental Response and Remediation, Tooele County, or the applicant) would respond.
- Page 5-10 (line 26) states that at the ITF, "a spill response action could be taken to prevent any impact to groundwater." The commenter asserted that a spill will likely affect groundwater and asked who is going to respond.
- Page 5-10 (line 30) states that the nature of the proposed activities is not likely to cause accidental spills. The commenter asserted that if the ITF is intended to be used for fueling, it is likely to experience spills.

This commenter expressed concern that the Spill Prevention, Control and Countermeasures Plan is not referenced for the proposed alternative, only Alternative 3. (0039, 0077)

**Response:**

As described in Section 2.2.4.2 in this FEIS, there would be no fueling operations at the ITF. The heavy-haul vehicles would be fueled at the proposed PFSF on the Reservation. The NRC's SER has addressed and evaluated fire hazards at the proposed PFSF.

The BMPs for this proposed project are not limited to the list in Table 2.7. Although the likelihood is low, the environmental team who prepared this FEIS agree that a plan is needed to minimize the impact of a spill along the proposed rail line or at the ITF. The Applicant will prepare a Best Management Practices Plan to deal with spills on the site and along the rail line. To ensure that construction and operational activities will not lead to contamination of groundwater, the Cooperating Agencies have proposed that PFS be required to implement a Best Management Practices Plan that would include a spill response procedure for appropriately responding to a spill of oil or fuel at the proposed PFSF or related transportation facilities. This procedure would address spills on site, at the rail siding, or along the rail line. To the same end, the Cooperating Agencies have also proposed that PFS be required to be responsible for clean-up of any spills or accidents on the PFSF, at the rail siding, and along the right-of-way for the rail line, in accordance with applicable standards. See Section 9.4.2 in this FEIS.

The commenters did not supply any new analysis or studies to contradict that finding. Therefore, claims of potential groundwater contamination from the release of radioactive material are without basis.

**G.3.16.12.5 Impact of Proposed Rail Line on Wildfire Risk and Impacts**

**Comment Summary:**

One commenter stated that the applicant's ER and the right-of-way application failed to give adequate consideration to the potential for fire hazards and the impediment to response to wild fires associated with constructing and operating the applicant's proposed rail line. The commenter stated that the applicant's proposed movement of casks by locomotive in the Low rail line corridor presents a new wildfire ignition source. The commenter stated that construction, operation, and activities associated with the rail line will introduce a new fire source into an area that already has a high incidence for wildfires. The commenter also stated that the proposed rail line would create an impediment to fighting wild fires, noting that area responders typically drive four-wheel drive vehicles to fight wild land fires and that hand crews may also be used, whereas heavy equipment is generally not used because of the damage it may cause to the fragile ecosystem. The commenter stated that the four-wheel drive vehicles carry a water tank containing 200-300 gallons of water and will have difficulty directly crossing the rail line. The commenter stated that the presence of hazardous material such as SNF may further endanger responders as well as impede their fire fighting activities around such hazardous material because firefighters will be reluctant to pursue a wildfire in the vicinity of a train load of SNF casks. (0198, 0198i)

**Response:**

As stated in Section 5.8.4 of the DEIS, there is no evidence that the proposed new rail line would be more prone to cause fires than any other railroad operations in BLM's Salt Lake District. Also as

explained in that section, lightning accounts for the overwhelming majority of wildfires in the district. The NRC staff concluded that the proposed new rail line would not contribute significantly to the existing risk of fire in Skull Valley.

As explained in Section 5.8.4, the revegetation plan for the proposed rail line could serve as a "green strip" to help prevent the spread of wildfires. This section also discusses the potential for the new rail line to interfere with fire-fighting efforts in Skull Valley. The proposed rail line would include several rail crossings that would minimize the potential for the elevated railbed to adversely affect fire-fighting efforts in Skull Valley. The mitigation measures that would be a required part of any license, lease, or ROW approvals appear in Section 9.4.2 in this FEIS. Condition 2K of the mitigation measures, listed in Section 9.4.2, specifies that the design, number and locations of all rail crossings would be developed in consultation with the BLM.

### **G.3.16.12.6 Acceptable Risks vs. Unacceptable Risks**

#### **Comment Summary:**

One commenter objected to a statement on page xliii, lines 14-17 of the Executive Summary to the DEIS. The commenter expressed concern that this statement implies that acceptable risks (i.e., risks which we as human beings choose to take) are equivalent to unacceptable risks (i.e., risks that require mitigation). (0096)

#### **Response:**

The information in lines 14-17, page xliii, of the Executive Summary of the DEIS means that the expected dose to the public along transportation routes would be a small fraction of that which the general public receives from natural sources.

### **G.3.16.13 Indirect and Cumulative Impacts**

#### **G.3.18.13.1 Potential Transportation Accidents Resulting from Aircraft Accidents**

#### **Comment Summary:**

One commenter stated that the applicant has completely failed to apply any aircraft accident scenarios to the ITF or to the proposed cask transportation route, including along Skull Valley Road as required by 10 CFR 72.90, 72.94, and 72.108, nor has the applicant made any mention of what airways, military or commercial, pass over these areas. The commenter asserted that flight pattern J154 flies directly over the ITF. The commenter stated that the applicant provides no basis for its assertion that the casks and the facility need not be "designed to withstand the direct impact of an aircraft crash" because such an accident is not a "credible event" (commenter references SAR at page 2.2-3 and EP at page 2-15). The commenter added that given the high level of military aircraft activity in the area, and the fact that this activity includes transport of live munitions. The commenter concluded that the applicant should not be granted a license unless it evaluates the risks posed by aircraft accident scenarios to the ITF and the casks themselves as they travel on trucks or railcars to the ISFSI. (0198a)

#### **Response:**

The DEIS considers potential accidents that could occur during the transport of SNF to the proposed PFSF. While the NRC staff has not attempted to calculate the probability of a cask in transit being hit by a military aircraft or live munitions, the staff consider such an accident scenario to be very remote and speculative. The NRC staff evaluated the probability of a storage cask at the proposed PFSF being hit by an aircraft or live munitions and determined that the probability was less than one in a million chance ( $<10^{-6}$ ). The likelihood of hitting a transportation cask is at least as unlikely, since it is

not always present (rail shipments one to two times a week) at the facility, it is much smaller than the facility, and it is moving.

### **G.3.16.13.2 The DEIS Should Consider the Cumulative Impacts of Shipping Hazardous Materials Through the State of Utah**

#### **Comment Summary:**

One commenter stated that the EIS should examine the cumulative impacts of shipping various kinds of dangerous materials through the State, including cumulative risks of normal and accidental exposure to toxic materials and risks of accidental collisions. The commenter added that the EIS should also evaluate the interaction of SNF transportation to and from the proposed PFSF on other activities in the area. The comment specifically stated that:

For instance, State Route 196, a two-lane blacktop road that runs north-south from I-80 at Rowley Junction to Dugway Proving Ground, is the route defined by the applicant for transportation of SNF rods by heavy-haul truck. The EIS must evaluate other uses and priorities for this route, including the fact that it is the primary surface transportation route for Dugway Proving Ground, and is one of three emergency evacuation routes for the nearby chemical weapons incinerator at Deseret Chemical Depot. It is also the sole access for the community of Iosepa, Utah, the adjacent ranching community, and residents of Skull Valley Reservation.

The commenter concluded that there is also a need to evaluate the impacts of upgrading or widening the road, if that is the transportation corridor for transportation of SNF or as a result of increased traffic and use of the state route. (0198h)

The same commenter stated that the applicant has failed to identify, examine, and evaluate the potential cumulative effects of the many land uses presently existing in the region. The commenter added that, in addition to Dugway Proving Ground transporting conventional munitions along Skull Valley Road, as the applicant discusses (SAR at page 2.2-2), Dugway also transports various chemical agents used for testing. The commenter suggested that the applicant evaluate the potential impacts of an accident involving chemical agent, including an accident caused by increased heavy-haul truck traffic on Skull Valley Road. (0198a)

#### **Response:**

These comments are based on the applicant's ER. The transportation analyses presented in Section 5.7 of this FEIS addresses the concerns expressed in the comment.

In regard to transportation routes and the potential impacts of their use to local communities and nearby facilities, the current proposal involves only rail routes for the shipment of SNF and, hence, would not produce the type of highway impacts described in the comment. However, for the alternative ITF, Section 5.5 of the FEIS discusses the impacts to traffic from the use of Skull Valley Road for SNF transport to the proposed PFSF. The NRC staff concluded that the small number of shipments each week, an average of four round trips, would not result in a significant impact. The FEIS also includes in Section 5.1.4 possible mitigation measures to further reduce the impact.

Therefore, if Skull Valley Road is used to transport SNF to the site, the infrequent number of shipments (on average four roundtrips per week), would make the likelihood of an accident involving an SNF cask and a vehicle carrying chemical agents low.

**G.3.16.13.3 Possible Transportation Impacts Resulting from Other Nearby Hazardous Facilities****Comment Summary:**

One commenter stated that the applicant has inadequately considered credible accidents caused by external events and facilities affecting the proposed PFSF, the ITF, and transportation corridor along Skull Valley Road, including the cumulative effects of the nearby hazardous waste and military testing facilities in the vicinity. (0198a)

The commenter stated that the applicant is required, to identify, examine, and evaluate the frequency and severity of external natural and man-induced events that could affect the safe operation of the proposed facility design, as well as the past and present man-made facilities and activities that may endanger the proposed facility, as required by 10 CFR 72.90 and 72.94; see also, 72.98, 72.100, 72.108, and 72.122. (0198a)

The commenter indicated that the applicant should consider the impacts of the proposed PFSF on activities at other industrial facilities such as the Army's chemical weapons incinerator (TOCDF), Dugway Proving Grounds, or the Utah Test and Training Range. The commenter stated that an accident involving SNF casks may cause other facilities such as TOCDF to be evacuated, and conversely, an accident at TOCDF may cause evacuation of the proposed PFSF or the ITF. (0198a)

The same commenter stated that the applicant failed to identify, examine or evaluate the potential cumulative effects of the concurrent transport of SNF and other hazardous materials in the region. The commenter stated that other hazardous materials are transported on the same rail or highway routes the applicant proposes to use, or are transported in the vicinity of the proposed PFSF or ITF. The commenter expressed concern that the applicant's proposed activities involving movement of high level nuclear waste increase the potential for accidents associated with the transportation and handling of these other types of waste. The commenter stated that the applicant should also address the potential safety and security impacts from SNF or other hazardous materials remaining in rail yards while awaiting shipment to a final destination, as well as the impact of such an occurrence. (0198a)

**Response:**

The NRC staff notes the comment. The issues identified in this comment focus on safety issues, and are not directly related to the environmental review but are instead related to the NRC's staff's safety evaluation and, therefore, are outside the scope of the FEIS. The NRC safety evaluation considered other nearby industrial facilities to determine if any credible accident scenarios such as those suggested by the commenter exist that may endanger the proposed PFSF. The NRC staff evaluated the potential accidents resulting from the operation of the proposed PFSF, and concluded that there are no credible accidents that would result in a release of radioactive materials.

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## G.3.17 Other Environmental Impacts

### G.3.17.1 Scenic Qualities

#### G.3.17.1.1 General Comments

##### Comment Summary:

A few commenters stated that the DEIS does not adequately characterize or address impacts to scenic quality. (SL1-11, SL3-40) Commenters made the following statements about particular scenic topics:

- One commenter stated that the project would have a negative impact on the view of the Goshute Valley from Stansbury Mountain. (SL3-40)
- One commenter stated that a discussion of Horseshoe Springs and the Reservation should be included in the DEIS description of the existing visual environment (pages 4-52 & 4-53, Figure 4.2). (0096)
- One commenter stated that the DEIS is contradictory in its discussion of scenic qualities. The commenter stated that in one place the DEIS indicated that impacts to scenic qualities cannot be completely mitigated and in other places it stated that impacts to scenic qualities can be completely mitigated once the facility and rail line are decommissioned and removed. The commenter stated that scars from wagons along the Mormon and Oregon Trails, which were created 150 years ago in comparable arid environments, are still evident. The commenter also stated that no comparable facility has ever been decommissioned, that there is no evidence in the DEIS to support this assertion, and that scenic quality impacts cannot be completely mitigated. (0112, SL1-11)
- The same commenter stated that the proposed change of scenic quality in Skull Valley would not represent a “small to medium” impact to residents, as described in the DEIS, but a very dramatic impact. The commenter pointed out that the previous culture inhabiting the land had a religious heritage of absolute respect for the land and prohibited any imposed use. The commenter stated that a violation of scenic quality constitutes a violation of environmental justice. (0112)
- One commenter questioned the qualifications of the EIS preparers to evaluate aesthetic impacts of this particular project in this region of the country and to evaluate what would constitute appropriate landscape mitigation. (0198i)

##### Response:

The NRC staff notes the comments and recognizes that individual perspectives will vary widely in the qualitative significance they attribute to the scenic changes resulting from the proposed PFSF. The NRC staff evaluated the effect the proposed PFSF would have on the scenic quality of Skull Valley. This analysis considered the visual impact from several vantage points, including the Stansbury Mountains. As set forth in Sections 4.8.2 and 5.8.2, the visual impacts are moderate. In addition to the NRC staff’s qualitative assessment included in Section 4.8.2 of this FEIS, artist renderings and photographs have been incorporated.

With regard to the comment on the visual resources of the Horseshoe Springs and the Reservation, the description in Sections 3.8.2 and 4.8.2 in the EIS have been reviewed and determined to be adequate for the purpose of evaluating impacts. Neither the proposed PFSF nor the rail line could be visible from Horseshoe Springs; hence, there would be no impact to the visual resources. Section 4.8.2 describes how the proposed PFSF would be visible from the Goshute Village, and Figure 4.6 illustrates the nature of the impacts to visual resources that would be affected.



The Cooperating Agencies recognize the Native Americans' respect for the land and the importance of it to their culture. To ensure the impact of the proposed action was properly understood, the Cooperating Agencies consulted with the Skull Valley Band and other Federally recognized Indian Tribes and organizations, including the Confederated Tribes of the Goshute Reservation, regarding the potential impact of the proposed PFSF on Native American culture and land use. The Skull Valley Band and other Federally recognized Indian Tribes informed the Cooperating Agencies that the proposed PFSF would not affect any cultural properties, including religious sites, or affect any cultural use of the land. For additional discussions of environmental justice impacts on Native Americans, see G.3.18.3.

Regarding the statement that there are contradictions in the DEIS, this FEIS Section 4.8.2 indicates that the proposed PFSF scenic quality impacts could not be completely mitigated during operation of the facility due to the industrial nature of the proposed PFSF. However, under the proposed lease the applicant has indicated that the extent of removal of buildings and other structures would depend on the needs of the Skull Valley Band and the BIA. Whether impacts are completely mitigated after the proposed PFSF is decommissioned would depend on whether all facilities are removed and whether the landscape is recontoured to its original condition (see Section 6.4.8.2). If there is a desire to remove all buildings and revegetate to the way the area looked prior to construction, the applicant would do that. The Skull Valley Band and the BIA would determine the extent of building improvement or removal as part of the Non-radiological Decommissioning Plan to be approved by the BIA. The Decommissioning Plan required by 10 CFR Part 72 would be subject to the NRC's review, including environmental review. The NRC staff reviewed the data regarding visual qualities and concluded the impacts are small to moderate.

A technical expert qualified to evaluate aesthetic effects for the Skull Valley landscape reviewed the visual impacts of the proposed action. Staff qualifications are presented in Section 11.1.

#### **G.3.17.1.2 Landscaping**

##### **Comment Summary:**

One commenter questioned why visual simulations, about the aesthetic analysis of the proposed PFSF, were not prepared for the DEIS. The commenter further stated that if the proposed grid layout had been compared in visual simulations, the color blending would be shown to be insignificant compared to the "brutal intrusion" of the upright casks and their color. According to the commenter, landscape improvements would not serve to mitigate this impact. (0112) Another commenter stated that the DEIS discussed color blending, but did not show any visual simulation models in color. (SL1-11)

One commenter stated that "landscaping" would constitute a totally alien intrusion upon Skull Valley. The commenter questioned whether the proposed PFSF would really "blend" with "surrounding land colors." (0198i)

##### **Response:**

The NRC staff agrees that color blending and landscaping could not completely mitigate the visual contrast of the casks. Visual simulations beyond the artist renderings in Figures 4.3 through 4.7, were not considered necessary to indicate the potential impacts.

#### **G.3.17.1.3 Visual Impact of Transportation Activities**

##### **Comment Summary:**

One commenter stated that while the applicant may consider the area a "barren landscape," the aesthetic use and enjoyment of the area by the public should nonetheless be analyzed. The

commenter stated that the applicant's license application does not take into account how the visual impact of its proposed PFSF and the transportation of casks along Skull Valley Road would detract from visitors' enjoyment of Deseret Peak, the Deseret Wilderness Area, and the Wasatch National Forest in the Stansbury Mountains. The commenter further stated that the applicant has not addressed how its activities would affect the public's aesthetic enjoyment of public lands and Horseshoe Springs, located directly off Skull Valley Road and 15 miles north of the proposed PFSF. The commenter stated that public access is allowed on the public lands adjacent to the proposed PFSF, which are managed by the BLM, and that typical activities enjoyed by the public include off-highway vehicle use, camping, and hunting. The commenter also stated that Horseshoe Springs is a protected recreational area with ponds and hiking trails where typical activities include fishing, hunting, and bird watching. The commenter stated that the applicant must objectively consider the impact that its proposed PFSF and the transportation of casks would have on these activities. (0198a)

The same commenter stated that no account has been taken of the visual impact the railroad will have on the nearby BLM-managed Cedar Mountains WSA or other locations in Skull Valley. The Cedar Mountains WSA is parallel to and west of the applicant's rail line. The commenter stated that the WSA boundary in some places is less than two miles from the railroad. (0198c, 0198i)

A commenter indicated that the DEIS stated that the distance between the rail line and Goshute Village is approximately 12 miles, but that the distance between the rail line and the village will range from approximately 3 miles at its shortest distance to 32 miles at its longest distance. However, the commenter stated that even from the shortest point to the village, the rail line will not be easily visible because of its low elevation. (0163)

#### **Response:**

Section 4.8.2 of this FEIS indicates that the changes in the visual landscape would constitute small to moderate impacts. Recreational users in Skull Valley, including the users of the Stanbury Mountains, Cedar Mountains, along Skull Valley Road, and in areas adjacent to the Valley, would be able to view the proposed PFSF. Section 5.8.2 addresses impacts from transportation on scenic qualities, including recreational viewers. Recreational users in Skull Valley and in areas adjacent to the Valley, including the Cedar Mountains and Stanbury Mountains, would be able to view the new rail line and siding and the proposed ITF. Section 5.8.3 discusses impacts on the recreational use of the area.

This FEIS indicates that construction and operation of the proposed PFSF would change the visual qualities of Skull Valley and would result in moderate visual impacts for recreational users (see Sections 4.8.2 and 5.8.2). Recreational users of areas such as Horseshoe Springs may experience delays to the extent that they use the Skull Valley Road to access these areas, but this would constitute a small impact. During operation of the proposed PFSF, heavy-haul trucks may carry SNF on the Skull Valley Road (see Section 5.8.3.2). Rail line construction would decrease the impacts of delays as it would not be necessary to use heavy-haul trucks.

An account of the visual impact the railroad would have on the lands managed by the BLM was documented in Section 5.8.2. Section 5.8.2 recognizes that there would be a moderate visual impact to recreational viewers from construction and operation of the proposed rail line.

#### **G.3.17.2 Recreation**

##### **Comment Summary:**

One commenter stated that the EIS discussion of recreation resources and opportunities for recreation should include the availability of sacred land and the absence of truck and rail traffic. Other comparable recreational resources are not identified in the DEIS. (0112)

One commenter stated that the applicant's 26-mile north-south railroad along Skull Valley would impede recreational users and ranchers from their established ability to cross Skull Valley (ER Rev. 1 at 4.4-8). While the ER stated that the proposed rail line would cross several roads, it is unclear whether the proposed project would include construction of rail crossings for all roads, including dirt jeep trails. The commenter stated that the ER failed to quantify adequately the costs or evaluate the cumulative impacts associated with the railroad as they relate to recreational users and ranchers and, thus, the ER does not meet the requirements of NEPA. (0198c)

**Response:**

Section 3.8.3 of this FEIS addresses recreational resources and opportunities in the impact region. This discussion identifies opportunities for recreation that would not be impaired by the presence of vehicular traffic of any kind in the BLM-managed Deseret Peak Wilderness and Cedar Mountains WSA. The NRC staff concluded recreational impacts would be small (Section 5.8.3). As discussed in Section 3.6.2.2, "Native American Properties," the NRC staff is unaware of any sacred lands in the impact region.

Sections 5.5 and 5.8.3 address the potential impacts of the proposed rail line to off-road vehicle users, ranchers, and grazing activity. The NRC staff concluded that the construction of the proposed rail line could reduce the use of public lands for recreation purposes, including the possible addition of obstacles (in the form of elevated roadbed) to existing unimproved roads ("jeep roads"), trails, or paths, and delays in access to public lands for recreational use during the work week, but not during weekends (see Section 5.8.3). The NRC also concluded that grazing and ranching activities could be curtailed temporarily during construction of the proposed rail line but that those impacts should be lessened during operation (Section 5.5).

**G.3.17.3 Wildfire**

**G.3.17.3.1 General Comments**

**Comment Summary:**

Several commenters stated that the DEIS did not adequately address the risk and impacts associated with wildfire, including fires sparked by train operations in Skull Valley. (0012, 0201, 0246, SL1-01, SL1-18, SL1-34, SL3-40, SL3-43, SL3-47) Commenters stated the following:

- One commenter stated that EIS must evaluate the effect of severe wildfires that occur in Skull Valley as they relate to the proposed site, and whether sufficient resources are available to the applicant to avoid or extinguish a wildfire. (0198h)
- Another commenter stated that the proposed fire suppression is inadequate. (SL3-43)
- One commenter stated that wood power poles could pose a fire danger, and steel should be required. (0198)
- Another commenter stated that 250 acres recently burned in Stansbury Valley. (SL3-40)
- One commenter stated that wildfire is not an issue for the proposed PFSF. (SL3-57)
- Two commenters stated that Skull Valley suffers from annual range fires because cheatgrass invades large areas. The areas of cheatgrass invasion become larger after each fire, which renders the area susceptible to fires. The proposed PFSF would be within an area that already frequently burns. This FEIS should address measures that would be taken to avoid a fire and measures that would be taken to protect the proposed PFSF in the event of a fire. (0047, 0089)

**Response:**

The NRC staff considered the comments it received regarding wildfire risks and concluded that Section 5.8.4 of this FEIS adequately addresses the risks of wildfires along the proposed rail line. Table 5.17 of the DEIS showed that a total of 888 fires occurred in the BLM's Salt Lake District from 1989 through 1998, and 1.7 percent (15 fires) were caused by railroads. Given the expected level of use (1-2 trains per week), the presence of the proposed rail line would not add significantly to the existing risk of fire in Skull Valley, nor significantly impede responders to fires.

In response to the comments, a new Section 4.8.4 has been incorporated into this FEIS to discuss impacts of the proposed PFSF on wildfires. The applicant would surround the proposed PFSF with vegetation (i.e., crested wheatgrass) that would serve to resist fire. A layer of gravel would cover the storage area itself and the area would remain clear of combustible material. The proposed PFSF would include fire-fighting capability, and might need to rely upon the assistance of Tooele County. The wood power poles planned for the proposed PFSF would not significantly increase the risk of wildfires compared to those posed by the power poles that already exist along Skull Valley Road. See discussion in Section G.3.15.6.1 above.

**G.3.17.3.2 Military Activity and Wildfires****Comment Summary:**

One commenter stated that Section 10-1 of the DEIS did not include the DOD in the list of nine Federal agencies that have been consulted to provide data, regulatory information, or jurisdictional information for the EIS. The commenter stated that other than lightning, the single most likely cause of fire at the proposed PFSF would be errant flares and/or other accidental discharges from military aircraft and missiles in the immediate area. The commenter indicated that Dugway Proving Ground is less than 7 miles from the proposed "Restricted Area," and questioned why neither the DOD nor Hill AFB provided comment. The commenter stated that the DEIS does not reference a range fire, which could not be controlled, that was ignited by a USAF flare. The flare destroyed all of the vegetation on Fremont Island. The commenter stated that the distance of Skull Valley from fire fighting equipment and manpower is comparable to the Fremont Island situation. (0112)

**Response:**

Prior to the DEIS publication, the NRC staff consulted with representatives of both Hill AFB and Dugway Proving Ground, who were inadvertently omitted from the list in Chapter 10. In response to the comment, the list in Chapter 10 of this FEIS reflects the consultation with these military entities.

The NRC staff considered the hazards (including fire) associated with nearby military activities during its evaluation of the safety and design of the proposed PFSF and documented its evaluation in the SER, as updated. In addition, the NRC staff incorporated a new Section 4.8.4 into this FEIS to discuss the fire-fighting capability associated with the proposed PFSF.

**G.3.17.3.3 Rail Transportation and Wildfires****Comment Summary:**

One commenter stated that the applicant failed to recognize that the rail line from Skunk Ridge (near Low, Utah) poses a new risk of wildfire ignition due to its construction, operation, and other activities associated with its location near easily ignitable dry grasses. The increased human activities near the railroad would also increase the risk of wildfires. This FEIS should include an evaluation of these costs and cumulative impacts. The same commenter provided additional statements regarding rail transportation and wildfires, including:

- The commenter stated that the rail line would diminish firefighting capabilities, because it creates an impediment to fighting wildfires.
- The commenter also stated that four-wheel drive vehicles would have difficulty directly crossing the rail line.
- The commenter asserted that the risk to responders to fires would increase because of the potential for collision with trains in the dense smoke of a range fire.
- The commenter further stated that the presence of hazardous materials such as SNF may further endanger responders and may further endanger the range because firefighters may be reluctant to pursue a wildfire in the vicinity of a trainload of SNF. (0198c, 0198h)

**Response:**

This comment was based on the applicant's ER. The DEIS provided more information regarding the topic and addressed the issues mentioned in the comment. Sections 4.8.4 and 5.8.4 in this FEIS address the wildfire issue associated with the proposed PFSF and new rail line, respectively. Section 4.8.4 also describes the resources that the applicant would provide to fight fires at or near the proposed PFSF.

As stated in Section 5.8.4, lightning is the overwhelming source of wildfires in the BLM's Salt Lake District. There is no evidence that the proposed rail line would be more prone to cause fires than any other railroad operations in the BLM's Salt Lake District, therefore, there are no additional associated costs. The NRC staff concluded that the proposed new rail line would not contribute significantly to the existing risk of fire in Skull Valley. For additional information on wildfire risks, see Section G.3.17.3.1.

Section 5.8.4 states that the revegetation plan for the proposed rail line could serve as a "green strip" to help prevent the spread of wildfires. The proposed rail line would also include several rail crossings that could minimize the potential for the elevated railbed to adversely affect firefighting efforts in Skull Valley. Section 9.4.2, "Mitigation Measures," describes the actions that would be a required part of any license, lease, or right-of-way approvals. Condition 2K specifies that the design, number and locations of all rail crossings to allow fire suppression equipment to cross the rail line would be developed in consultation with the BLM.

The NRC staff acknowledges the comment regarding endangerment of responders and considers this comment not to be supported by fact or data and therefore no change to the EIS has been made.

**G.3.17.4 Livestock Management****G.3.17.4.1 General Comments****Comment Summary:**

One commenter stated that the discussion of impacts to livestock grazing is insignificant when compared to other more significant cultural resources that are not inventoried. (0112)

Another commenter stated that consistent with Section 5.5.4 (page 5-29, lines 10-12), the applicant would take steps to minimize impacts to livestock grazing, including providing cattle guards and livestock-secure fencing. Additionally, the applicant would take steps to ensure that it would not affect the operation of existing water facilities east of the proposed rail line at Eight Mile Spring. The commenter stated that the applicant does not plan to have a maintenance road along the rail line, so gates at the unimproved railroad crossings will not be necessary. (0163)

**Response:**

The NRC acknowledges the comment regarding the insignificance of impacts to livestock grazing, but clarifies that the EIS Section 5.6, "Cultural Resources," addresses the impacts from construction and operation of the proposed rail line to cultural resources.

The NRC acknowledges the comment regarding the applicant's commitment, which is consistent with the mitigation measures discussed in Section 5.5.4 of this FEIS. The NRC also acknowledges the commenter's observation that gates would not be necessary at the unimproved road crossings (see Section 2.1.1.3 of this FEIS for additional information on the infrequent use of these roads; the limited speed of the train; and the planned use of cross-buck railroad crossing signs).

**G.3.17.4.2 Impacts on Livestock and Plants****Comment Summary:**

One commenter stated that while the applicant broadly described and estimated in Section 2.2-2 of the ER the number of domestic livestock grazing on the BLM property in the area, the applicant did not identify the private domestic animals (livestock) or the domestic plant (farm produce) species in the area. The commenter, citing *Castle Land and Livestock*, stated that private property adjacent to the proposed site on Skull Valley Road is used for ranching and farming, and approximately 4,000 cows and calves winter on the private property north of the proposed PFSF and the BLM land. (*Castle Rock Land and Livestock, L.C., Skull Valley Company, Ltd., and Ensign Ranches of Utah, L.C., Request for Hearing and Petition to Intervene*, Docket No. 72-22, p. 2, filed March 11, 1997.) The commenter also stated that the private property produces a variety of crops, including alfalfa, oats, barley, and wheat, and expressed concern that adverse impacts may include impacts on livestock and plants from the radiological, chemical, heavy metal, noise, or visual pollution due to the proposed action. (0198a)

**Response:**

This comment was based on the applicant's ER. The DEIS presents the NRC staff's analysis. The DEIS identified agricultural activities, including domestic livestock grazing and agricultural production, in Sections 3.5.2.1 and 3.5.2.3, respectively. In response to the comment, Table 3.11 has been revised in this FEIS to provide information on cattle, sheep, and crop production. The NRC staff assessed the impacts of the proposed PFSF on domestic livestock grazing in Section 4.5.1.7 and Section 5.5 of this FEIS. Impacts to crop production are expected to be small.

**G.3.17.5 Monitoring and Control of Exotic and Noxious Weeds****Comment Summary:**

Two commenters stated that the DEIS said that prior to construction, a plan would be developed to control noxious weeds during construction and operation of the proposed PFSF and related rail facilities. However, the commenters added that this plan should include both monitoring and control of exotic and noxious weeds within the proposed PFSF and the proposed rail line.

The same two commenters stated that although culverts would be installed in gullies near the proposed PFSF, the culvert system is likely to increase wet season flows, increasing erosion and silting in these drainages. The culvert system would also provide a conduit to transport contaminants and noxious or invasive plant species to these sensitive areas. The commenters suggested that impacts to surface water drainage might require additional study to minimize effects related to siltation, erosion, and the introduction of contaminants or noxious plant species in these areas. (0047, 0089)

**Response:**

The NRC staff concluded that the mitigation measures stated in the DEIS would be adequate to monitor and control weeds within the proposed PFSF and the proposed rail line. The NRC has modified the mitigation measure in Section 9.4.2 of this FEIS to make this requirement clearer. This mitigation measure specifies that the noxious weed control plan would apply during facility operation (not just during construction) of the proposed PFSF and along the rail line. The NRC revised the text in Condition 2I of this FEIS to include exotic weeds as well as noxious weeds.

As presented in Section 5.2.2.1 of this FEIS, the applicant would size and align the culverts to minimize change to the natural drainage channels. The applicant designed culverts along the corridor to carry the precipitation from a 100-year flood event. Under normal weather conditions in the area, some sediment accumulation could occur upstream of the culverts after stormflow events. The applicant would minimize downstream scour through the use of rip-rap at sites where rapid flow velocities would occur at culvert outlets. Under normal conditions, these features would prevent erosion downstream of the culverts. The applicant would control the growth of noxious or invasive undesirable plant species through the use of herbicides, as described in Section 5.4.2.1 of this FEIS.

For additional discussion of wetlands and mitigation measures, see Sections G.3.12.4 and G.3.12.7.

**G.3.17.6 Wilderness Areas****Comment Summary:**

Several commenters provided the following general comments regarding wilderness areas:

- One commenter stated that the DEIS failed to consider adequately the impacts of the proposed PFSF and transportation alternatives on the wilderness character and the potential wilderness designation of roadless public lands in the area. Similarly, the document failed to develop and analyze a meaningful range of alternatives to the proposed PFSF and related transportation alternatives that would preserve the wilderness character and the potential wilderness designation of roadless public lands in the area. (0158)
- One commenter stated that the rail spur would pass near a proposed wilderness area in the Cedar Mountains. Aside from a cursory comment about access during rail spur construction, the potential impacts on this potential wilderness have not been described. The commenter stated that the BLM should insist on a more comprehensive analysis of potential conflicts with the wilderness it administers. (0198)
- The same commenter stated the applicant did not quantify the costs associated with noise levels from construction activities and operation of the railroad on wilderness areas. The railroad will be visible from the BLM Cedar Mountains WSA and other recreation areas in Skull Valley, and noise from the operation of the rail line will be heard, destroying the solitary values associated with wilderness areas. (0198c, 0198i)

**Response:**

Section 3.8.3 of this FEIS addresses the current wilderness character of nearby BLM-administered lands and includes the Cedar Mountains WSA and adjacent lands. Section 2.2 of the FEIS identifies the alternatives to the proposed rail line alignments. Compared to the proposed rail line, new rail line corridor alternatives in Skull Valley, whether located in the center of Skull Valley, or on its eastern side, offer similar or greater impacts. This FEIS also considered an ITF in lieu of the proposed rail line. This FEIS identifies potential impacts to those resources in Sections 4.8.3 and 5.8.3. Such impacts consist of transitory disruptions to recreational users' access to the wilderness areas in the western side of Skull Valley. Section 5.8.1, presents the potential impacts that could be caused by

trains carrying SNF on the proposed rail line. The NRC determined that noise impacts would be small and would decrease substantially with distance from the rail line, thereby reducing the potential for adverse impacts to recreational users of the Cedar Mountains WSA. Section 5.8.2 of the FEIS, and G.3.17.1.3 address visual impacts of the proposed rail line on recreational users of the Cedar Mountains.

### **G.3.17.7 Relationship Between Short-Term Uses of the Environment and Long-Term Productivity**

#### **G.3.17.7.1 Economic Benefits vs. Environmental Effects**

##### **Comment Summary:**

One commenter stated that a better balance should be made between the short-term economic benefits and the long-term environmental effects of the proposed PSFS. Specifically, the commenter indicated that short-term benefits to some members of the Skull Valley Band and to Tooele County do not outweigh three long-term environmental effects: (1) health effects to women and children, whether latent or not; (2) the risk of an aircraft crash; and (3) the effects of any limitation on the use of nearby military facilities. (0096)

##### **Response:**

It is desirable to have a favorable relationship between the short-term uses of the environment and its long-term productivity. The Cooperating Agencies assessed this issue and found the balance positive, as set forth in this FEIS in Section 6.5, "Relationship Between Short-Term Uses of the Environment and Long-Term Productivity." The commenter raised three issues: health effects on women and children, accident risks from aircraft crashes, and possible limitation on the use of nearby military facilities. As set forth in this FEIS in Section 4.7, the effects of the proposed PFSF on human health, including women and children, would be small. The potential safety hazards from aircraft crashes and nearby military facilities were considered by the NRC staff during its safety evaluation. The NRC staff concluded that these potential hazards would not present a credible safety concern. Therefore, the NRC staff has not identified any reasons why the proposed PFSF would limit the use of nearby military facilities. Indirect impacts to military operations are discussed in Sections G.3.8.1.8 and G.3.13.3.1. The three issues are not associated with any long-term environmental impacts. Therefore no modifications to this FEIS are warranted. Also, see Sections G.3.15.5.2 and G.3.15.6.1.



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### G.3.18 Environmental Justice

#### G.3.18.1 Scope of Environmental Justice Analysis

##### Comment Summary:

One commenter stated that the question that the NRC should have addressed is whether or not the applicant's proposal targets a vulnerable and susceptible low-income, minority population and unethically attempts to exploit their poverty and past history of discrimination in order to shift unwanted costs and risks onto that population from other, more prosperous sectors. (0204)

One commenter stated that an analysis of discrimination against low-income and minority populations is missing from the DEIS and is warranted, given the BIA's trust responsibility to the members of the Skull Valley Band. (0158)

One commenter stated that pages 6-20 to 6-42 of the DEIS focus on the semantics of what constitutes a "minority population" with respect to income and housing, but leave numerous more significant environmental justice concerns unresolved. (0112)

One commenter said that, as part of the EIS scoping process, the NRC should determine if the socio-economic nature of the alternative sites suggest that the site identification process is prejudiced, in violation of the environmental justice policy of Executive Order 12898. (0198h)

##### Response:

Executive Order 12898 requires Federal agencies to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The NRC staff completed an environmental justice review that considered human health and environmental effects. The first step in the NRC's environmental justice review is to identify the low-income and minority groups that the proposed action could affect. The next step is to assess the environmental impacts of the proposed action on any low-income or minority group. The NRC staff determined that all significant environmental justice impacts and concerns were evaluated. The commenter did not provide any specific environmental concerns for the NRC staff to consider.

The issues identified in the comment regarding the ethics of the applicant in the site selection process are beyond the scope of the environmental justice review. The Commission considers that questions of motivation on social equity in siting are outside NEPA's purview. See Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CL1-98-13, 48 NRC 28, 36 (1998). For further discussion on the site selection process, see Section G.3.5.3.

#### G.3.18.2 Compliance with Environmental Justice Requirements

##### Comment Summary:

Several commenters stated that the DEIS does not comply with Federal environmental justice statutes and that the discussion is therefore inadequate. (0096, 0112, 0194, 0204, 0211, 0217, GR-06, SL1-10, SL1-17, SL1-26, SL3-25, SL3-54)

Specifically, commenters expressed the following concerns:

- Two commenters stated that the DEIS violates or fails to consider Executive Order 12898. (0211, 0217)

- One commenter stated that under Executive Order 12898 the NRC is required to “... analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities” when such analysis is required by NEPA (42 USC 4321 *et seq.*), citing a February 11, 1994, Memorandum for the Heads of All Departments and Agencies from President Clinton. The commenter argued that the earlier policy of the DOE, in seeking an MRS site, focused on siting the facility(ies) on American Indian Reservations and clearly was violating this directive. The commenter also argued that PFS member reactor licensees are also responsible for site selection decisions, and the license application for the ISFSI which, if licensed, would violate the Executive Order. The commenter speculated that even if the Chairman of the Skull Valley Band had approached the applicant to site the facility, rather than vice versa, that action would not outweigh the environmental justice impacts on members of the Skull Valley Band who oppose the facility or individuals who live and work next to the proposed site. The commenter argued that, but for the protection provided under environmental justice provisions, these groups would not have equal protection under the law, or equal protection regarding the siting decision, because the proposed PFSF is located on an American Indian Reservation. Further, the commenter said that the lease between the Skull Valley Band and the applicant does not absolve either the NRC or the Federal government of any responsibility under NEPA, Title VI of the Civil Rights Act, or Executive Order 12898. Therefore, the commenter stated, as part of the EIS process, the NRC must fully and completely analyze and evaluate the environmental justice data, criteria, and impacts of the proposed PFSF, and answer the following questions:
  - What are the impacts related to the possible decision to locate the proposed PFSF on an American Indian Reservation?
  - What groups of individuals are affected?
  - What are the environmental, human health, social, economic, and other impacts?
  - Are these impacts mitigated under one or more of the alternative actions?

The commenter concluded that if environmental justice impacts cannot be mitigated, the NRC should not allow the proposed site alternative in the EIS. (0198h)

- Another commenter stated that the underlying philosophy of Executive Order 12898, that minority and low-income groups not be compelled to bear a disproportionate share of negative environmental consequences from governmental actions, simply does not apply in this case. (0163)

**Response:**

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” February 11, 1994, requires all Federal agencies to “identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations (including Indian Tribes) and low-income populations in the United States and its territories.” One major mechanism for identifying and addressing those effects is through NEPA (42 USC Parts 4321-4347). In compliance with Executive Order 12898, Section 6.2 of this FEIS examines potential environmental justice impacts of the proposed action and its alternatives. The environmental justice analysis concludes that the proposed PFSF would not result in a disproportionately high and adverse impact to any low-income or minority population. Other than Executive Order 12898, to the extent that there are “NEPA regulations about Native Americans,” the CEQ’s NEPA regulations (40 CFR Parts 1500-1508) provide for consultation with affected Indian Tribes. The NRC and the Cooperating Agencies conducted such consultation during preparation of this EIS and in the public comment process for this EIS (see Section 1.5.5 of this EIS).

The comment on applicability of the Executive Order to DOE's siting process for an MRS is not relevant to this environmental review. The DOE's siting process was independent of the proposed PFSF and the NRC's license review.

### G.3.18.3 Environmental Justice Impacts on Native Americans

#### Comment Summary:

Many commenters stated that the Skull Valley Band is being targeted for this facility. The commenters noted that the Skull Valley Band is financially impoverished and that this proposal takes advantage of their sovereign nation status in order to reduce costs for the reactor licensees. (0023, 0050, 0110, 0112, 0113, 0114, 0115, 0117, 0118, 0121, 0136, 0138, 0139, 0141, 0151, 0157, 0158, 0171, 0180, 0182, 0183, 0189, 0194, 0195, 0203, 0204, 0215, 0217, 0225, 0249, 0257, GR-15, GR-16, GR-23, SL1-10, SL1-11, SL1-17, SL1-36, SL1-37, SL2-05, SL2-21, SL3-04, SL3-09, SL3-18, SL3-22, SL3-25, SL3-31, SL3-54)

Commenters provided the following specific concerns:

- Several commenters stated that the proposed action constitutes environmental- or eco-racism. (0117, 0141, 0180, 0194, 0195, 0257, GR-16, SL1-10, SL1-37)
- One commenter stated that the proposed action places a disproportionately high risk of adverse health and environmental effects onto minority and low-income Native American communities. (0157)
- One commenter stated that environmental justice violations constitute unavoidable impacts and become the most significant fatal flaw of the proposed action. (0112)
- One commenter stated that Native Americans are being treated as expendable and less than human. (0110)

One commenter stated that there is ample justification under NEPA for considering environmental justice in this proceeding. By virtue of the large size and unique status of the proposed project, the siting of the ISFSI must receive specific attention. (0198b)

The same commenter compared the applicant's site selection process to the Claiborne case (*Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), LBP-97-9, 45 NRC 367 (1997)), in which, the commenter alleged, progression of the site selection process and narrowing of the search dramatically raised the level of minority representation in the population and in which the applicant's search had been focused disproportionately on areas of high minority populations. The commenter noted that the PFS applicant started its site selection with 38 sites, over 20 of which were located on Native American Reservations, and ended up with two closely located sites on the Reservation. The commenter asserted that this implied discrimination in the site selection process. The commenter stated that the NRC may not approve the selection of the Skull Valley site without conducting a thorough and in-depth investigation of the applicant's siting process to ensure the site selection was not discriminatory. (The commenter references Claiborne, 45 NRC at 391). (0198a)

#### Response:

Since the end of the termination policy in the early 1970's, the United States government has supported Native American Tribes in their efforts to fulfill their status as sovereign nations. Also, beginning with enactment of the Indian Self-Determination Act in 1975, the United States has made a greater effort to support actions of Tribal governments to give their people a better life, consistent with their traditions and culture, and the ability to compete and thrive in the modern world. The Skull Valley Band and the applicant have reached a business agreement to construct and operate the proposed

PFSF. The Skull Valley Band believes this business arrangement will assist in the economic development of the Skull Valley Band. As a result of the agreement, the applicant and the Skull Valley Band requested regulatory approvals from the NRC and the Cooperating Agencies. The Skull Valley Band is a sovereign nation that voluntarily participated in the site selection process. The site selection process used by the applicant is described in Section 7.1 of this FEIS. Each agency will review the request and make a regulatory decision. The NRC and the Cooperating Agencies concluded that the positive impact to the economic development of the Skull Valley Band will be considerable and consistent with the Federal government's responsibility to support Tribal governments in bettering the lives of their people.

The NRC staff reviewed the concern that the Skull Valley Band, as an environmental justice community, would experience a disproportionately high and adverse impact as a result of the proposed project. Section 6.2 of the DEIS describes the analysis of potential environmental justice impacts. Federal agencies are required to perform an environmental justice analysis for each Federal project pursuant to Executive Order 12898. The purpose of environmental justice analysis is to ensure that minority and/or low-income populations do not bear a disproportionate share of adverse environmental consequences. The environmental justice analysis prepared for the proposed PFSF did not indicate that any disproportionately high and adverse effects would occur in any environmental justice community within the 50-mile radius as a result of the proposed project. A summary of the potential impacts is provided in Table 6.5 of the DEIS. In addition, as set forth in Section G.3.18.1, the Commission considers that questions of motivation on social equity are outside NEPA's purview.

The NRC staff also analyzed the potential cumulative impacts for the DEIS, and the results indicated that no disproportionately high and adverse impacts on low-income and minority populations would result from construction or normal operation of the proposed PFSF. The NRC staff concluded that the effect of the proposed PFSF on environmental justice is small. Commenters objected to this assertion in the DEIS. However, the expected radiological impacts associated with either normal operation or accidents at the proposed PFSF are small. Analyses conducted for the DEIS did not identify any evidence that the proposed PFSF would compound any health problems of nearby residents or visitors in the Skull Valley vicinity. Very little risk is added by the proposed PFSF and, therefore, the proposed PFSF would not contribute to any disproportionately high and adverse impact to minority or low-income populations.

The comparison of the applicant's site selection process to the Clairborne case was directed at the applicant's ER, before the NRC staff began its environmental review. As documented in Section 6.2 of this FEIS, the NRC and the Cooperating Agencies considered the applicant's proposed action in light of all applicable environmental justice guidance, including the Commission's decisions in the matter of the applications and adjudicatory proceeding cited in the comment.

#### **G.3.18.4 Environmental Justice Analysis of Native American Culture**

##### **Comment Summary:**

One commenter stated that the DEIS demonstrates inadequate analysis and prejudice in many areas. Specifically, the commenter cited page 1-12, lines 34-38, and stated that environmental justice issues are not limited to impacts on "historical and archaeological resources of the area and on the cultural traditions and lifestyles of Native Americans" as defined by the DEIS. Also, the commenter suggested that the question of distribution and redistribution of items used in religious ceremonies does not encompass the more critical issue, which is a matter of respecting the revered land. The commenter added that this is a cultural prejudice and stated that the failure of the DEIS to acknowledge the indigenous Native American heritage and values constitutes a serious environmental justice violation. The commenter also suggested that destruction of plants used for medicinal purposes constitutes an environmental justice violation. (0112)

The same commenter also said that the statement on page xlvii, lines 41-42, of the DEIS implied that the respect of the diligent majority of Skull Valley Band for their land and their unwillingness to violate cultural values is being used against them as an excuse to inflict impacts upon their land. (0112)

**Response:**

Regarding the comment about page 1-12, lines 34-38 of the DEIS, the NRC staff reviewed the section of the DEIS cited in the comment and wishes to clarify the difference between the environmental justice review and the cultural resources review. (The discussion cited by the commenter was intended to discuss the scope of the cultural resources review. It was not intended to represent the scope of the environmental justice review.) The scope of the environmental justice review in Section 6.2 of the DEIS and the FEIS, evaluates all the environmental impacts of the proposed action, including cultural traditions and lifestyles, on low-income and minority groups. The NRC staff revised Section 1.4 in the FEIS to clarify the scope of the environmental justice review.

The NRC staff conducted the environmental justice analysis in accordance with the NRC's Office of Nuclear Material Safety and Safeguards Policy and Procedure Letter 1-50, Revision 2, "Environmental Justice in NEPA Documents," (September 1999). Consistent with this guidance, the analysis considered the environmental impacts of the proposed action on minority and low-income individuals, including any impacts from special resource uses or dependencies such as cultural practices and customs. The NRC staff considered the culture of the Skull Valley Band appropriately in the analysis. In addition to independent research performed by the NRC staff experts, the NRC staff considered all information received from the Skull Valley Band's Tribal government regarding their culture and use of the land. The NRC staff also considered information received during scoping meetings, public comments on the DEIS, and through consultation activities with Federally recognized Indian Tribes and other organizations during the Section 106 consultation process. While the NRC staff does not dispute Native Americans' respect for the land, the information provided by the Skull Valley Band's Tribal government and other Native Americans does not indicate that the proposed action would affect Native American culture or land use. Additional comments regarding cultural resources are addressed in Section G.3.14 of this FEIS.

### **G.3.18.5 Environmental Justice Impacts on Individuals Along Rail Corridors**

**Comment Summary:**

A few commenters expressed concern that the proposed shipments would pass through low-income and minority neighborhoods located in Salt Lake City and that this has not been addressed. (SL1-05, SL1-10, SL3-54)

One commenter objected to the decision to expand the radius of the area for environmental justice analysis from 5 to 50 miles. The commenter stated that this decision was arbitrary and served to circumvent Executive Order 12898. (SL3-54)

**Response:**

The discussion of demographics in Section 6.2.1.1 of the FEIS and the accompanying figures identify concentrations of minority and low-income residents along the rail corridors within 50 miles of the proposed site and in the Salt Lake City area in particular. The list of minority and low-income block groups is shown in Table 6-4, "Minority and Low-income Block Groups Within 80 Km (50 Miles) of the Preferred Site," and Appendix E, "Census Bureau Data as Used in Environmental Justice Analyses," of the DEIS. Figure 6.1 and Section 6.2.1.1 identify minority and low-income block groups near the rail corridor. Figure 6.2 and Section 6.2.1.1 identify low-income groups near the rail route. The transportation analyses in the EIS indicated that there would be no disproportionate high and adverse impacts to minority and low-income groups in transportation corridors as a result of the proposed action.

The analysis used a wider-than-standard radius to include the entire area that the project might influence. Ordinarily, this area would be within a 4-mile radius of the project site. However, for the proposed project, a 4-mile radius would barely extend beyond the Reservation boundaries. In this case, the 4-mile radius was considered insufficient because of the high concern expressed in public scoping comments concerning the potential effects across a much broader geographic area. This broader area includes Grantsville, Tooele, Salt Lake City, and particularly the transportation corridors. By using the expanded radius, the NRC staff did not dilute the environmental justice impacts of the proposed PFSF; the analysis evaluates the effects of the proposed project on each minority community, rather than an average effect. As described in Section 6.2, the NRC staff compared the demographic and income characteristics for each block group with data for the State of Utah, so the use of a larger study area would not dilute the study results. Rather, the use of a larger study area radius merely expands the geographic area where additional minority and low-income block groups could be identified.

The NRC staff reviewed the concerns relating to impacts to low-income and/or minority communities in Salt Lake City, and found that they are adequately addressed in this FEIS. Section 6.2.1.2 addresses potential impacts to environmental justice communities and specifically includes a discussion of impacts related to radiological exposure along transportation routes through Salt Lake City and Grantsville. This discussion refers the reader to the transportation analysis included in the discussion of human health impacts of SNF transportation in Section 5.7 of this FEIS, which includes an evaluation of potential health impacts to people living along the proposed transportation routes. The NRC staff concluded no disproportionately high and adverse impacts would occur to any environmental justice community located along the proposed transportation routes.

#### **G.3.18.6 Consideration of Positive Economic Benefit**

##### **Comment Summary:**

A few commenters stated that the lease payments to the Skull Valley Band do not reduce the environmental justice impacts of the proposed action. (0157, 0194, 0195, SL2-05)

One commenter stated that the positive socioeconomic impacts defined for environmental justice on page 6-31, lines 21-27, of the DEIS are somewhat arrogant. The commenter added that, if there is no economic development in an area, then any form of economic development would be positive; but the commenter stated that the issue here is that this proposed PFSF would be placed in an area with an environmental justice population. Given this situation, the commenter indicated that the positive socioeconomic impacts are not there. (0096)

The same commenter cited the statement on page xl, lines 37-40 of the DEIS: "If the proposed PFSF were not constructed on the Reservation, then its positive economic benefits would not accrue to the Skull Valley Band. The Skull Valley Band would be free to pursue other uses for their land, but would lose opportunities for employment, as well as the financial gain from the proposed lease revenue." The commenter said that this statement is a violation of environmental justice and that this type of statement would not be made if the proposed site was in a wealthy community. (0096)

The commenter indicated that the statement on page xlii, lines 5-8, of the DEIS is a typical environmental injustice statement because it points out that low-income, minority people will have "...positive economic benefits..." This same type of analysis is not used for on-site storage of SNF rods. The commenter asked, "How is the statement not a violation of Environmental Justice?" (0096)

The commenter indicated that the statement on page 9-14, lines 18-21 of the DEIS implied that consideration of economic profits to the nuclear reactor licensees would distort the environmental justice impacts. (0096)

**Response:**

The NRC staff acknowledges the commenters' concerns that the identification of a positive economic impact to the Skull Valley Band is a violation of environmental justice. However, the White House guidance accompanying Executive Order 12898 requires Federal agencies to analyze environmental impacts, including socioeconomic impacts, of an agency's action to determine if the action results in a disproportionately high and adverse impact to any low-income or minority community. Consistent with the guidance provided, the NRC staff considered the environmental impacts of the proposed action. The analysis in the DEIS appropriately considered the socioeconomic impacts of the proposed action. One of the socioeconomic impacts of the proposed action is the positive economic impact to the Skull Valley Band. Recognition of this positive economic impact is not a violation of Executive Order 12898. The NRC staff evaluated the impacts of the proposed action and concluded that the proposed action would not result in a disproportionately high and adverse impact to any low-income or minority group.

Regarding the comment that the environmental justice review should focus on the issue of siting the proposed PFSF in an "environmental justice-defined area," Executive Order 12898 does not state that agencies should prevent actions from being taken in low-income or minority communities. Instead, the Executive Order requires agencies to determine if their actions would result in a disproportionately high and adverse impact to low-income and minority communities. The impacts that would result from the proposed action are not significant and would not result in a high and adverse impact to low-income and minority communities.

**G.3.18.7 Environmental Justice Conclusion****Comment Summary:**

Two commenters objected to the assertion in Chapter 6 of the DEIS that there are no disproportionate impacts from construction or normal operations and, therefore, the effect of the facility on environmental justice concerns is small. (0050, 0171)

Several commenters stated that the NRC's statement in the DEIS that the proposed PFSF has no environmental justice impacts is incorrect. (0118, 0121, 0157, 0180, 0182, 0183, 0194, 0195, 0217, 0257) Several commenters objected to the claim in the DEIS that "there are no disproportionately high and adverse impacts on low-income or minority populations." (0136, 0195, 0257) One commenter stated that it is shocking for the NRC to claim that dumping an enormous stockpile of high-level wastes on this Reservation does not constitute an environmental justice impact. (0139)

**Response:**

While the commenters objected to the environmental justice conclusions, they did not raise any specific issues. Therefore, a detailed response cannot be provided. The conclusions in the DEIS were based on a detailed analysis. The NRC staff completed the analysis in accordance with the NRC's Office of Nuclear Material Safety and Safeguards Policy and Procedure Letter 1-50, Revision 2, "Environmental Justice in NEPA Documents" (September 1999). Consistent with this guidance, the analysis considered the environmental impacts of the proposed action on minority and low-income individuals, including any impacts from special resource uses or dependencies such as cultural practices and customs. The analysis also considered past and present environmental impacts and health and economic conditions for potentially affected low-income and minority groups. From the analysis, the NRC staff determined that the proposed action would not result in disproportionately high and adverse impacts to any low-income or minority population within the vicinity of the proposed PFSF or transportation facilities.



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## **G.3.19 Economic Benefits and Costs**

### **G.3.19.1 General Comments**

#### **G.3.19.1.1 Objectivity of Benefits and Costs Analysis**

##### **Comment Summary:**

A few commenters stated that the DEIS analysis of benefits and costs is biased in favor of the applicant and fails to consider many significant negative impacts. (0012, 0198, SL1-01, SL3-23) One commenter added that there is a conflict of interest in the DEIS because it was prepared by the applicant's contractor, and that the FEIS should include an unbiased third-party analysis of benefits and costs, including both direct and indirect economic impacts. (SL3-23)

One commenter stated that the DEIS makes numerous errors in its benefits and costs analysis, and nearly every error skews the analysis to favor the applicant. (0198)

##### **Response:**

Although the input for the benefits and costs analysis was prepared by the applicant's contractor, the NRC staff has independently reviewed the data and analysis that has been presented. Section 8.1.2 of this FEIS identifies the major assumptions made by the applicant and its contractor, and provides the NRC staff's analysis of the uncertainties and sensitivities in the applicant's calculations. The comment about errors in the DEIS analyses did not provide any specific, additional economic costs that should be considered in the analysis.

#### **G.3.19.1.2 Applicant's Benefits and Costs Analysis**

##### **Comment Summary:**

One commenter stated that contrary to the requirements of 10 CFR 51.45(c), the applicant failed to provide an adequate balancing of the benefits and costs of the proposed project, or to quantify factors that are amenable to quantification. (0198a) The commenter made the following statements:

- The commenter asserted that the applicant's ER made no attempt to objectively discuss the costs of the project. According to the commenter, other than the financial costs incurred by the applicant in constructing and operating the proposed PFSF, the substance of the applicant's discussion of costs is that the indirect costs, which are derived from the socioeconomic and environmental impacts of the facility, are minimal due to the remote location and small size of the actual storage area. (The commenter referenced ER at 7.3-1.) The commenter asserted that this discussion is inadequate to satisfy the requirements of 10 CFR 51.45(c). The commenter also stated that the applicant failed to weigh numerous adverse environmental impacts against the alleged benefits of the proposed PFSF. (0198a)
- The commenter further argued that the no action alternative would have significantly lowered environmental costs and that the applicant failed to compare the environmental costs of the proposed PFSF with the costs of the no action alternative. The commenter stated that the applicant failed to weigh the benefits to be achieved by alternatives that could reduce or mitigate accidents, environmental contamination, and decommissioning costs, such as inclusion of a hot cell in the facility design. (0198a)
- In addition, the commenter asserted that the applicant made no attempt to quantify the costs associated with the impacts of the proposed PFSF, even though such costs are amenable to quantification. The commenter stated that, for example, costs related to accidents and contamination may be quantified in terms of health effects and dollar costs; decommissioning

impacts can be quantified; visual impacts can be quantified in terms of lost tourist dollars; and emergency response costs can be quantified based on the cost of those services. (0198a)

- The commenter stated that the benefits and costs analysis was inadequate, and therefore, the applicant provides no meaningful basis for a comparison of alternatives. The commenter concluded that the application must be rejected as insufficient to satisfy NEPA. (0198a)

**Response:**

These comments were directed at the applicant's ER, which was submitted to the NRC as part of the license application and therefore some of the comments are outdated. The DEIS used information from several documents, including the ER. Chapter 8 of this FEIS presents the NRC staff's analysis of the benefits and costs of the proposed project. The costs of the no action alternative were included in Chapter 8 and were also separately addressed in a new Section 6.7 in this FEIS. Also, see discussion in Section 9.4.1.5 in this FEIS.

The NRC and Cooperating Agencies conducted an independent evaluation of the proposed facility and analyzed the potential direct and indirect environmental effects. The analysis considered many factors in addition to the size and location of the facility. See Table 9.1 for a summary of the potential environmental impacts. A majority of the impacts were determined to be small, with only some being small to moderate, or moderate. Additional detail is provided in discussions and analysis of environmental effects in Sections 4.5 and 6 of the FEIS. NRC staff addressed the costs of these environmental impacts in its evaluation in Sections 8.2 and 8.3 of this FEIS.

Regarding the comment about quantifying visual impacts, the staff notes that the factors on which the costs of visual impacts depend are uncertain. Nevertheless, the NRC staff performed a sensitivity analysis on such costs, and found that their value would be significantly less than the typical rounding errors included in Tables 8.2 and 8.3 in Section 8 of this FEIS.

The proposed PFSF is designed to satisfy the requirements of 10 CFR Part 72, and no credible accident at the proposed facility would result in the release of radioactive material. As set forth in Chapter 15 of its SER, as updated, the proposed PFSF will be sited, designed, constructed, and operated such that during all credible off-normal and accident events, the public health and safety will be adequately protected. Further, the robust SNF storage casks make it highly unlikely that an accident with any significant consequences could occur because the facility is designed against reasonably foreseeable events. The costs of construction of the proposed PFSF in accordance with Part 72 requirements have been included in the cost/benefit analysis so that the costs of reducing or mitigating credible accidents at the proposed facility have been appropriately considered. Accidents at the proposed PFSF that would result in the release of radioactive material are not credible, and, therefore, consideration of costs to reduce or mitigate such accidents and benefits of such mitigation is not required. Similarly, consideration of the costs of environmental contamination resulting from such accidents is not required. For the same reasons, decommissioning costs need not include a provision for accidents. (Decommissioning costs are considered in the cost-benefit analysis. See FEIS Section 4.9.)

Quantification of the costs of environmental impacts of transportation accidents resulting from the proposed action would be speculative since there are a number of methods that could be employed for mitigation or remediation after an off-normal event or accident based on any number of assumptions. The use of any of these methods would be hypothetical, arbitrary and difficult to justify as being the most realistic. In addition, as discussed in Section G.3.16.6.1, transportation accidents are considered to be highly unlikely events. The suggestion that the applicant should have considered the benefits of adding a hot cell as an alternative (among others) to reduce or mitigate accidents, environmental contamination, or decommissioning costs goes beyond existing regulatory requirements. A hot cell is not a design feature called for under 10 CFR Part 72 require that the proposed PFSF include any additional design features. Therefore, no additional design alternatives

need be considered in the benefits and costs analysis. See Section G.3.19.4.4 for a discussion of the costs related to emergency response. See also Sections G.3.15.6 and G.3.19.4, and FEIS Section 9.4.3 for additional discussion.

Table 9.2 summarizes the potential environmental impacts of all the alternatives evaluated in this FEIS. Mitigation measures that will be required as a condition of the license, lease, or right-of-way approval for this project were identified in FEIS Section 9.4.2.

### **G.3.19.1.3 General Comments Related to the Benefits and Costs Analysis**

#### **Comment Summary:**

Many commenters stated that the DEIS was incomplete or inadequate in its evaluation of other societal benefits and costs. (0015, 0090, 0198, GR-09, SL1-07, SL1-10, SL1-16, SL2-15, SL3-02, SL3-04, SL3-11, SL3-57) Commenters indicated that the DEIS inadequately addressed societal benefits and costs for the following reasons:

- One commenter stated that there is no logic behind putting the waste into storage in Utah and then transporting it to [the proposed] Yucca Mountain [site] in a few years. The commenter asserted that there are only health and safety risks and no economic or health and safety benefits to this scheme. (SL1-16)
- One commenter stated that the reactor licensees should have realized that storage of the SNF would be their fiscal responsibility. The commenter asserted that it is fiscally irresponsible to shift the risks to Utah now, because the cost of storage at the proposed PFSF is favorable to these utility companies. (0090)
- One commenter stated that more information should be provided regarding why the residents of Utah should take the risk of allowing the proposed PFSF [to be built]. The commenter asserted that the people of Utah are much more willing to accept the risks if there is a clear and compelling reason regarding the common good and not just providing economic benefits to utility companies. (0015)
- One commenter stated that the Skull Valley Band has set a price for siting this facility and that price has been kept secret throughout these proceedings. The commenter asserted that if this project is approved, the Skull Valley Band will receive their price, but all of Utah and the rest of the nation will pay the cost. (0198)
- Commenters stated that costs to the citizens of Utah are not adequately addressed in the DEIS, and that the proposed PFSF may not provide any benefits to the people of Utah. (0197, SL1-10, SL3-04)
- One commenter stated the Skull Valley Band is not only selling out their own birthright, but also that of their neighbors. The commenter added that the risks of transporting nuclear waste to Utah should be avoided. (GR-09)
- One commenter said that when the DEIS Executive Summary (page xlii, lines 40-41) states that Utah and Tooele County will benefit from the sale of manufacturing items for use at the proposed PFSF, it incorrectly assumes there will be no economic consequences for Utah, Tooele County, and communities on the transportation route. (0096)
- One commenter stated the stated economic benefits to Utah, about \$53 million, amount to a small percentage of the State's budget (about \$6.5 billion). (SL1-07)

- One commenter asserted that the proposed PFSF is neither good economics nor good science. (SL3-11)
- One commenter indicated that Section 8.2 of the DEIS (page 8-10) states that “benefits and costs are considered from a societal perspective.” The commenter stated that the agency actions being considered in this proceeding are the actions of national regulatory bodies including the NRC. The commenter added that it is inappropriate to count lease revenues, jobs, and economic activity in the Tooele County area as a benefit when considering the benefits of the applicant’s alternative, but not count parallel benefits associated with the no action alternative (on-site ISFSIs). Finally, the commenter indicated that the DEIS lists as one of its four major points in recommending the proposed PFSF over the alternatives, the economic benefits for the Tooele County area. (DEIS, page 9-13) The commenter concluded that it is unacceptable to reach such a conclusion when the agencies have refused to consider the benefits of the alternative. (0198, 0198g)
- One commenter stated that the health and financial risks of the proposed PFSF are too high and there are no assurances that high safety standards would be maintained. (SL2-15)
- One commenter stated that the DEIS purports to evaluate the potential environmental impact, but that in the benefits and costs analysis the net economic benefit of constructing the proposed PFSF is defined as the simple difference between (1) the incremental cost of continuing to store the SNF at the existing reactor sites less (2) the cost of constructing and operating the proposed PFSF. The commenter stated that this reasoning is flawed because it does not consider the environmental impacts nor does it consider the incremental risks. In addition, the commenter stated that the NRC, by reaching such a conclusion, is stating that the paramount, determinative issue is the savings to utility companies located elsewhere, regardless of the risk to and environmental impact on the environs of Skull Valley and the citizens of Utah. (0090, SL3-02)
- One commenter stated that the NRC should consider the controversy surrounding the amount of money required to transport SNF to the proposed site. (SL3-57)
- One commenter stated that the DEIS failed to consider infrastructure costs to communities along the transportation routes. (0042)
- Two commenters said the benefits and costs analysis in the DEIS is flawed and incomplete. (SL1-10, SL3-04)
- One commenter stated that if NRC's benefits and costs analyses were correct, there would not be a community in this country that would not welcome the proposed PFSF. The commenter stated the analyses are not correct, and accordingly, every community other than the Skull Valley Band that has considered such a facility has rejected it. (0198)
- Another commenter stated that the costs of relocating SNF should be borne by the companies that produced the contamination and not primarily by the taxpayers. (0097)
- Two commenters said that the costs and liability of SNF storage should be borne locally where the power is generated. (0208, SL3-32)
- Several commenters stated that the proposed action will only benefit the reactor licensees generating the SNF. They also stated that the profits or cost savings of the nuclear power industry should not be placed over the environmental and human health impacts on the Skull Valley Band and the citizens of the West. (0015, 0043, 0048, 0096, SL1-07, SL1-16, SL2-05, SL3-08, SL3-23, SL3-33, SL3-46, SL3-49)

**Response:**

The NRC acknowledges the comments about the role of the benefits and costs analysis. The NRC staff summarized its conclusions on the benefits and costs of the proposed facility and the rationale for those conclusions in Section 9.4.3 in this FEIS. Specific comments (as listed above) on the benefits and costs of the proposed project are addressed below.

With respect to the comment about the logic of the proposed movement of SNF to Skull Valley, the benefits lie in the alternative that it would present to operating nuclear power reactors. By electing to use the proposed PFSF in Skull Valley, operating reactors would be able to reduce their overall SNF storage costs, thereby making their operations more efficient and also possibly allowing them to move all SNF away from the reactors more quickly once they have been decommissioned. This could also reduce costs for ratepayers. The NRC staff determined that there is reasonable assurance that operation of the proposed PFSF, constructed in accordance with the design set forth in the application, will provide adequate protection of the public health and safety. Specifically, the proposed PFSF will have met applicable NRC licensing requirements, and operation of the proposed PFSF would be subject to NRC inspections and reviews of operating procedures and required reports. Thus, the NRC would continue to review compliance with applicable NRC requirements, should the NRC grant a license and the proposed PFSF be constructed and operated.

Section 1.3 of the EIS describes disposition of SNF from operating reactors. While the fiscal responsibility for SNF has always been placed on the power generating reactor licensees, the options for continued storage of SNF have become problematic at many of their nuclear reactors. The NRC staff presented the risks to the people of Utah (as measured by exposure to radiation) as discussed in Sections 4.7 and 5.7 in the DEIS and concluded the risks are very small; hence, the type of fiscal irresponsibility claimed in the comment appears to be unfounded. Furthermore, the storage of SNF at an interim facility, such as the proposed PFSF, does not remove any financial liability from the companies owning the SNF, since they would continue to be responsible as owners of the SNF until ownership and title for the SNF is accepted by the DOE.

With respect to the comment about risk to the people of Utah, contrary to what is stated in the comment, the PFS Facility would not pose an undue risk to the people of Utah if licensed and operated in accordance with NRC regulations. The NRC staff evaluated and discussed radiation doses (and the corresponding risk of developing a fatal cancer from such exposure) in Sections 4.7 and 5.7 in the DEIS and determined the human health risks to be very small.

The NRC acknowledges the comment about the actions being contemplated by the Skull Valley Band and the opinion offered about the costs to Utah outweighing the benefits. The comment about the Skull Valley Band's price for siting references a proprietary lease agreement between the applicant and the Skull Valley Band that is addressed in Section 3.19.4.2 below. To the extent the commenter included specific comments on whether costs to the people of Utah and the nation outweigh the benefits of the proposed PFSF, such comments are addressed elsewhere in Section G.3.19 of this appendix and more generally in FEIS Section 9.4.3. Therefore, no further response is required.

With respect to the economic benefits to the State, in addition to the estimated \$53.5 million in tax payments to the State of Utah, Tooele County would receive an estimated \$91.2 million over the life of the project from a proposed agreement between the County and the applicant. Local payroll (\$81 million), expenditures for materials and services (\$79 million), and cask/canister manufacturing (\$747 million) could also increase these amounts. With respect to the comment regarding the size of the estimated tax payments as compared to the size of the State of Utah's budget, such a comparison does not raise a deficiency in the NRC staff's cost/benefit evaluation. That is, the estimated tax payments, regardless of their amounts, are benefits expected to result from the proposed project. To the extent the commenters identified specific costs to the State of Utah, Tooele County and communities along the transportation routes, such costs are addressed elsewhere in this section. See, e.g., Sections G.3.19.1.2 (accident costs); G.3.19.4.4 (costs for emergency response);

G.3.16.6.1 (costs of transportation accidents). The NRC staff concludes that the economic benefits and costs to the State of Utah and Tooele County have been accurately described in the EIS. Although the comment about the economic consequences to communities along the transportation corridor does not warrant any change to the NRC staff's cost/benefit evaluation, for reasons set forth above, a new subsection has been added to Section 5.7.2.5 in this FEIS to address this issue.

The NRC staff notes the opinion offered in the comment about economics and science.

The NRC staff acknowledges that some of the same types of economic benefits would accrue locally near those reactors where at-reactor SNF storage would be expanded or newly constructed. Sections 6.7 and 9.4.3 in this FEIS have been revised to eliminate any inference that such benefits (excluding lease payments to the Skull Valley Band) would apply only to the facility in Skull Valley and not to each individual reactor licensee that chose to construct or expand at-reactor storage facilities.

With respect to the comment on health and financial risks, the NRC staff determined that there is reasonable assurance that operation of the proposed PFSF, as set forth above, constructed in accordance with the design set forth in the application, will provide adequate protection of the public health and safety. Specifically, the proposed PFSF will have met applicable NRC licensing requirements, and operation of the proposed PFSF would be subject to NRC inspections, and reviews of operating procedures and required reports. Thus, the NRC would continue to review compliance with applicable NRC requirements, should the NRC grant a license and the proposed PFSF be constructed and operated (see Section 1.5.1 of this FEIS). To the extent the commenter included specific comments on whether costs to the people of Utah and the nation outweigh the benefits of the proposed PFSF, such comments are addressed elsewhere in Section G.3.19 of this appendix and more generally in FEIS Section 9.4.3. In addition, the Commission has ordered that the applicant's commitment to obtain \$200 million of offsite liability insurance be incorporated into the PFS license. *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-00-13, 52 NRC 23, 32 (2000). Such insurance would provide additional financial coverage for reasonably foreseeable events for which the proposed PFSF is designed. As per the staff's safety review, the NRC staff determined that no reasonably foreseeable accident at the facility would result in any release of radioactive material, so this issue does not require further evaluation.

With respect to the comment on the definition of net economic benefit, the commenter has misunderstood the difference between "economic" benefits and costs and the other types of benefits and costs addressed in this FEIS. The presentation in Section 8.1 of this FEIS deals exclusively with "economic benefits and costs," as correctly defined in the comment. Sections 8.2 and 8.3 in this FEIS deal with the other types of benefits and costs that are identified in the comment. As stated in the introduction to this comment response, above, the economic benefits and costs are not the sole determinative issue in this FEIS.

It is not clear what controversial transportation costs are being identified in the comment. The cost of transporting the SNF to Skull Valley has been included in the benefits and costs analysis in Section 8.1 of this FEIS. Further information on transportation costs is set forth below.

Regarding infrastructure costs to communities along the rail corridors, the NRC does not anticipate substantial costs to the communities. As described in the transportation responses (Section G.3.16), states are recognized as being responsible for protecting public health during radiological transportation accidents, and these capabilities are already in place. The DOE also maintains emergency response capability, which is available to the states by request.

The staff notes the comment about the benefits and costs analysis being flawed and incomplete. The NRC staff also notes the comment asserting that the analysis of benefits and costs is incorrect and that all other communities that have considered such a storage facility rejected it. To the extent the commenters provided specific information on errors or flaws in the NRC staff's analysis, that information is addressed elsewhere in Section G.3.19.

The companies shipping their SNF to the proposed PFSF would bear the economic cost of transporting SNF to the proposed PFSF. This cost is considered in the benefits and costs analysis contained in Chapter 8 of the FEIS. The environmental costs of transporting SNF to the proposed PFSF are discussed in Chapters 5 and 6 of the FEIS.

SNF can be safely stored at facilities either on or near the site of its production. However, the regulations in 10 CFR Part 72 (Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste) also allow for the storage of SNF in away-from-reactor facilities. The applicant has requested, under the provisions of 10 CFR Part 72, a license for an away-from-reactor SNF facility, and the NRC is considering that application. As set forth in the FEIS, the environmental and human health impacts of the proposed PFSF on the Skull Valley Band and the citizens of the West are small. See discussion in FEIS Section 9.4. The NRC staff's analysis of benefits and costs does not place profits or cost savings above environmental and human health impacts.

#### **G.3.19.1.4 General Comments Supporting the Benefits and Costs Analysis**

##### **Comment Summary:**

Several commenters supported the proposed PFSF and the DEIS for the following reasons:

- One commenter stated that although the applicant is a limited liability corporation, and although the applicant will possess the SNF, the nuclear utility companies would retain title to the SNF until the Federal government takes possession of the SNF for final disposal. (SL3-58)
- Another commenter stated that the DEIS addressed the positive economic impacts the proposed PFSF would have for the Skull Valley Band, the County, and the State and that the proposed PFSF would have such impacts without harming the environment. (SL1-03)
- One commenter stated that it is preferable to transport the SNF to a facility that the NRC's DEIS has found to be technologically safe and that would bring large economic benefits without harming the environment of the Reservation and the State of Utah. (0070)
- The same commenter supported the DEIS because the facility would alleviate some of the costs to the nation's ratepayers because the NRC license would provide for storage of SNF that is currently being paid for by ratepayers. (0070)

Many commenters discussed the proposal's potential economic impacts on the Skull Valley Band and Tooele County. (0016, 0039, 0077, 0090, 0096, 0112, 0163, 0179, 0198, 0236, GR-07, SL1-03, SL1-30, SL3-02, SL3-03, SL3-46, SL3-48) Commenters asserted that the DEIS accurately portrays the benefits to the Skull Valley Band and Tooele County for the following reasons:

- Several commenters said the proposed PFSF will have positive economic impacts on the Skull Valley Band, the County or future residents of the valley. (0016, 0179, 0236, 0236, GR-07, SL1-03, SL1-30, SL3-03)
- Commenters stated that the proposed PFSF may attract people back to the Reservation; increase employment and prosperity; and bring revenue to the Reservation that would improve health insurance, health care, housing, and education. (0016, SL1-03, SL1-30)
- One commenter stated that after decommissioning, the proposed site will be made available for other industrial uses because it will be served by a rail line that otherwise would not have existed. (0236)



- Another commenter stated the proposed PFSF will create jobs in construction, cask manufacturing, facility operations, and future decommissioning services. (SL3-03)
- One commenter stated that one effect of the no action alternative would be the absence of revenue to Tooele County under its agreement with the applicant. (0163)

Many commenters addressed the proposed PFSF's potential environmental and cost impacts on the State of Utah. (0012, 0013, 0096, 0179, 0197, GR-01, GR-05, GR-13, SL1-01, SL1-03, SL1-10, SL1-27, SL2-14, SL2-20, SL3-02, SL3-03, SL3-04, SL3-36, SL3-46) Several commenters asserted that the DEIS accurately portrays the benefits to the State of Utah for the following reasons:

- One commenter acknowledged that the DEIS includes the positive impact the proposed PFSF will have on Utah. (SL1-03)
- One commenter expressed support for the construction of the PFSF and estimated that the money coming into Utah from the proposed PFSF could be \$3.37 billion if the facility is in operation for 40 years. The commenter stated that the construction of the facility will cost an estimated \$100 million and will employ many people. The commenter added that 4,000 casks to hold the SNF could be partially or wholly fabricated in Utah at a cost of about \$2 billion, and the operation and maintenance of the facility over 40 years is estimated at \$1.2 billion. The commenter further stated that the decommissioning cost is estimated to be \$70 million. (SL3-03)
- The same commenter said the proposed PFSF would have a smaller environmental impact on Utah than the Micron facility or construction of Interstate Highway 15, but the proposed PFSF is undergoing the full EIS process (unlike the I-15 construction) and is receiving much more scrutiny. (SL3-03)
- One commenter stated that the NRC correctly based its conclusion that the project's benefits would outweigh its costs on the economic benefits that would accrue to the Skull Valley Band, local vendors, workers, and state and local government. (0179)

#### **Response:**

The NRC acknowledges these comments that the DEIS addressed the positive economic impacts of the proposed PFSF on the Skull Valley Band, the County, and the State. The purpose of a NEPA document is to evaluate all impacts that may occur as a result of a proposed major Federal action. Thus, the NRC has evaluated both the positive and the negative impacts of the proposed action, and has noted the observations, opinions, and expressions of support for the proposed PFSF in these comments.

### **G.3.19.2 Economic Benefits and Costs**

#### **G.3.19.2.1 Assumed Market for SNF Storage at the Proposed PFSF**

##### **Comment Summary:**

One commenter stated that the assumed market for the proposed PFSF should be re-evaluated, asserting that the number of PFS member reactor licensees has declined. The commenter stated that reactor licensees have licensed ISFSIs, and the applicant has not disclosed if new customers have signed agreements to use the proposed PFSF. The commenter added that some level of economic benefits is directly proportional to the amount of SNF passing through the proposed PFSF and it is reasonable to assume the primary source of customers will be PFS member reactor licensees (e.g., page 8-9 of the DEIS). The commenter then stated that it is unreasonable for the NRC and Cooperating Agencies not to reflect the substantial changes and pending changes in PFS member reactor licensees (e.g. Illinois Power, GPU and Florida Power). The commenter asserted that these

changes affect the location of member reactors, SNF, the timing of shipments, and timing questions that could affect the applicant's net benefits relative to the no action alternative, especially at low levels of throughput. The commenter stated that, therefore, the FEIS should consider the impact of ownership changes on the location of member reactors, the quantity of SNF, and timing of the project benefits for each alternative, especially at low levels of throughput. The commenter concluded that the FEIS should also include a sensitivity analysis for reactors shutting down early, which has the effect of reducing the demand for SNF storage. (0198)

The commenter indicated that in calculating the expected production of SNF, no credence is given to the unreliability experienced with respect to some U.S. nuclear reactors based on the following assertions:

There is no sensitivity analysis of anything other than each reactor completing a 40-year operating life with an 80 percent capacity factor. Several plants owned by member reactor licensees have not produced electricity over a significant period of time. Cook Unit I has been off line for three years, since September 1997. Indian Point 2 has not produced power since February 15, 2000. Cook Unit 2 and Clinton were down for a considerable period of time in the late 1990s. In addition, Millstone 2 and LaSalle 2, plants owned by other electric producers, also were down for years. Many reactors have been retired well before their 40-year expected life, including three plants owned by member reactor licensees: LaCrosse, Indian Point I and San Onofre 1. Furthermore, a number of researchers have estimated that several operating reactors will retire early from service. These predictable changes will mean less SNF will be generated, and the need for this proposed PFSF will be correspondingly less.

The commenter concluded that the DEIS should be revised to reflect this reality. (0198)

**Response:**

The NRC revised this FEIS, including Table 1.1, "Site Specific Reactor Information for PFS Member Reactor Licensees," to present updated and current information regarding PFS member reactor licensees.

Regarding the commenter's assumption that the proposed PFSF would receive business primarily from PFS member reactor licensees, the NRC made no such assumption in this FEIS. The NRC updated the benefits and costs analysis in Chapter 8 of this FEIS to include the latest information on the applicant's members. The revisions to Chapter 8 include scenarios that involve the receipt of quantities of SNF in excess of what is owned by the applicant's members.

The FEIS is not required to evaluate the market potential of the proposed PFSF. Chapter 8 in this FEIS evaluates the benefits and costs of the proposed action from a societal perspective, in accordance with NEPA, and not from a market perspective or applicant perspective.

The NRC staff finds that the 80 percent capacity factor for the proposed PFSF is a reasonable assumption based on recent experience with operating reactors. This is an average and is intended to estimate the generation of SNF by many reactors over a long period of time. Because this is an average, it is not useful to compare with specific individual reactors (especially not for short periods of time) as suggested by the comment. While some reactors will operate at lower than 80 percent capacity, others will operate above this level. Also, an individual reactor will be both above and below its average capacity for discrete periods of time. For reactors that are no longer operating, the NRC staff did not include any additional SNF generated from these facilities. Regarding the comment addressing the need for the proposed PFSF, Section G.3.2 discusses the need for the proposed action.

### G.3.19.2.2 Assumption Regarding Storage in Pools in the No Action Alternative

#### Comment Summary:

One commenter stated that it is arbitrary and capricious to assume that the no action alternative would require long-term storage in pools, and it is unreasonable to assume an \$8 million annual pool maintenance cost. Instead, the commenter recommended that the DEIS should have evaluated less costly on-site ISFSIs, with five-year or older cooled fuel and without a supporting SNF storage pool. The commenter concluded that to remove the bias in favor of the applicant and against the no action alternative, the analysis must be revised to delete the costs of maintaining backup pools. (0198)

#### Response:

The NRC staff evaluated the \$8 million annual pool maintenance cost set forth in the applicant's ER (see Section 8.1.2.4 in this FEIS) and used a range of costs from \$6 to \$10 million to test the sensitivity of this assumption. The NRC staff agrees that in some cases transfer from at-reactor pool storage to dry storage could reduce at-reactor storage costs for the no action alternative. Although this potential reduction has not explicitly been included in the FEIS analysis, because only a limited number of reactor sites would be economically attractive for this option, the lower value of \$6 million assumed for pool storage in the sensitivity analysis (see Table 8.3 in this FEIS) would likely encompass the potential savings for utilizing ISFSIs in situations where they would be less costly.

### G.3.19.2.3 Assumption Regarding A Permanent Repository

#### Comment Summary:

One commenter stated that the DEIS incorrectly assumed that deliveries to the permanent geologic repository would be based on the oldest fuel first principle (OFF), when priority for ranking fuel shipments is determined by the Standard Contract between reactor licensees and DOE as contained in 10 CFR 961.11. According to the commenter, the Standard Contract has provisions that allow SNF from shut down reactors to have priority, thus negating one of the applicant's stated major benefits. (0198) The commenter also stated that the DEIS analysis of transport related costs and risks should not assume that the geologic repository will be at Yucca Mountain, especially since NRC stated in its 1990 Waste Confidence Decision (and affirmed in the 1999 review) that the Yucca Mountain site should not be assumed to be the location of long-term storage for SNF. (0198)

More specifically, the commenter indicated that the NRC staff's conclusion that the proposed PFSF is a superior alternative is based in large part on its assertion that some reactor licensees would have to delay decommissioning of closed reactors for years due to their poor position in the DOE's priority ranking queue for the geological repository. The commenter stated that the NRC staff's assertion is based on the faulty assumption that all movements of SNF from commercial reactors to the geologic repository are governed by an OFF priority system.

The commenter indicated that some problems with this assumption are that it is both factually incorrect and unreasonable, and that the priority ranking for SNF shipments into the geologic repository is determined by the Standard Contract between the reactor licensees and DOE contained in 10 CFR 961.11. According to the commenter, this contract has three provisions of interest in the current context:

- (1) a general statement that the priority for SNF deliveries to the geologic repository will be based on the relative age of the reactor licensees' SNF;
- (2) a provision that allows reactor licensees to trade their priority rankings within the OFF queue. This provision allows the creation of a market where a utility with old SNF but no shortage of space

could contract with another utility with young SNF and a space problem to allow the younger SNF to be sent first; and,

- (3) a provision that notwithstanding the age of the SNF priority may be accorded any SNF removed from a civilian nuclear power reactor that has reached the end of its useful life or has been shut down permanently for whatever reason. (10 CFR 961.11)

The commenter indicated that given these provisions of the Standard Contract, it was clearly arbitrary and capricious for the agency staffs to conclude (e.g., in DEIS, Section 8.3) that a major benefit of the proposed PFSF is that it would solve the SNF storage problem for reactor licensees with plants awaiting decommissioning and unfavorable OFF queue position problems. The commenter added that the DEIS failed to document that such a problem existed as a practical matter and it did not address the provisions of the Standard Contract (especially Article VI(B)(I)(b)), which appear to deal with the issue and provide a resolution. Accordingly, the commenter recommended that the NRC should revise its analysis underlying Chapter 8 of the DEIS in light of the provisions of the Standard Contract cited above. (0198)

**Response:**

The NRC staff also agrees that the Standard Contract between reactor licensees and the DOE has a provision that allows shut-down reactors to have priority in shipping SNF to the permanent repository. Individual reactor licensees may or may not elect to trade priority allocations within the OFF queue based on other considerations. Accordingly, the Standard Contract's provision for this type of priority for shutdown reactors but does not necessarily ensure that power reactor licensees would ever exercise such options to reallocate OFF priority for their SNF.

The NRC staff agrees that reactors may not ship SNF to the permanent repository on the OFF principle in all cases as modeled in the DEIS. The NRC staff believes that, if no other factors came into play, a licensee owning multiple reactor sites would have some economic incentive to attempt to reduce its at-reactor storage costs by reallocating priority rights to the repository among its reactors. To the extent that the DOE approves such reallocations, this would reduce the costs of the no action alternative. However, the NRC staff also notes that other considerations (e.g., political and other difficult-to-quantify social considerations) make it difficult to determine the true extent to which these reallocations might actually be used. Therefore, any attempt to quantify the economic benefits or costs of this activity would be speculative and therefore no change to the EIS has been made.

Regarding the comment about the proposed Yucca Mountain repository, the benefits and costs analysis in this EIS does not assume that the permanent repository would be located at Yucca Mountain, Nevada. With regard to the costs of shipping SNF to a permanent repository, these costs would be borne by DOE. The NRC staff has not included these costs in the analyses for this EIS. The comments regarding transportation risk are addressed in Section G.3.16.

**G.3.19.2.4 Assumption Regarding Discount for Overpacks and Canisters**

**Comment Summary:**

One commenter stated that the assumption, which is reflected in both Table 8-2 and Table 8-3 on page 8-5 of the DEIS, that the applicant has a 30 percent cost advantage for overpacks and canisters is biased in favor of the applicant. The commenter stated that the FEIS should incorporate equal costs in the sensitivity analysis. (0198)

**Response:**

The NRC staff finds that the proposed PFSF would receive a significant cost savings from vendors for purchasing canisters and overpacks. Because the applicant would be purchasing in much larger

quantities than individual reactor licensees, it would receive significant price discounts justified by lower production costs due to economies of scale. This is not a bias in the analysis. Although the potential effects of cost differences less than 30 percent have not been modeled explicitly, the sensitivity analysis in Table 8.3 of this FEIS presents data for cases when the costs for the proposed PFSF are 10 percent higher and 10 percent lower than in the applicant's base case.

### **G.3.19.2.5 Assumed License Period**

#### **Comment Summary:**

One commenter stated that the DEIS fails to reflect that the application is for a 20-year license because it incorrectly uses a 40-year accumulation of net benefits. The commenter added that the DEIS sensitivity analysis does not provide a 20-year scenario, and should be rewritten. (0198) The commenter also stated that decentralized at-reactor storage benefits and costs must be compared to the applicant's centralized storage and to the Federal centralized storage proposed at Yucca Mountain. Further, the commenter asserted that for proposed decentralized storage, the economic costs should include licensing a decentralized ISFSI, ISFSI construction, casks, and staff (unless the Federal government assumes the burden) until SNF is transported and the possession-only license is relinquished. The commenter asserted that under the applicant's proposal, the economic costs should include the casks, staff, transportation, Rowley Junction facility costs, licensing, and decommissioning the facility. The commenter stated that under Federal interim storage, all transportation and storage costs would be paid out of the Federal Waste Management Fund. The commenter added that the proposed PFSF is considered for a 20-year license, and suggested a more reasonable projection would be 60 years or more. (0198h)

Nonetheless, the commenter recommended that Chapter 8 be revised to reflect that the action being considered here is for a 20-year license, stating that there is the possibility of a subsequent 20-year license, but that license is not at issue here, nor is it automatic. The commenter asserted that any subsequent license issuance would depend on data not available in this proceeding. (0198)

#### **Response:**

The NRC revised the benefits and costs analysis in Chapter 8 of this FEIS in response to the comment. The analysis more conservatively now presents the costs associated with a single, 20-year operating license period. The DEIS included a comparison of the "decentralized at-reactor storage costs" (i.e., the costs of the no action alternative) with the "PFS centralized storage cost" as recommended in the comment, and this FEIS updates that comparative analysis. Also, the NRC has added a new Section 6.7.10 to this FEIS to discuss the costs of the no action alternative. The consideration of the costs of "Federal centralized storage at [the proposed] Yucca Mountain" (as recommended in the comment) is beyond the scope of this FEIS, since such costs are not germane to the licensing decision under evaluation in this FEIS.

### **G.3.19.2.6 Construction Schedule**

#### **Comment Summary:**

One commenter stated that it is important to have a construction schedule to accurately assess benefits and costs. (0198)

#### **Response:**

The construction of the proposed PFSF would occur in three phases, depending on its maximum capacity (see Section 2.1.1.2 of this FEIS). Most of the construction, and, therefore, capital costs for the project, would occur in the first phase and would be completed within 18 months after the appropriate licenses and permits were granted by the NRC and the Cooperating Agencies. Section

2.1.1.2 of this FEIS describes the timing of the construction phases. After the first phase, which would provide the necessary facilities to make the proposed PFSF operational, additional storage pads would be added throughout the facility's operating life as needed. The NRC has included the timing of costs, as appropriate, in the benefits and costs analysis in Chapter 8.

### **G.3.19.2.7 Sensitivity of the Benefits to a Delay in Opening the Proposed PFSF**

#### **Comment Summary:**

One commenter stated that the DEIS did not analyze the potential for delay. If the proposed PFSF is delayed by even two years, the commenter asserts that the net benefit of the proposed PFSF would be greatly reduced.

More specifically, the commenter stated that many of the net benefits of the proposed PFSF described in Table 8.3 of the DEIS will become negative if the proposed PFSF is delayed by only two years. The commenter asserted that the applicant's assumptions are unusually biased in favor of the proposed PFSF, e.g. the proposed PFSF is given a 30 percent cost advantage for overpacks and canisters, and most nuclear power plants would continue to keep SNF in storage ponds after the reactors are closed. The commenter added that the DEIS describes a "detailed chain of logic" (DEIS, page 8-2) which leads from the ERI April 2000 report to the figures in Tables 8.2 and 8.3 (ERI, "Utility At-Reactor Spent Fuel Storage Costs for the Private Fuel Storage Facility Benefits and Costs Analysis Revision 2," April 2000).

The commenter received a copy from the applicant of the proprietary data supporting the ERI report, after entering into a Confidentiality and Non-Disclosure agreement with ERI. The commenter noted that the net benefits of the proposed PFSF accepting SNF in the years 2002 and 2003 in the ERI April 2000 report are reflected in the overall net benefits of the proposed PFSF in the various scenarios in Tables 8.2 and 8.3. If this is so, the commenter asserted that the net benefits shown in Tables 8.2 and 8.3 would be greatly overstated if the proposed PFSF is not available to accept waste in these early years. According to the commenter, the proprietary ERI analysis shows that a delay in opening the proposed PFSF could greatly reduce the net benefits and the DEIS does not adequately address these concerns.

The commenter also stated that a defensible DEIS would have a well prepared sensitivity analysis. The commenter asserted that the sensitivity analysis in the DEIS needs to be redone to correct for all of the problems identified in these comments, including:

- The lack of a small SNF throughput scenario;
- The re-specification of the analysis to reflect the benefits and costs of a 20-year PFSF;
- The lack of an analysis of the impact of a second away-from-reactor ISFSI competitor to the proposed PFSF;
- The lack of an analysis of the impact of transshipment of SNF between reactors on the benefits and costs of the proposed PFSF;
- The unreasonable \$8 million per year pool spent fuel maintenance cost;
- The lack of timing scenarios of when the proposed PFSF would come online relative to when a permanent geologic repository would come online;
- The assumption in the transportation analysis that Yucca Mountain will be the site of the permanent repository; and

- The lack of a 2025 permanent repository scenario.

This commenter added that the sensitivity analysis in the DEIS is arbitrary and capricious for these reasons and must be redone. (0198)

**Response:**

The NRC staff agrees that a two-year delay in the proposed PFSF would potentially reduce its net benefits. The NRC updated the analysis of net benefits calculated in Section 8 of this FEIS to reflect that the proposed PFSF would begin operations in 2003, instead of in 2002 (as assumed in analyses presented in Section 8 of the DEIS). The effect of this assumption is implicit in the benefits and costs that are presented in Tables 8.2 and 8.3 in this FEIS.

The NRC has not accepted any other application for an equivalent off-site ISFSI for review. Therefore, it would be speculative to attempt to predict when, if ever, such a facility would come online. Without knowing when such a facility would come online, it would be difficult to determine what type of impact the facility would have on the flow of SNF to the proposed PFSF.

In general, a second away-from-reactor ISFSI would reduce the net benefits of the proposed PFSF, because it would tend to reduce demand for alternate SNF storage. However, because of economies-of-scale, there would be a large competitive advantage for the initial away-from-reactor ISFSI that becomes operational. Therefore, the effects of such alternatives on the proposed PFSF project are not necessary to evaluate in the FEIS.

As stated above, the NRC staff reanalyzed the benefits and costs of the proposed action based on a 20-year license term, and this analysis is not based on the establishment of a permanent repository. Based on current DOE projections, a permanent repository is scheduled to open by 2010, which could be within the initial 20-year license term proposed for the PFSF. See Sections G.3.19.2.3 and G.3.19.2.5. In addition, transfers of SNF from one reactor to another (G.3.19.2.10), the small throughput scenario (G.3.19.2.8), and spent fuel pool costs (G.3.19.2.2) are addressed in other sections of this Appendix.

Many of the issues identified by the commenter were addressed by the sensitivity analysis. The NRC staff concludes that the sensitivity analysis is adequate.

### **G.3.19.2.8 Lack of Small Throughput Scenario Assumptions**

**Comment Summary:**

One commenter stated that the small throughput scenario (i.e., a capacity of 6,600 or 8,000 MTU and SNF throughput of 12,565 MTU from PFS members only, DEIS, page 8-1) is one of the applicant's most likely scenarios, and it is arbitrary and capricious to delete it from consideration. The commenter also stated that NRC has failed to release the volume capacity under the proposed license, and has failed to analyze volumes that are under the volume specified in the proposed license or the small throughput scenario, and this is unfair to the public and a violation of NEPA. To analyze the small throughput scenario the commenter added that the FEIS should also include sensitivity analysis on timing issues regarding the availability of the proposed PFSF relative to the needs of its customers, the availability of a permanent repository, and the 20-year life of the proposed PFSF.

The commenter asserted that (1) if the proposed PFSF were to come online in 2003 and accept only a limited amount of SNF each year, and (2) the permanent repository were to come online in 2010 with a policy of accepting SNF from decommissioned or decommissioning reactors on a priority basis, and (3) the proposed PFSF had to get all its SNF off-site before the expiration of its 20-year license in 2021, then the applicant's market share might well be so small that it would not be a viable operation. If under these circumstances the proposed PFSF would not be viable, the commenter added that no

benefits would accrue because it cannot be assumed that the proposed PFSF would, in fact, operate even if the NRC granted it a license.

The same commenter stated that the DEIS analysis is unreasonable in that it ignores or assumes away timing issues, and that Chapter 8 needs to be rewritten to reflect timing factors in the net benefits of the proposed PFSF, the Wyoming alternative, and the no action alternative. The commenter added that at the heart of the applicant's proposal is "interim" storage which is, in essence, a timing issue. The commenter stated that net benefits depend on timing, yet other than the 2010 versus 2015 scenarios for [the proposed] "Yucca Mountain" (but not 2025), the NRC staff has completely disregarded timing as a major variable. The commenter added that the timing of the proposed PFSF, reactor need given the alternatives, and the timing of a competing facility, are all assumed to be fixed, or are ignored altogether. The commenter concluded that this is especially unreasonable because the NRC itself has assumed that a permanent facility would only be available by 2025. (55 FR 38502, September 18, 1990.)

The commenter stated that Chapter 8 of the DEIS eliminates consideration of the small throughput scenario for the proposed PFSF (pages 8-1 to 8-2). The commenter added that the only apparent reason for the deletion is that as a result of NRC's confidential evaluation of the applicant's financial qualifications "a license condition has been proposed that would require the applicant to have service agreements providing for long-term storage of SNF in excess of the 8,000 MTU capacity scenario." (DEIS page 8-2) The commenter added that the NRC staff has kept the volume capacity under the proposed license condition confidential. The commenter recommended that the DEIS be rewritten to include an analysis of a small throughput scenario based on the volume capacity under the proposed license condition. (0198)

#### **Response:**

As presented in Section 8.1 of this FEIS, the NRC staff based the exclusion of the small throughput scenario from the analysis on the existence of an NRC license condition that would ensure the applicant had existing service contracts in excess of the small throughput capacity of 8200 or 9600 MTU. The NRC revised Chapter 8 of this FEIS to present the "breakeven" capacity of the proposed PFSF, in lieu of presenting or revisiting the small throughput scenario. In addition, the NRC revised the scenarios analyzed in Chapter 8 to include the consideration of a 20-year license for the facility as suggested in the comment. These timing factors also apply to the costs of the no action alternative. In addition, the timing of decommissioning of the proposed PFSF is discussed in FSAR Section 4.9. The analysis of the Wyoming alternative was performed for siting purposes only to determine if the Wyoming site was obviously superior to the site proposed for the PFSF on the Reservation, and regulations do not require that a benefits and costs analysis be considered for this alternative. The DEIS included an analysis of the timing and availability of a permanent repository. Based on current DOE projections, a permanent repository is scheduled to open by 2010, which could be within the initial 20-year license term proposed for the PFSF. The NRC updated this analysis for the FEIS.

#### **G.3.19.2.9 Impact of a Second Off-Site ISFSI on PFS**

##### **Comment Summary:**

One commenter stated that the DEIS fails to acknowledge that there may be a second off-site ISFSI and does not consider the impact of a second off-site ISFSI on the proposed PFSF alternative, which would have a direct negative impact on the net benefits of the facility. The commenter added that the proposed PFSF's viability depends on the quantity of SNF shipped to it, and the net economic benefits are directly proportional to that quantity, which would be affected by a second off-site ISFSI. The commenter stated that if NRC is no longer contemplating a second off-site license application, the DEIS should clearly state that. In addition, the commenter asserted that the DEIS needs to be revised to reflect whether there is a competing off-site ISFSI, and if so, to describe its impact.



**Response:**

To date, the NRC has not accepted any application for an equivalent off-site ISFSI for review. Therefore, it would be speculative to predict when, if ever, such a facility would come online. Without knowing this, it would be difficult to determine what type of impact the facility would have on the flow of SNF to the proposed PFSF.

In general, a second away-from-reactor ISFSI would tend to reduce the net benefits of the proposed PFSF, because it would reduce demand for alternate SNF storage if one assumes the market can only support one away-from-reactor ISFSI. It should also be noted that away-from-reactor SNF storage demands may be sufficient to support multiple ISFSIs. Therefore, the effects of such alternatives on the proposed PFSF project are speculative and the NRC need not evaluate them in the EIS.

**G.3.19.2.10 Intra-Licensee Transfers of SNF****Comment Summary:**

One commenter stated that the failure of the DEIS to consider intra-utility transshipments of SNF sharply biases the DEIS toward the proposed PFSF and against the no action alternative, especially given that reactor licensees are currently using intra-utility transshipments.

More specifically, the commenter asserted that the NRC staff has ignored the obvious probability (and current reality) of shipments of SNF between facilities owned or controlled by the same utility. Thus, if a utility has several reactors and one on-site ISFSI (or other available storage facility) all in the same general area but not on the same site, the commenter stated that there is no apparent reason why the NRC would not allow the utility to store SNF from some or all of its reactors at a common site. The commenter also stated that the NRC has already held that ISFSIs are, in general, safe, and has allowed transportation of SNF from commercial reactors to away-from-reactor SNF storage facilities in the past. The commenter gave the example of Hatch (sic [Harris]), with SNF transfers from Brunswick and Robinson.

The commenter recommended that the agency staff revise Chapters 8 and 9 of the EIS to reflect the economics of intra-utility multi-site storage sharing. (0198)

**Response:**

The shipment of SNF between nuclear power plant sites has not been addressed in detail in this EIS due to the limited interest expressed by multi-plant reactor licensees and the speculative nature of such assumptions. As indicated in Section 2.2.1.2 of this FEIS, only two instances of intra-licensee transfer of SNF have been approved by the NRC and a third is currently under Commission review. Transfers of SNF between sites would require NRC approval and a license amendment and an associated NEPA review. As the presumption of such actions being undertaken are highly speculative, they do not lend themselves readily to evaluation; hence, the NRC has not considered any intra-licensee multi-site sharing of storage capacity.

**G.3.19.2.11 SNF Shipping Costs****Comment Summary:**

One commenter stated that the costs of shipping SNF across the country are not directly included in the reactor licensees' costs. (SL3-08)

**Response:**

The NRC conducted a benefits and costs analysis for this FEIS, and included the costs of shipping the SNF to Skull Valley as part of the cost of the proposed PFSF (see Section 8.1.1.5).

**G.3.19.2.12 Cost of Railroad Line****Comment Summary:**

One commenter stated that the license application and ROW application do not provide sufficient detail on the costs of constructing, operating, and closing the rail line and the ITF. The commenter added that the DEIS contains no performance or design specification information, such as track rating, switching needs at inter-line connection and facilities, signaling capabilities, travel grades, and other details necessary for an adequate analysis of benefits and costs. (0198i)

**Response:**

The NRC staff reviewed the costs provided by the applicant (in the proprietary Business Plan) for the rail line and the ITF and determined these costs to be reasonable. The comments about design and operation of the rail line and ITF are addressed in Section G.3.16.

**G.3.19.2.13 Utah Regulatory Costs and Bonding Requirements Omitted****Comment Summary:**

One commenter stated that the DEIS fails to reflect the regulatory costs and bonding requirements set forth in the Utah Radiation Control Act. The commenter stated that it is unreasonable to ignore these significant amounts when calculating the costs of the proposed PFSF, and that the agencies should revise their analysis to reflect the requirements, or explain why they should not be included. (0198)

**Response:**

As described in the comment response G.3.3.2.3, the State of Utah does not have civil regulatory jurisdiction over the Reservation of the Skull Valley Band. The proposed PFSF would be located on the Reservation, and, while the Reservation is entirely surrounded by the State of Utah, it is not part of the State. Accordingly, the State does not appear to have the authority to enforce the Utah Radiation Control Act with respect to the proposed PFSF, and the comment does not warrant any change to the analysis set forth in the FEIS.

**G.3.19.2.14 Economic Costs of Alternatives****Comment Summary:**

One commenter stated that the FEIS must consider the costs of alternatives to the proposed action. The commenter stated that the DOE has concluded that costs of a centralized DOE interim facility would exceed costs of on-site management of SNF by \$1.5 billion. The commenter added that the FEIS must also recognize that money expended by private reactor licensees for storage of SNF will have to be reimbursed by the Federal government given recent case law regarding the DOE's failure to take title to the SNF. (0198i)

**Response:**

The NRC staff considered this comment concerning costs of alternatives, and determined that it refers to a statement from testimony given by the former Energy Secretary Richardson before the House

Commerce Committee's Subcommittee on Energy and Power concerning H.R. 45, "The Nuclear Waste Policy Act of 1999."

The staff reviewed this testimony and has determined that the DOE conclusion that the costs of a centralized DOE interim facility would be greater than on-site management refers only to the federal government's portion of the total cost of national SNF storage. This cost to the federal government would not be the same as the social cost perspective presented in the benefits and costs analyses in Chapter 8 in this FEIS. Specifically, the \$1.5 billion mentioned by former Energy Secretary Richardson does not account for the reduction of utility at-reactor SNF storage costs.

In addition, whether the Federal government will have to reimburse private companies for storage of SNF or not does not have any effect on the environmental impacts of the proposed action or the costs or benefits or costs of the proposed action or any alternative evaluated in the FEIS. Accordingly, this comment does not warrant any change to the FEIS.

### **G.3.19.3 Environmental Benefits and Costs**

#### **G.3.19.3.1 Regional/State Environmental Impacts**

##### **Comment Summary:**

Several commenters asserted that the DEIS overstates or misrepresents the benefits to the State of Utah for the following reasons:

- One commenter stated that the EIS should provide more information explaining why residents of Utah should be subjected to the risks associated with the proposed PFSF. (GR-13) One commenter asked how the State of Utah can be compensated for the loss of human life and wildlife, and the loss of environmental quality due to the proposed PFSF. The commenter also asked how one compensates a State for its rising levels of radiation, which, like dioxin, could cause rising levels of cancer, birth defects, and stillbirths. (SL2-14)
- Commenters stated that the DEIS does not include a benefits and costs analysis of the impact the proposed PFSF may have on military operations, which take place on all sides of the proposed PFSF, or on the residents of Dugway and the Dugway Proving Ground. The commenters stated that the cost of restrictions on the operation of the Utah Test and Training Range (UTTR) could have a significant impact on the Utah economy because loss of the UTTR might force the closure of Hill AFB, which employs about 15,000 people. Commenters added that the loss of this Base would be critical to the State and to the national defense, and the impacts on the Tooele Army Depot, the Desert Chemical Facility, and other military installations also have not been analyzed. (GR-01, GR-05, SL2-20)
- Several commenters stated the nuclear reactor licensees will reap most of the benefits of the proposed PFSF and their customers will enjoy rate decreases, while the risks and costs to Utah communities are undervalued or ignored altogether in the DEIS. (0012, 0015, GR-13, SL1-01, SL3-02) One commenter claimed that the paramount, determining issue for the NRC is the savings to utility companies located elsewhere. (0090)
- One commenter stated the DEIS Executive Summary (page xlii, lines 30-47) blurs the important differences between environmental benefits and risks, and economic benefits and risks. The commenter also argued that the nuclear power industry is the only industry not responsible for its waste from "cradle to grave," and it produces waste that is harder to treat, store, or dispose. The commenter asserted that the Executive Summary is not fully correct when it states that failure to license the proposed PFSF will result in an increase in air pollution per unit of electricity when the closure of nuclear power plants increases reliance on fossil fuel powered plants. (0096)

- One commenter stated that if the State lost the UTTR, which is under scrutiny now because of endangered species and wilderness issues, it would also lose Hill Field, the “anchor store” of Utah, and that Hill Field pays \$5.7 billion every year to the State. (GR-01)
- One commenter stated that the DEIS should assess the cost of someone getting cancer from the operation of the proposed PFSF. (SL3-36)

**Response:**

The NRC staff acknowledges the comments and opinions about the accurate portrayal of potential benefits to the State of Utah and the comments expressing the opinion that the benefits have been overstated or misrepresented. For the reasons set forth below, the NRC staff concludes that with the revisions provided in the benefits and costs analysis, Chapter 8 provides an accurate and complete description of the analysis.

The NRC staff notes the concern that Utah citizens will be subject to the perceived risks of the proposed PFSF. This FEIS does not describe any loss of human life, wildlife, or significant loss of environmental quality accompanying the proposed action. The commenter appears to be concerned about accidents that could release radioactive materials over a very large area. The NRC staff reviewed such accident scenarios as part of its safety review and has not found any such events to be credible.

The NRC staff acknowledges the comment requesting a benefits and costs analysis to determine potential impacts to nearby military installations and/or operations. However, the NRC staff did not identify potential impacts to nearby military operations as a result of the proposed PFSF. In regard to the UTTR, the NRC staff met with the U.S. Air Force about the potential for impacts to the UTTR or the mission of Hill AFB. No overflight restrictions are being contemplated to accommodate the proposed PFSF. See FEIS Section 4.5.2.7.

The NRC staff considered the comment that the nuclear reactor licensees would reap the most benefits, and it agrees that the economic advantages of the proposed PFSF would be attractive to several existing nuclear power reactor licensees. However, the benefits and costs analysis in Chapter 8 of this FEIS presents the benefits and costs from a societal perspective and not from the applicant's or nuclear industry perspective. The NRC did not adjust or undervalue the costs or benefits of the proposed PFSF project.

The NRC reviewed the comment that referred to a “blurring” of the differences between environmental benefits/risks and economic benefits and risks in the Executive Summary of the DEIS. The Executive Summary clearly presents headings to indicate that the discussion is focused on “Economic Benefits and Costs” and then is followed by a discussion of “Environmental Benefits and Costs of the Proposed Action.” The NRC staff also acknowledges the comment about the characteristics of the waste from the nuclear power industry. In regard to the comment about increased air pollution, the statement that concerned the commenter has been deleted from the FEIS. The NRC staff notes that nuclear energy would need to be replaced with another form of energy that would generate its own environmental impacts. Such impacts are beyond the scope of this EIS.

The NRC staff considered the comment regarding the cost associated with cancer. In the FEIS Section 4.7.2, the NRC staff evaluated the likelihood of individual cancer cases resulting from exposure to radiation from the proposed PFSF, and concluded that this likelihood is extremely low. Accordingly, evaluation of the costs of such an effect is not required.

### **G.3.19.3.2 Economic Costs of Floods**

#### **Comment Summary:**

One commenter stated that the DEIS does not reference the problems or evaluate the risks of flooding. The commenter added that the DEIS also does not evaluate the financial impacts to remedy flood-related problems, which could result in significant costs to the State of Utah. (0198)

#### **Response:**

In the SER, the NRC evaluated the potential impacts of flooding on the proposed PFSF. Flood protection berms (as described in Section 2.1.1.2) would be installed at the proposed PFSF and would prevent any reasonably foreseeable damage from floodwaters to the proposed PFSF or to the SNF in storage. The DEIS discussed the effects the existence of the proposed PFSF and rail line would have on the natural drainage patterns in the event of a flood. As stated in the DEIS, these impacts would be small. Therefore, any financial impacts to the State of Utah resulting from a flood would not be affected by the presence of the proposed PFSF or rail line.

### **G.3.19.3.3 Earthquake and Seismic Evaluations**

#### **Comment Summary:**

One commenter stated that excluding earthquake and seismic evaluations from the DEIS prohibits participating agencies and the public from evaluating risks, costs, benefits, and separate and cumulative impacts. (0012, SL1-01)

#### **Response:**

The FEIS addresses the environmental impacts of an earthquake. Section 4.7.2.3 discusses the radiological impacts resulting from accidents at the proposed PFSF. The NRC staff, in its safety review, concluded that no credible accident, including an earthquake, would result in a release of radioactive material; therefore, the radiological impacts from accidents, including earthquakes, are small, and no cost analysis of earthquake-related accidents is warranted. Based on the above, the NRC staff did not find that the participating agencies and the public were prohibited from adequately assessing the environmental impacts of the proposed action, including the risks, benefits and costs.

The NRC staff reviewed the proposed PFSF earthquake design against specific requirements in 10 CFR Part 72. The NRC staff presents the details of its review in the SER, as updated. The evaluation concerns the safety of the proposed action, and whether that action satisfies the NRC's safety requirements, but does not consider the environmental impacts of the proposed action. The NRC is not required to request public comment on an SER, nor is it required to repeat its safety evaluation in an EIS. Accordingly, the FEIS does not include the NRC's detailed technical (safety) evaluation. Rather, the FEIS discusses the environmental impacts of the proposed action. Nevertheless, to address this comment, the NRC added a brief summary of the seismic review results to Section 4.7.2.3 of this FEIS.

### **G.3.19.4 Societal Benefits and Costs**

#### **G.3.19.4.1 Benefits: Site or Local Socioeconomic Impacts**

#### **Comment Summary:**

Several commenters asserted that the DEIS overstated or misrepresented the benefits to the Skull Valley Band and Tooele County for the following reasons:

- Two commenters stated the benefits to the Skull Valley Band cited in the DEIS are incorrect, overstated, or are unspecified. (0039, 0077, 0112)
- One commenter said pages xxxvi through xxxvii of the DEIS do not discuss lost economic benefits. (0096)
- One commenter stated that the DEIS violates NUREG-1555 by failing to emphasize significant issues and by overemphasizing the insignificant benefits to the Skull Valley area to promote the proposed PFSF. (0039, 0077)
- The same commenter stated that in Section 4.5.3 of the DEIS (page 4-36, line 1), the effects on the local economic structure would be small during operation of the facility because only 43 workers will be employed and few are likely to be from Skull Valley. The commenter added that the DEIS Executive Summary (page xxxvi) states that workers will come from a commute of up to 90 minutes away, which is outside the Tooele County area. (0039, 0077) The commenter stated that most of the work will be performed by skilled contractors, rather than Native Americans who may not be trained to perform such work. (0077)
- The commenter stated that the benefits to all but a few parties are questionable because in many places the DEIS attributes benefits to the Skull Valley Band without providing a dollar amount, even though amounts are specified for other entities. The commenter argued that the potential economic benefits to the Skull Valley area are small and insignificant; for example, most of the employment opportunities created by the proposed PFSF would be temporary and would not be filled by Native Americans. The commenter asserted that only 225 jobs are identified for the 19-month construction phase and only 43 long-term jobs are expected for facility operations. The commenter also asserted that the DEIS should not include the nebulous statement in Section 4.5.3 (page 4-36, line 4) that operations jobs “might” be filled by Tribal members. Also, the commenter claimed that the DEIS contradicts itself by stating that the economic benefit realized by the small number of jobs is itself “small.” (0039, 0077)
- One commenter said the County will not receive significant tax revenue from the proposed PFSF because it will be on Reservation land, and the Reservation does not pay County taxes. (SL3-46)
- Several commenters stated the benefits would go to a few select groups, (0039, 0053, 0151, 0196), but would not benefit Utah generally. (0039, 0046, 0071, 0160, 0167, SL3-04)
- Commenters stated the applicant may go bankrupt or sell out to another utility consortium that might go bankrupt leaving the Skull Valley Band and the people of Utah to pay for the operation and decommissioning of the proposed PFSF. (0053, 0096, SL3-48)
- One commenter stated that although the rail line could make economic development of Skull Valley more attractive, the ROW requested by the applicant from BLM is only for the applicant’s use. (The commenter cited the DEIS in Section 8.3 page 8-11, lines 3-5) The commenter concluded that there are no additional benefits of the ROW. (0163)
- A commenter stated that the definition of “net economic benefit” as the simple difference between incremental cost of storing SNF at the reactor site and the cost of constructing and operating the proposed PFSF does not account for the environmental impacts or increased risks. (0090, SL3-02)

**Response:**

The DEIS presented the benefits and costs of the proposed action on the local, regional, and State economies. With regard to the comment about the nature of payments from the applicant to Tooele County, the text has been revised in Section 4.5.2.8 of this FEIS to characterize the anticipated

revenues to the County from the applicant as payments in excess of \$91 million over the life of the project (based on a proposed agreement negotiated between the applicant and Tooele County). While, these monies are not tax payments, they would be significant revenues for the County. The discussions of these economic impacts are found in Sections 4.5.1.8 and 4.5.2.8 of the FEIS.

One comment, that the Skull Valley benefits and costs analysis is incorrect, does not provide supporting detailed information, and therefore a specific response is not necessary. Similarly, it is not clear what the commenter means by “economic benefits lost,” hence, the NRC cannot develop a specific response. If the commenter is referring to the economic costs, then Chapter 8 of this FEIS addresses the subject.

In regard to NUREG-1555, that document contains the NRC’s standard environmental review plan for nuclear power plants. The NUREG document specifically applies to new license applications for such plants, and is not applicable to the proposed PFSF.

Regarding the comment on local economic structure, Sections 4.5, 5.5, and 6.1.5 of this FEIS assess the impacts on the economic structure of Tooele County to be small but favorable. With respect to the concern about the residential location of operations workers, the DEIS stated that jobs would likely be filled by workers from Tooele County or from other counties within commuting distance, not necessarily from outside Tooele County, as the commenter asserts. The NRC staff attempted to be straightforward in estimating the number of jobs associated with each stage and element of the proposed action without overstating or understating the magnitude of economic benefits.

Regarding employment opportunities for Native Americans, the DEIS did not estimate the number of jobs that would go to Native Americans but does conclude that job opportunities would be greater for members of the Skull Valley Band. Although the applicant has not committed to a specific number or type of jobs that might be filled by Tribal members, it has committed to training and development for Tribal members in its ER (Section 7.2). The lease also requires the applicant to provide employment preference first to members of the Skull Valley Band. The NRC and the Cooperating Agencies have inserted language in Sections 4.5.1.8, 4.5.2.8, and 5.5.1.1 of this FEIS to clarify the potential for employment of Tribal members.

The comment about benefits going to select groups and not to Utah generally is not supported by any specific factual assertions, and does not require a response. Nevertheless, see FEIS Section 4.5.2.8 for a detailed discussion of the economic benefits for the proposed PFSF and the expected recipients.

Regarding the possibility of this applicant or a future license holder going bankrupt, the NRC license would provide for the establishment of a “decommissioning fund” that would ensure sufficient funds are available to adequately decommission the facility. This fund would exist and be available, even if the applicant or a future licensee holder were to go out of business.

The NRC acknowledges the comment about the use of the rail line by the applicant. If a ROW were to be granted, the applicant would have the only foreseeable use for such a rail line. Nevertheless, the presence of this new rail line could provide transportation infrastructure to make the economic development of Skull Valley more attractive to other potential users of the rail line.

In regard to the definition of the “net economic benefit,” the definition and approach used in the benefits and costs analysis in Chapter 8 of this FEIS is valid and appropriate. The economic analysis does not attempt to include environmental effects and transportation or other risks of the proposed action which are assessed elsewhere in the FEIS (see Chapters 5 and 6, and Section 8.2).

### G.3.19.4.2 Inadequate Data on Benefits and Costs of the Lease Agreement

#### Comment Summary:

Several commenters requested that more information about the lease agreement be made available. (0163, 0198, 0240, SL1-15, SL3-48) Specific comments about the lease agreement include the following:

- One commenter said the DEIS Executive Summary provided estimates of the economic benefits to the County and State, but does not estimate the lease payments to the Skull Valley Band. (SL1-15)
- One commenter stated that despite the NRC's responsibility to require the applicant to provide quality information to stakeholders, documentation of benefits and costs has not been shared with the Skull Valley Band, the people of Utah, or the cities and states through which the SNF will pass. (SL3-48)
- One commenter stated that the lease agreement, conditionally approved by the BIA, including payments to the Skull Valley Band and to Tooele County, must be made publicly available. (0198, 0198i) The commenter argued that these are major Federal actions, and therefore the lease should be made publicly available to determine the appropriateness of these Federal decisions, as well as to determine the benefits and costs to the Skull Valley Band. (0198) The commenter asserted that there is insufficient information for an adequate analysis of the proposal's benefits and costs because the impacts of the financial commitments governing the lease cannot be known unless the complete lease agreement is available. (0198h, 0198i)
- Two commenters stated that the FEIS should evaluate how the Skull Valley Band, the BIA, and the DOI may incur financial responsibility if future actions by the applicant result in excess liability or damage to Tribal lands. (0198, 0240)
- One commenter stated that the description of environmental benefits in Section 8.2 (page 8-10, lines 12-23) should include the payments to Tooele County under the agreement with the applicant, in addition to the payments received by the Skull Valley Band. (0163)

#### Response:

The NRC staff reviewed the license application in accordance with requirements of 10 CFR Part 72. The benefits and costs analysis was part of the DEIS and included estimates of direct and indirect economic benefits, including increased tax revenues to both Tooele County and the State of Utah. The DEIS recognizes the positive economic benefit to the Skull Valley Band. The details of the lease, including the amount of the payment, are subject to review and approval by the BIA pursuant to the requirements of 25 CFR Part 162. In addition, NRC regulations and NEPA, which outline the requirements for an NRC EIS, do not require an evaluation of how financial responsibility may be incurred by other parties (i.e., Federal agencies or Tribes) if future actions by the applicant result in excess liability or damage to Tribal lands. Therefore, this type of analysis is beyond the scope of this EIS. 25 CFR Part 162 also requires the lessee to post bonds or other assurances to guarantee its performance of lease obligations.

Several commenters wanted the amount of the lease payment to the Skull Valley Band listed as an economic benefit. The amount of the lease payments from the applicant to the Skull Valley Band under the lease is not included in the FEIS because that information is confidential and proprietary to the Skull Valley Band and the applicant. See *State of Utah v. United States Department of the Interior*, Consolidated Case No. 2:98 CV 380 K (D. Utah November 3, 1999). Payments to Tooele County are addressed in G.3.19.4.1.



### G.3.19.4.3 Other State or National Impacts

#### Comment Summary:

Several commenters addressed the proposed PFSF's impacts on states other than Utah, and on the nation as a whole. (0015, 0020, 0070, 0198, 0198h, SL1-05, SL1-15, SL2-07, SL3-04) Commenters asserted the DEIS overstated or misrepresented the benefits to other states and the nation for the following reasons:

- One commenter stated that the economic benefits to private industry should not outweigh the environmental impacts, potential loss of life, and increased risk of accidents and a price cannot be placed on the risks associated with transporting SNF across the country. The commenter added that there is no guarantee that negative, long-lasting impacts to people, land, and ecosystems will not occur. (SL1-05)
- A commenter stated that the risks to the people of Utah would increase while risks would decrease for people near nuclear power plants. The commenter asserted that no nuclear power plants are in jeopardy of being shut down if the proposed PFSF is not built. (0015)
- Two commenters said Utah would be stigmatized by the proposed PFSF and this stigma will adversely affect Utah's economy and ability to grow. Specifically, the commenters stated that the economy will suffer due to decreased property values and economic losses to the agricultural industry, the tourist industry, and other industries. The commenters concluded that these costs should be included in the DEIS. (SL2-07, SL3-04)
- A commenter stated that the DEIS should not weigh costs to reactor companies and other communities more heavily than costs to Utah communities. The commenter added that the people of Utah would not benefit from ensuring nuclear power output and reducing SNF storage costs, things the DEIS cited as beneficial. The commenter stated that if the proposed PFSF is approved, built, and operated, Utah will bear the risks of transporting an enormous volume of SNF throughout the State; bear risks associated with having communities near storage bear negative economic impacts; lose use of public lands and enjoyment of wildlife and recreation in Skull Valley; bear the costs of training emergency responders and medical personnel; and continue to bear the costs of Utah's own power production externalities, including costs associated with air pollution. (0198)
- The commenter stated that some items identified as costs for the no action alternative are actually policy choices, including local prohibitions on storing additional SNF. Thus, the commenter concluded that the DEIS should not consider the consequences of these choices as costs that justify the proposed PFSF. (0198)
- The same commenter stated that the financial impacts to ratepayers should be considered. The commenter asserted that ratepayers have already paid for SNF disposal by the Federal government, and concluded that ratepayers will be paying twice if funds from public facilities are committed to fund a second storage facility. (0198h)
- A commenter stated that the costs of not building an SNF storage facility should be included. The commenter added that ratepayers pay the Federal government \$3 million each day for SNF storage, and a permanent facility is many years from completion. (0020)

#### Response:

The NRC staff acknowledges the comments stating that the DEIS overstates or misrepresents the benefits to other states and the nation. To the extent that the costs of storing SNF at the proposed

PFSF are less than the costs of other storage options, the proposed action would reduce net costs to the ratepayers of those licensees which decided to use the proposed PFSF.

Regarding the comment about economic benefits not outweighing environmental impacts, potential loss of life, and increased risk of accidents, the benefits and costs analysis presented in Chapter 8 of this FEIS was prepared from a societal perspective, not from the reactor licensees' or the applicant's perspective. This FEIS does not describe any potential loss of life or significantly increased risk of an accident that would accompany the proposed PFSF. One commenter appears to be concerned about accidents that could release radioactive materials over a very large area. The NRC staff's safety review considered such accident scenarios and did not find any such events to be credible. Accordingly, the NRC staff finds that this EIS does not weigh the benefits to reactor licensees more heavily than environmental costs. The staff notes the opinion offered in the comment about Utahns not benefitting from the nation's continued use of nuclear power.

The comment referring to "negative, long-lasting impacts" is not specific. The proposed PFSF would be temporary and would not be expected to produce any adverse long-term impacts.

In regard to the comment about risks near operating nuclear plants and the possibility that operating nuclear plants would be shut down, the risks associated with the transport, handling and storage of the SNF are analyzed in this FEIS and are considered to be small (see Sections 4.7 and 5.7). This FEIS indicates that the operating status of power plants could be diminished as storage space for SNF continues to diminish.

The basis for the stigma described in the comment is not clear. EISs are only required to consider the effects of a proposed action upon the physical environment. See Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766 (1983). The elements of public perception, including stigma, fall outside of this definition of "real and tangible" impacts; hence, the type of cost analysis suggested in the comment is beyond the scope of this FEIS. A more complete discussion of property value impacts is discussed in Section G.3.13.2.8 of this FEIS.

Regarding the comment about policy choices, the NRC staff has not included or analyzed the costs of shutting down reactors due to site-specific SNF storage prohibitions in the benefits and costs analysis in Chapter 8. The staff agrees that the costs identified in the comment are related to policy choices and are speculative. However, it is useful to realize that the economic costs of this particular policy choice could be potentially reduced if the proposed PFSF becomes an alternative for SNF storage.

In regard to the comment about financial impacts to ratepayers, it is true that reactor licensees have passed nuclear power generating costs to the ratepayers to pay for a national permanent geological repository for SNF. However, in the absence of such a national repository for SNF, reactor licensees are passing on to ratepayers the costs of continuing to store SNF at power reactor sites. For some reactor licensees, the proposed PFSF could offer an economical alternative to continued at-reactor storage. To the extent that the costs of storing SNF at the proposed PFSF were less than the costs of other storage options, the proposed action may reduce net costs to the ratepayers of those reactor licensees who decided to use the proposed PFSF.

Regarding the comment about including the costs of not building the proposed PFSF, such an analysis is included in Chapter 8 in this FEIS as part of the "no action alternative." In addition, the NRC staff added a new section, Section 6.7.10 in this FEIS to describe the economic costs of not building the proposed PFSF in Skull Valley (i.e., the no action alternative).

#### **G.3.19.4.4 Costs Related to Emergency Response**

##### **Comment Summary:**

Several commenters stated that the potential cost of a transportation accident and the equipment needed to respond were not adequately considered in the DEIS. (0012, 0023, 0217, 0240, 0246, SL1-01, SL1-39, SL2-05) Another commenter stated that the DEIS should consider the costs to the local emergency services network. The commenter added that the FEIS should discuss the liability issues related to the involvement of volunteers responding to a radiological emergency. (0171) Other commenters stated that cost considerations should include emergency response needs, local emergency response training, equipment for radioactive incidents, and additional training for medical personnel. (0198, SL3-04) One commenter questioned the impacts of not providing funding for emergency response. (0198h) The commenter stated that the applicant's ER does not identify emergency response costs adequately, as follows: The applicant cited in the ER, Table 7.1-1 that emergency response costs are quantified; Table 7.3-1 does not contain a category for emergency response costs; and the applicant claims it is lumped into operating expenses. The commenter asked what the costs are and how the NRC can evaluate information that is not provided. The commenter therefore asserted that the entire Table 7.3-1 is so general, without any supporting information or breakdown of information, that it is useless, and that 10 CFR 51.45(c) was intended to require more information than is included. (0198b)

##### **Response:**

In its emergency plan, the applicant has identified equipment and personnel capable of responding in emergency situations at the proposed PFSF. (The Emergency Plan was evaluated by the NRC in its safety review and is discussed in the SER.) The applicant's emergency plan for the proposed PFSF also includes provisions for training entities providing emergency response assistance. The training will include facility orientation, exposure guidelines, personnel monitoring devices, and basic contamination control principles (PFS/EP 2000. "Emergency Plan, Private Fuel Storage Facility, Skull Valley Indian Reservation, Tooele County, Utah, (Rev 10)," NRC Docket No. 72-22, Private Fuel Storage, LLC). All states provide emergency response for transportation accidents involving hazardous material. There are a number of shipments of radiological materials within the State of Utah, for which the State already provides capable emergency response. The North American Emergency Response Guidebook for First Responders involving hazardous materials, developed in part by DOT, does not distinguish between the actions needed for an SNF shipment and other shipments containing radioactive materials (U.S. Department of Transportation. "2000 Emergency Response Guidebook, A Guide for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident"). Therefore, an assumption that additional cost would be incurred for unique or different training to respond to potential transportation accidents involving SNF does not appear to be justified. Further, as the staff stated in Section G.3.16.6.1, the costs of a severe transportation accident are determined by highly uncertain variables and the resulting costs themselves are highly uncertain. Accordingly, the NRC need not consider such costs in the FEIS.

As for the comment directed to the applicant's ER, Chapter 8 of this FEIS presents the NRC staff's analysis of the benefits and costs of the proposed project, and includes all operating costs, including costs of emergency preparedness at the site level. Emergency preparedness resources at the local or state level are addressed above.

#### **G.3.19.4.5 Costs Related to Sabotage/Terrorist/Terrorist Attacks**

##### **Comment Summary:**

One commenter stated that the EIS should mention that a terrorist action could cost billions of dollars. (SL1-32) The commenter indicated that the EIS should include the economic impacts associated with

terrorists detonating a nuclear device at the proposed PFSF. (SL1-32) Another commenter noted that costs of train accidents or terrorist attacks are enormous and must be considered in the EIS. (SL2-05)

**Response:**

Since sabotage is a deliberate malevolent act, a meaningful probability of likelihood cannot be assigned. However, the NRC protects against potential events by assuring that adequate physical protection plans are in place for nuclear facilities. The NRC staff has determined that the physical protection plan for the proposed PFSF meets the current physical security and safeguards requirements in 10 CFR 72.180 and 73.51, and that the plan demonstrates capabilities for the protection of stored SNF. This is documented in the SER.

Any costs resulting from sabotage would involve hypothetical consequences from a speculative, hypothetical successful attack. Accordingly, the cost associated with a successful sabotage event is highly uncertain, and was not estimated in the FEIS. See Section G.3.15.6.1 for additional discussion. Economic cost of potential transportation accidents and compliance with Part 73 requirements are discussed in Sections G.3.16.6 and G.3.16.10 respectively.

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### **G.3.20 General Environmental Comments (not Resource-Specific)**

#### **G.3.20.1 Adequacy of DEIS**

##### **Comment Summary:**

Several commenters indicated in general comments that the DEIS is inadequate. (0012, 0015, 0023, 0112, GR-11, GR-13, SL1-01, SL1-07, SL1-19, SL1-37, SL1-39, SL3-02, SL3-04, SL3-28) Other commenters stated that the DEIS does not stand on its own as an analytical document that fully informs decision-makers and the public of the environmental effects of the proposed action. (0039, 0211, SL1-07, SL2-02)

The specific comments were:

- The DEIS fails to consider or evaluate any form of pollution other than radiological. (0198)
- The DEIS does not address “risk” in terms of what is ethical and fair, what is necessary, or who benefits. (0015) The science of the DEIS should be balanced by consideration of human and civic issues. (0015, GR-13)
- The DEIS does not address significant potential environmental impacts of the project, and, without the SER, the safety conclusions are unsubstantiated. (0215)
- The DEIS should consider potential impacts for the entire State of Utah and all states through which SNF will pass. (0198, SL1-39)
- More detailed maps of the proposed site and the area directly adjacent to the site need to be included in Chapter 3 of the DEIS. The maps provided do not show salient features referenced in the text (Hastings Pass, test pits, soil borings, stock ponds/reservoirs, springs other than Horseshoe Springs). (0039, 0077)
- The DEIS should be further refined to provide additional information where needed to address issues raised during the public meeting. (SL1-19)
- The DEIS fails to address indirect impacts of the proposed action. (SL1-28)
- The DEIS fails to give adequate consideration to reasonably foreseeable potential adverse environmental impacts during storage of SNF at an ISFSI. (0198a)
- The DEIS fails to analyze the impacts on Nevada of locating 40,000 metric tons of SNF in western Utah. The project would impact transportation, emergency management, land use, and property values in Nevada and the DEIS should address those impacts. (0171, SL1-14)

##### **Response:**

The DEIS considered impacts to the Reservation of the Skull Valley Band, surrounding areas, and the State of Utah, as well as impacts from the cross-country transport of the SNF. The NRC and the Cooperating Agencies examined environmental consequences for a wide variety of actions associated with the proposed PFSF, including accident scenarios involving the SNF; the associated cost of the accidents; and impacts related to construction and normal operation of the proposed PFSF. The Cooperating Agencies examined potential impacts to air and water quality, biological and geological resources, historic resources, scenic resources, and socioeconomics. No significant adverse impacts from the proposed action were identified. The NRC staff has included a summary of the proposed PFSF seismic analysis in this FEIS. More in-depth accident scenarios, including seismic potential analyses, can be found in the SER, as updated, and need not be duplicated in the EIS.

The NRC staff prepared the DEIS to conform to the CEQ's regulations for implementing NEPA. The process undertaken to implement NEPA includes public scrutiny, scientific analysis, and expert agency comments. The NRC staff reviewed the DEIS and concluded that the findings presented in the document are sound and scientifically defensible. The NRC staff conducted adequate analyses of indirect and direct impacts for the EIS. Each subsection of Sections 4 and 5 of this FEIS addresses both direct and indirect impacts of the proposed action. The analysis of risk in the EIS is based on technical considerations and is not influenced by what groups may potentially be affected. The analysis of risk does not include a discussion of ethics, which is beyond the scope of the document. The cost-benefit analysis presented in this FEIS shows the specific construction and operation costs of the proposed action, as well as benefits to the local, regional and State economies. Sections 4.5.1.8 and 4.5.2.8 of this FEIS present the economic analysis of the construction and operations impacts for the proposed action. The anticipated benefits and projected costs associated with the proposed action are discussed in Section 8.

The design and operation of the proposed PFSF would conform to the NRC safety regulations delineated in 10 CFR Parts 71 and 72. These regulations include specific requirements for the transportation, physical protection, and safe storage of SNF. The applicant would be required to satisfy all applicable regulations.

With regard to the comments on the detail of the maps, the features mentioned were identified on maps in Sections 3.8 and 3.12 of the DEIS. The test pits and soil borings (used in the staff's safety review of seismic design) are not identified because the NRC staff decided that level of detail was not necessary for this FEIS. The NRC staff did not include that level of detail in order to focus on larger environmental issues. See Section G.3.9 for a more detailed discussion of the maps in this FEIS. A detailed discussion of the NRC staff's seismic analysis is contained in the SER, as updated.

There is no clear link between the potential impacts to Nevada and the proposed PFSF in Skull Valley, Utah. To the extent that SNF might be shipped through Nevada (either to, or away from, the proposed PFSF), Section 5.7 of this FEIS presents the potential human health radiological impacts of such shipments.

### **G.3.20.2 Accuracy of DEIS**

#### **Comment Summary:**

Several commenters provided general comments that the DEIS is inaccurate. (0015, 0039, 0077, GR-11, GR-13, SL1-07, SL3-02, SL3-04, SL3-28) One commenter provided comments on the characterization of impacts, stating that impacts should be described as "beneficial" or "detrimental" when appropriate (e.g., Table 4.5 of the DEIS, "Potential Impacts to Socioeconomic and Community Resources During the Operation of the Proposed PFSF"). (0171) One commenter stated that the DEIS fails to emphasize significant issues and falsely over-emphasizes non-significant issues. The commenter cited examples regarding the distance of the nearest capable fault and the percentage of wetlands in Skull Valley. (0039, SL2-02)

#### **Response:**

The DEIS followed the mandate of 40 CFR 1500.1(b) to provide information that reflects "accurate scientific analysis" and "expert agency comments." NEPA implementing regulations state that impacts may be beneficial or adverse, but that any impacts must be considered in both their "context" (human context, geographical context, etc.) and "intensity" (the severity of the impact). (40 CFR 1508.27) A standard of significance for characterizing impacts has been established by the NRC (NUREG-1437) and is used in the DEIS (see page xxxiv of the DEIS).

The DEIS follows the implementing regulations of NEPA by focusing on significant issues. Both the scoping process and agency coordination were used to identify significant issues pertaining to the

proposed action, per 40 CFR 1501.7. The specific issues included in the comment regarding the nearest capable fault and wetlands are addressed in Sections G.3.9 and G.3.12, respectively.

### **G.3.20.3 Incomplete License Application**

#### **Comment Summary:**

One commenter stated that there are substantial and significant omissions and inadequacies in the license application. The commenter added that the NRC staff is aware of these inadequacies, as evidenced by RAIs issued to the applicant by the NRC staff for the SER. The commenter inquired how new information would be included in the EIS scoping and evaluation and how new data and information would be made available to the public. The commenter recommended that the NRC staff delay the EIS until the license application is complete, if the NRC staff cannot define a process that provides scoping, analysis, and evaluation of all issues. (0198h)

#### **Response:**

This comment was based on the applicant's ER. All material the applicant provided to the NRC, with the exception of proprietary information, is available to the public. Information received in response to RAIs was used to update the applicant's SAR and ER. The updated SAR and ER are also available for public review. The scope of the DEIS was based on a full and complete understanding of the proposed action and all data the NRC staff deemed necessary from the applicant. The scope of the DEIS was also based on public scoping comments. The DEIS addressed the deficiencies discussed in the comment. During the public comment period on the DEIS, four public meetings were held in the Salt Lake City and Grantsville, Utah, areas to allow for public input. Furthermore, the public comment period on the DEIS was extended from a 45-day minimum to 90 days to allow sufficient time for written public input.

### **G.3.20.4 ITF Impacts**

#### **Comment Summary:**

One commenter expressed concern about the potential impacts of the proposed ITF resulting from its close proximity to I-80, the Industrial Salt plant, and the Timpie Springs Wildlife Management Area. (0198i)

One commenter stated that the proposed ITF and the use of heavy-hauling trucks should be avoided because of impacts to surface water, groundwater, and potential springs; the increased risks of transferring SNF from rail to heavy-haul trucks; increased traffic; wildlife roadkill; and impacts to the scenic beauty of the area. (0039, 0077)

#### **Response:**

The NRC staff acknowledges the comments opposing the proposed ITF and the use of heavy-haul trucks on Skull Valley Road. The FEIS concludes that the new rail line from Skunk Ridge is preferable to the proposed ITF and the use of Skull Valley Road. Chapter 5 of this FEIS addresses transportation impacts of the proposed ITF near Timpie on the resource areas specified in the comment.

### **G.3.20.5 General Comments on Direct Impacts**

#### **Comment Summary:**

Several commenters provided general comments on direct impacts and opposition to the project. These concerns included the following:



- Three commenters expressed concern about safety for Utah residents and the environment in the event of an accident or exposure. (0147, 0205, 0207)
- Two commenters stated that the environmental risks are too great to pursue the proposed PFSF. (0001, SL3-04)
- Another commenter stated that there is a perception that Utah is the downwind dumping ground of the West. (0131)
- Another commenter expressed concern that the proposed PFSF would not be clean. (GR-06)

Several other commenters stated that the potential impacts of the proposed PFSF would be negligible. Their comments included the following:

- Several commenters stated that the potential environmental impact of the proposed PFSF would be small and the DEIS is adequate. (0016, 0020, 0179, 0235, 0236, 0259, GR-02, GR-10, SL1-03, SL1-19, SL1-33, SL2-10)
- One commenter stated that impacts from the project would be less than the impacts from construction of I-15 or the Micron facility. (SL3-03)
- Another commenter stated that nothing would be left behind when the SNF is eventually shipped to a Federal waste repository. (SL2-10)
- One commenter said that the potential environmental impacts of the proposed PFSF must be considered seriously, because the facility could sustain the present and future generations of the Skull Valley Band. The commenter explained that the Skull Valley Band has looked at all sides of this issue - the Skull Valley Band's General Council began researching the feasibility of a temporary storage facility 10 years ago. The Skull Valley Band received grants to study SNF storage nationally and internationally, and discussed the project with environmentalists and anti-nuclear activists. The commenter stated that the Skull Valley Band has gained considerable experience in monitoring and protecting their environment. (GR-02)

#### **Response:**

The NRC staff acknowledges the concern about environmental risks. The DEIS considered impacts to the Reservation, surrounding areas, and the State of Utah, as well as cross-country transport of the SNF. Environmental impacts were examined, including potential impacts to water quality, air quality, and biological resources. The impacts were identified for normal operation of the proposed PFSF and under accident scenarios. No significant adverse impacts were identified.

Accidents at the proposed PFSF are addressed in the SER. No credible accidents were identified that would result in the large-scale dispersion of radioactive materials. Section 5.7 of this FEIS presents the risks from radiological doses that would be associated with rail accidents. These risks would be very small. See Section 5.7 of this FEIS for a complete description and evaluation of the impacts.

The NRC staff acknowledges the comments, indicating the potential impacts of the proposed PFSF would be negligible. The EIS identifies the positive indirect impacts. These include socioeconomic benefits to the Skull Valley Band and the project region.

### G.3.20.6 Cumulative Impacts

#### Comment Summary:

Several commenters expressed concern that the DEIS does not adequately address the cumulative impacts of the project. (0012, 0158, GR-09, SL1-01, SL1-28, SL3-25) Specifically, commenters indicated the following:

- One commenter stated that the DEIS relies on a determination that impacts from the proposed PFSF would be small enough to forego any determination of current and reasonably foreseeable exposure levels, which is inappropriate under NEPA. (0158)
- One commenter said that without a seismic analysis, cumulative impacts cannot be analyzed. (0012)
- One commenter stated that impacts from a facility for Greater than Class C Waste could also be approved in the area and combine with impacts from the proposed PFSF. (GR-10)
- A commenter stated that Utah is home to the largest toxic air polluter in the United States, two chemical weapon incinerators, a hazardous waste incinerator, a hazardous waste landfill, a radioactive waste landfill, a massive bombing range, and a proving ground for biological and chemical warfare agents. (SL1-09) Another commenter stated that the cumulative impacts analysis does not adequately evaluate the collective, interrelated, and cumulative impacts of the facilities in the region. This analysis is lacking the insight addressed in the scoping hearings and in Section 2.2.3 of the Scoping Issues Summary. (0171)
- One commenter stated this area of the country has already suffered enough, and was past its capacity to handle the numerous toxic facilities located in the surrounding areas. (0249)
- One commenter indicated the NRC should evaluate the combined risk of the proposed PFSF and of the Envirocare facility. (SL3-47)
- Three commenters indicated that Utah already has a number of hazardous waste facilities, and the commenters suggested that the power plants that create the waste should store it at their own facilities. (0249, SL1-20, SL3-32)
- One commenter expressed concern about public safety, stating that the United States is moving forward with nuclear energy without long-term data to understand future impacts; (0083) and two commenters asked how the long-term impacts of weather, earthquakes, and environmental factors can be well understood when the industry has only been storing SNF for a dozen years. (0076, SL3-16)

One commenter stated the DEIS must consider the cumulative impacts of the proposed PFSF and the numerous other facilities and activities in the West Deseret area. (0198h) The commenter stated that:

- This area is already the storage site for 42 percent of the U.S.'s stockpile of chemical weapons. The malfunction and crash of a cruise missile on the adjacent DPG, as well as crashes of F-16s on maneuvers over the adjacent UTTR are well documented;
- Within a 30-mile radius of the proposed site, there are two hazardous waste incinerators, one hazardous waste land disposal site, one NORM/Mixed waste/11(e)2 waste disposal facility, the single largest Toxic Release Inventory air pollution source in the United States (Magnesium Corporation of America, Rowley, Utah facility), and operations for stockpile and destruction of conventional munitions;

- DPG is also the designated landing site for NASA's Stardust spacecraft and the MUSES-C Asteroid Mission, a Japanese mission with NASA participation; and
- The NRC has a responsibility under NEPA to know, evaluate, and mitigate the cumulative impacts of the proposed action, or to disapprove the proposed PFSF. The commenter stated that Utah and the Reservation are not safe places to store SNF. (0198h)

**Response:**

The cumulative impacts analysis methodology is described in Section 6.3 of the DEIS. The analysis includes past, present, and reasonably foreseeable impacts in the region, including those associated with the facilities mentioned in the comment. The location of other regional activities is identified in Figure 1.1, "Regional Location of Skull Valley in Utah." The NRC staff identified no adverse cumulative impacts associated with the proposed action. Reasonably foreseeable effects are generally considered in the context of indirect effects (40 CFR 1508.8(b)). The NRC staff did not identify any reasonably foreseeable indirect effects indicating adverse impacts from exposure levels. The impact assessment for the proposed PFSF considers environmental factors across a wide range of resources and media. The NRC staff reviewed the potential for impacts from earthquakes in Section 15 of its SER, as updated.

**G.3.20.7 Mitigation Measures****Comment Summary:**

One commenter questioned why mitigation plans are not developed prior to the issuance of the FEIS. For example, the commenter added that mitigation plans will be developed later to deal with noxious weeds, restoration, and revegetation; fire suppression; and wildlife monitoring. The commenter also stated that rail line construction will be implemented according to a memorandum of agreement (MOA) that is not available to the public or otherwise explained in the DEIS. The commenter stated that an SPCC plan is said on page 5-10 to be forthcoming, but it is referenced only for Alternative 3. Lastly, the commenter added that the NRC staff will be consulting with the DOD and will later address military concerns in some agreement or document. (0156)

A second commenter stated that in evaluating environmental impacts, it is unclear how a determination is made about whether impacts will need to be mitigated, if the mitigating measures are not known. The commenter added that both 10 CFR 72.100, and 40 CFR 1502.16 require a minimum description of mitigation measures and an evaluation of the effects on the regional environment. (0198b)

One commenter stated that the DEIS includes recommended mitigation procedures throughout the document, and that the applicant has reviewed them and expects to commit to all of them. (SL1-23)

**Response:**

There is no regulatory or legislative requirement that formal mitigation plans are developed and adopted prior to issuance of the FEIS (*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352-53 (1989)). NEPA requires only that the EIS discuss possible mitigation measures in sufficient detail to fairly evaluate environmental consequences. Therefore, mitigation plans for noxious weeds, revegetation, wildlife monitoring, etc., are not included in the DEIS but will be developed and put into place prior to any facility construction.

The NRC staff reviewed the applicant's ER and additional sources of information to determine what level of environmental impacts would be associated with the proposed action. The NRC and the Cooperating Agencies recommend specific mitigation measures be required. These mitigation measures are described in Section 9.4.2 of the DEIS. If these mitigation measures are required by

the NRC or the Cooperating Agencies final approval documents, the applicant's compliance to mitigation commitments will be determined through appropriate oversight by the NRC staff or the appropriate Cooperating Agency.

Section 5.2.4, "Mitigation Measures," references a Best Management Practices Plan to address spills on site, at the rail siding, and along the existing rail line and is not limited to Alternative 3. To the same end, the Cooperating Agencies have also proposed that PFS be required to be responsible for clean-up of any spills or accidents on the PFSF, at the rail siding, and along the right-of-way for the rail line, in accordance with applicable standards. See Section 9.4.2 of this FEIS. Additionally, the NRC staff has consulted with the DOD, and no formalized agreement or documents are needed for the proposed project because the effects of the proposed action on military operations in the area would not be sufficient to warrant an agreement.

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## G.3.21 Financial Qualifications

### G.3.21.1 Compliance with NRC Requirements

#### Comment Summary:

Many commenters asserted that the DEIS did not demonstrate that the applicant has the financial capacity to construct, operate, and maintain the facility or has sufficient funding to respond to a major accident. (0012, 0015, 0030, 0038, 0039, 0042, 0058, 0060, 0077, 0083, 0090, 0096, 0130, 0134, 0171, 0198, 0198h, 0198i, 0201, 0214, 0240, 0246, 0262, GR-21, GR-22, SL1-01, SL1-05, SL1-07, SL1-10, SL1-15, SL1-20, SL1-32, SL1-38, SL2-05, SL2-07, SL2-20, SL3-02, SL3-04, SL3-18, SL3-25, SL3-33, SL3-47, SL3-48) Several commenters provided the following additional specific concerns:

- Two commenters stated that the DEIS should evaluate the establishment of a bond or trust fund adequate for the government to operate, or remediate an accident at, the proposed PFSF in case the applicant is not financially able to do so. (0240, SL3-47)
- One commenter stated that the funding requirements are not only critical to safety concerns but also to the level of maintenance, and the timeliness and effectiveness of decommissioning. The commenter added that the environmental consequences that flow from under-capitalization and operating on a shoestring budget must be addressed in the FEIS. The commenter added that the FEIS should compare this project with ISFSIs authorized under the NWPA that are owned and operated by DOE and have the full financial backing of the United States government. (0198h)
- The same commenter stated that the DEIS does not address the applicant's financial responsibility and liability to ensure impacts to the environment and human health will be minimized. The commenter explained that the applicant claims to be a limited liability company with no assets of its own, and as a limited liability company, each member utility company that forms PFS would not be individually liable nor will its assets be individually at risk. The commenter explained further that if the applicant does not have adequate financial resources to safely operate the proposed PFSF, the DEIS evaluation is meaningless. The commenter asserted that NRC has not required the applicant to submit detailed financial information. Prior to license issuance, the commenter stated, NRC will not require the applicant to demonstrate that it will likely be able to obtain sufficient funds to build, operate, and close the proposed facility. The commenter stated that, instead, NRC will allow the applicant to build the proposed PFSF upon a showing that the applicant has sufficient commitments, rather than actual funds in hand, to fund phased construction. Also, the commenter stated that NRC will allow the applicant to operate if it has contract commitments, not funds, to cover costs of storing the volume of waste covered by the applicant contracts. (0198)
- Two commenters stated that the DEIS does not address who would pay if a catastrophic disaster occurred, exceeding the assets and insurance of the applicant, and whether the assets of the utility companies could be reached. (0090, 0096, SL3-02)

#### Response:

Whether the applicant has demonstrated that it would be able to obtain funds sufficient to build, operate, and close the proposed PFSF in accordance with the NRC's regulations has no effect on the environmental impacts of the proposed action or its costs or benefits. Rather, the evaluation of the applicant's financial qualifications is part of the NRC safety review, and consistent with NRC practice is documented in the NRC's SER. As documented in the SER, the NRC staff found that the applicant had demonstrated compliance with the applicable financial-related regulatory requirements provided certain conditions were met.

This issue was one matter in a proceeding before the Atomic Safety and Licensing Board. The Commission has determined that PFS' commitments are such that the facility will not be built or operated if PFS cannot raise sufficient funds. The Commission required that the applicant's commitments be made conditions to the PFS license. *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-00-13, 52 NRC 23, 32 (2000). In view of the above, the creation of a bond or trust fund by the Federal government, as suggested by two commenters, is unnecessary.

One commenter asserts that the NRC "will not require [the applicant] to demonstrate that it will likely be able to obtain sufficient funds," and that the NRC "will allow [the applicant] to build the [proposed PFSF] upon a showing that [the applicant] has sufficient commitments, rather than actual funds in hand, to fund phased construction." The NRC's regulations, however, explicitly permit an applicant to demonstrate that it (a) possesses the necessary funds or (b) has reasonable assurance of obtaining the necessary funds. 10 CFR 72.22(e). Section 72.22 does not require an applicant to have funds "in hand." Rather, the Commission has approved the use of license conditions to enforce the applicant's commitments as part of the applicant's showing of financial assurance, and determined that the applicant may rely on service agreements with customers to establish financial qualifications. *Private Fuel Storage, L.L.C.*, CLI-00-13, 52 NRC at 32. Further, the Commission has imposed a license condition so that the facility will not be built or operated if the applicant cannot raise sufficient funds. *Id.* at 31.

Regarding the concerns about the applicant's financial capacity in the event of an accident, the NRC staff notes that as described in Sections 4.7 and 5.7 of the FEIS, it evaluated the risk of an accident at the proposed PFSF and the health risk resulting from a potential transportation accident. Based on these evaluations, the NRC staff concluded that there is no credible accident scenario at the proposed PFSF that would result in the release of radiation. The NRC staff also concluded that the health risk of a transportation accident during the life of the proposed PFSF is very small. In Section G.3.16.6.1, the staff stated that the costs of a severe transportation accident are dependent on highly uncertain variables, and the resulting costs themselves are highly uncertain.

In addition, the applicant will carry \$200 million in off-site liability insurance and additional insurance from private sources pursuant to the Price-Anderson Act (42 USC 2210) to cover accidents related to SNF transportation.

### **G.3.21.2 Applicant's Financial Qualifications in the Application**

#### **Comment Summary:**

One commenter indicated that the applicant is a newly formed special purpose entity without an operating record. Thus, according to the commenter, the regulatory standards in 10 CFR Part 50 for financial qualifications of newly formed entities must be applied to the applicant's license application. The commenter provided a detailed discussion of the provisions of 10 CFR Part 50 and the reasons why the commenter concluded that the applicant does not satisfy these requirements. (0198a) The commenter stated that contrary to the requirements of 10 CFR 72.22(c) and 72.40(a)(6), the applicant has failed to demonstrate that it is financially qualified to engage in the 10 CFR Part 72 activities for which it seeks a license. According to this commenter, the 10 CFR Part 72 standard, which is very general, may be interpreted by reference to the standards for financial qualifications set forth in 10 CFR Part 50 and Appendix C. (0198a)

The commenter stated that the financial qualification information in the application is extremely limited. The commenter asserted that the applicant's financial qualifications to carry out the activities it proposes under this license application and the information the applicant submitted to demonstrate its financial qualifications are deficient in the following respects:

- The commenter stated that information in the application about the legal and financial relationship among the owners of the limited liability company (i.e., the license applicant) is deficient. This

extremely limited information does not even begin to satisfy the NRC's financial qualifications requirements to engage in the 10 CFR Part 72 activities it proposes under this license application. (0198a)

- The commenter stated that as part of the applicant's demonstration of financial qualifications, the applicant must be required to submit a current statement of its assets, liabilities, and capital structure. (0198a)
- The commenter stated further that the applicant has failed to show that it has the necessary funds to cover the estimated operating costs over the planned life of the proposed PFSF because the application is devoid of specific cost estimates. (0198a)
- The commenter also stated that in the ER (Table 7.3-1), the applicant aggregated all direct costs into one lump sum of \$100 million for initial costs to site the facility, the costs to engineer and construct the facility, and annual costs associated with the Tribal lease, maintenance, operation, transportation, security, license fees, and taxes. According to the commenter, the applicant's representations are meaningless, because they cannot be evaluated unless each portion of the construction costs is specified and the basis for each cost estimate is provided. (0198a)
- The commenter stated that the applicant appears to have significantly underestimated construction costs. The commenter stated that the applicant's construction cost estimates are less than one-fifth of DOE's estimates for a MRS to be located at the same Skull Valley Reservation, although the applicant proposes to store twice as much SNF as DOE proposed for the MRS. (0198a)
- The commenter stated that according to the license application the applicant plans to raise additional capital through "service agreements" with customers and that terms of the service agreements, such as costs, periodic terms, liability, performance, and breach clauses, are not provided. (0198a)
- The commenter stated that the applicant should document an existing market and the commitment of a sufficient number of service agreements to fully fund construction. In addition, the commenter stated that there must be sufficient funds committed for operation, decommissioning, and contingencies for the number of casks contracted to fund construction. (0198a)
- The commenter further stated that the applicant describes in the license application an option to finance construction costs through debt financing secured by service agreements. The commenter asserted that debt financing will not be viable until a minimum value in service agreements is committed. According to the commenter, the applicant has therefore failed to show that it has reasonable assurance of obtaining necessary funds through debt financing. (0198a)
- The commenter indicated that according to the license application, "ongoing operations and maintenance costs ... will be paid by the customer on an annual basis." The commenter stated that although the applicant states that it will require financial information from its "customers," it has not addressed funding contingencies in the event a customer breaches the service agreement or becomes insolvent while the customer's SNF is stored at the proposed PFSF. The commenter asserted that the applicant does not provide reasonable assurance that adequate funds are available to ensure the safe operation and maintenance of SNF storage in the event of insolvencies, or while disputes are being resolved. (0198a)

**Response:**

One commenter questioned the basis for the applicant's estimate of construction costs, and, with reference to DOE's costs estimates for a monitored retrievable SNF storage facility in Skull Valley,



asserted that the applicant had significantly underestimated such costs. The commenter did not provide sufficient detail or support for its statement, therefore, the FEIS has not been changed. The applicant's estimate of its costs was subject to litigation during the June 2000 hearing held before the Atomic Safety and Licensing Board (ASLB) in Salt Lake City, Utah. The issue is currently pending before the ASLB. The NRC staff reviewed the applicant's cost estimates and considered them to be sufficiently detailed and adequate. The ASLB's decision on this matter may modify this FEIS, if necessary, and will, in effect, become part of this FEIS. See *Louisiana Energy Services, LP* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 89 (1998). The staff considered these above costs in performing its analysis of benefits and costs in the FEIS. With respect to the other comments on this issue, as described in Section G.3.21.1, the NRC staff's evaluation of the applicant's financial qualifications are described in the SER. The applicant's financial qualifications are considered as part of the safety review and are not considered in the environmental review. The comments are beyond the scope of the EIS and do not warrant any change or addition to the NRC staff's evaluation of the environmental impacts of the proposed PFSF as set forth in this FEIS.

However, it should be noted that an applicant for a license under 10 CFR Part 72 is not required to satisfy the detailed financial qualifications requirements of 10 CFR Part 50. See *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-00-13, 52 NRC 23, 30 (2000). Rather, 10 CFR Part 72 sets out a broad standard that provides a flexibility that 10 CFR Part 50 does not. The NRC staff's evaluation of the applicant's financial qualifications is set forth in the SER. The NRC staff concluded that the applicant satisfied all financial requirements in 10 CFR Part 72. As described in Section G.3.21.1, the Commission subsequently directed the NRC staff to include several license conditions to address the financial qualifications of the applicant.

### G.3.21.3 Applicant's Status as a Limited Liability Company

#### Comment Summary:

Several commenters expressed concern about the applicant's status as a limited liability company under normal conditions and those following an accident. These commenters questioned who would be responsible for costs in the event of an accident. (0030, 0042, 0096, 0171, 0198h, 0201, 0262, SL2-05, SL3-02, SL3-04) Other commenters were concerned that other entities, such as the State of Utah, Utah residents, or taxpayers would have to bear the financial consequences of an accident. (0038, 0090, GR-21, SL1-05, SL1-15, SL1-20, SL1-38, SL2-07, SL3-18) Other commenters asserted that the applicant alone should be held financially accountable in the event of an accident and not hide behind an umbrella company with no assets. (0015, 0060, 0083, 0198h, 0214, GR-22, SL1-05, SL1-10, SL1-20, SL2-05, SL2-07, SL3-18, SL3-25, SL3-33) Several commenters provided the following additional specific comments:

- Two commenters stated that the DEIS should describe and define the applicant's status as a limited liability company (one commenter referenced page 1-1 of the DEIS). (0096, SL3-02)
- One commenter stated that the applicant does not enjoy limited liability status under Utah law. Limited liability is a privilege granted by State law, and by virtue of its activities the applicant is not considered a limited liability corporation. (0198, 0198i)
- Two commenters asserted that all eight applicant member reactor licensees should be individually liable to the full amount of their assets, in order to ensure that the State of Utah would not be responsible for maintenance and cleanup. (0246, SL1-20)
- One commenter stated that the DEIS fails to address what would happen if the cleanup costs of an accident bankrupts the State of Utah's annual budget. (0096)
- Another commenter stated that the applicant has not accounted for the difficulty of allocating financial responsibility when casks are centrally stored and owned by different entities. (0198a)

**Response:**

The NRC staff recognizes the concerns expressed in the comments regarding the applicant's status as a limited liability company, however, the corporate structure of the applicant is not related to the environmental review. Therefore, a discussion of the applicant's corporate structure is not included in the FEIS. As part of its safety review, the NRC staff reviewed the financial qualification of the applicant to assure adequate funding would be available to construct, operate, and decommission the proposed PFSF in accordance with the NRC's regulations.

As described above in Section G.3.21.1, the NRC staff evaluated the safety of the proposed PFSF in the SER and the potential human health impacts in the EIS. As described in Section 4.7 of the FEIS, the NRC staff concluded that there are no credible accident scenarios at the proposed PFSF that would result in the release of radiation. As described in Section G.3.21.1, the applicant would obtain \$200 million of off-site liability insurance, which is the maximum amount available for the proposed PFSF. The NRC staff has established specific license conditions that require the applicant to maintain on-site and off-site liability assurance. The license conditions also require the applicant to establish service agreements with individual reactor licensees storing SNF at the proposed PFSF. The service agreements identify specific terms of service including liability. Further, each individual owner of the SNF would be responsible and liable for the shipment of the SNF to the proposed PFSF. See Section G.3.16.6.1 (costs of a severe transportation accident are uncertain).

**G.3.21.4 Liability Limitations in the Proposed Lease****Comment Summary:**

One commenter stated that there should be further evaluation in the FEIS of how the Skull Valley Band, the BIA, and the DOI may incur financial responsibility if future actions by the applicant result in excess liability or damage to Tribal lands. The commenter stated that lease requirements for liability insurance do not ensure that the applicant will be held liable for potential environmental and human health impacts. The commenter asserted that unless there is neglect or misconduct on the part of the applicant, the lease agreement limits the applicant's liability to one similar to any commercial facility, and the liability is not directly tied to the actual amount of potential damage. (0240)

Commenters stated that the Price-Anderson Act does not indemnify a private away-from-reactor storage facility, and the NRC has no on-site nuclear property or insurance requirements. According to the commenters, if there is an accident or other problem, the applicant's liability under the lease agreement with the Skull Valley Band is normally limited to the money available through commercially reasonable nuclear liability insurance, even if actual costs are much higher. The commenters conclude that there are no assurances that potential on- or off-Reservation impacts from an on-site incident will be properly addressed. (0012, 0198, SL1-01)

**Response:**

The proposed lease provides for other forms of financial assurances for the Skull Valley Band (in compliance with the BIA regulations) in addition to nuclear liability insurance. Such assurances are intended to address potential impacts to trust resources from an onsite incident. The proposed lease also provides that, should the lease be assigned, the assignee shall agree in writing to be bound by all the terms and conditions of the lease.

Regarding the comment that the NRC has no on-site nuclear property or insurance requirement for a private-away-from-reactor storage facility, the NRC staff evaluated the potential impacts of normal, off-normal, and accident conditions and concluded that there are no credible accidents at the proposed site that would result in a release of a radioactive material. As set forth in the NRC's SER, as updated, the facility is designed to prevent significant releases of radioactive material upon the

occurrence of a reasonably foreseeable event. Therefore, accidents at the proposed PFSF that would result in a significant release of radioactive material and lead to large cleanup and remediation cost are remote and speculative and need not be addressed in the FEIS. In addition, the Commission has ordered that the applicant's commitment to obtain \$200 million of off-site liability insurance be incorporated into the PFS license. *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-00-13, 52 NRC 23, 32 (2000). Such insurance would provide additional financial coverage for reasonably foreseeable events for which the proposed PFSF is designed. The Commission also directed the staff to include as a license condition a PFS commitment to obtain insurance covering on-site liability in an amount to be determined at a hearing. See *PFS*, CL1-00-13, 52 NRC 23, 36 (2000).

### G.3.21.5 Location and Timing of Financial Evaluation

#### Comment Summary:

Two commenters expressed concerns about the timing and availability of the financial analysis in relation to the EIS and agency decisions.

- One commenter stated that because the NRC is deferring any financial evaluation, the Cooperating Agencies, the BLM, the BIA, and the STB will be asked to make decisions before a financial analysis is completed. The commenter stated that the environmental consequences that may flow from PFS's lack of a solid financial foundation cannot be assessed. The commenter asserted that the BLM, the BIA, and the STB will need to make an independent analysis of the environmental impacts associated with granting approval for their respective Federal actions to a corporation that claims limited liability and no assets. (0198)
- One commenter stated that the evaluation of the applicant's financial capacity should be described in the DEIS, rather than the SER. (0240)

#### Response:

While the NRC staff had not issued its evaluation of the applicant's financial qualifications when this comment was submitted, that evaluation is now complete and is available to the Cooperating Agencies. As documented in the NRC's SER, the applicant has demonstrated that sufficient funding will be available to construct, operate, and decommission the proposed PFSF in accordance with the NRC's regulations. Given such a demonstration, there are no specific issues related to the applicant's financial qualifications that would impact the environmental review. Therefore, such a discussion was not included in the FEIS. In addition, the Cooperating Agencies have completed their independent review of the environmental impacts of the proposed PFSF as documented in the FEIS.

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SL1-07	Downwinders (Erickson, Steve)
SL1-08	Scientists for Secure Waste Storage (Barrowes, Steve)
SL1-09	Families Against Incinerator Risk (Groenewold, Jason)
SL1-10	Webster, Mariann
SL1-11	Webster, James
SL1-12	Citizens Against Radioactive Waste in Utah (McConkie, James)
SL1-13	Nevada Agency for Nuclear Projects (Frishman, Steve)

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SL1-14	Trichel, Judy (Nevada Nuclear Waste Task Force)
SL1-15	Schmidt, Jerry
SL1-16	Nelson, Steve
SL1-17	Skull Valley Goshute Indians (Black Bear, Sammy)
SL1-18	Evelt, Donald
SL1-19	Scientists for Secure Waste Storage (Hoffman, R.J.)
SL1-20	Roos, Jeri
SL1-21	The Sierra Club, Utah Chapter (King, Cindy)
SL1-22	O'Neal, James
SL1-23	Private Fuel Storage (Northard, Scott)
SL1-24	Barlow, Kee Y.
SL1-25	Wallace, Volley
SL1-26	Ohngo Gaudadeh Devia (Bullcreek, Margene)
SL1-27	Peine, Hermann
SL1-28	Mingo, Richard
SL1-29	Rasmussen, Dana
SL1-30	Skull Valley Goshute Indians (Bear, Lawrence)
SL1-31	Jarvis, Boyer
SL1-32	Cowley, Michael
SL1-33	Howard, Blain
SL1-34	Kirkpatrick, Robynne
SL1-35	Jensen, Jon
SL1-36	Nuclear Information and Resource Service (Kamps, Kevin)
SL1-37	Bulisova, Gabriela
SL1-38	Snake River Alliance (Bradford, Beatrice)
SL1-39	Citizens Against Radioactive Waste in Utah (Cynthia of the Desert)
SL1-40	Nuclear Energy Institute (Unglesbee, Steven W.)
SL1-41	University of Missouri (Miller, William)
SL2-01	Waggoner, Tom - Clearfield City Mayor/Utah Defense Alliance
SL2-02	Jenkins, Robin
SL2-03	Peterson, William
SL2-04	Scientists for Secure Waste Storage (Barrowes, Steve)
SL2-05	Anderson, Ross C. - Salt Lake City Mayor
SL2-06	Warner, Sean
SL2-07	Schitzel, Dina
SL2-08	O'Neal, James
SL2-09	Iosepa Historical Association (Hoopiiiana, Cory)
SL2-10	Northern States Power Company (Northard, Scott)
SL2-11	Utah Defense Alliance (Bushnell, Mark)
SL2-12	Citizen Alert (Backlund, Kaitlan)
SL2-13	Iwamoto, Jani
SL2-14	Citizens for Environmental Responsibility (Davis, Anita)
SL2-15	Doebbeling, Denise
SL2-16	Audubon Society of Great Salt Lake (Salt, Jeff)
SL2-17	Citizen Alert (Garrett, Jo Anne)

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SL2-18	JEDI Women (Macri, Bonnie)
SL2-19	Garcia, Francis
SL2-20	Nielson, Dianne (Utah Department of Environmental Quality)
SL2-21	Ghandi Peace Center (Matuso, Joe)
SL3-01	Bear, Leon (Skull Valley Goshute Indians)
SL3-02	Gilbert, Kathleen
SL3-03	Sandquist, Gary
SL3-04	Citizens Against Radioactive Waste in Utah (Swardhansen, Ann)
SL3-05	Utah Association of Realtors (Brubaker, Mac)
SL3-06	Dickson, Mary
SL3-07	Lazar, Elise
SL3-08	Lazar, Gerald
SL3-09	Haggerty, Bern
SL3-10	Utah Association of Realtors (Holmstead, Ken)
SL3-11	Cook, Merrill - Congressman
SL3-12	Welles, Marylyn T.
SL3-13	Willie, Kyle
SL3-14	Knutson, Emil
SL3-15	Webb, Justin
SL3-16	Ellsworth, Sharon
SL3-17	Vogt, Sharon
SL3-18	Roos, Jeri
SL3-19	Roberts, Todd
SL3-20	Utah Defense Alliance (Rush, Steve)
SL3-21	Benchley, Darin
SL3-22	Cathey, Randee
SL3-23	Jensen, Jon
SL3-24	Beckstead, Evan
SL3-25	Kirkpatrick, Jeanee
SL3-26	Sorenson, Heidi
SL3-27	Cathey, Tully
SL3-28	Utah Defense Alliance (Pavich, Michael)
SL3-29	Peterson, Tim
SL3-30	Utah Defense Alliance (McCall, Vickie)
SL3-31	McConkie, Paul
SL3-32	Sustainable Salt Lake/Green Party (Archibald-Stone, Penny)
SL3-33	Families Against Incinerator Risk (Reading, Karla)
SL3-34	Kearn, Dau
SL3-35	Families Against Incinerator Risk (Rosco, Cynthia)
SL3-36	United States Public Research Group (Gordon, Joseph)
SL3-37	Rose, Jackson
SL3-38	Van Dam, Lynn
SL3-39	Utah Association of Realtors (Jerman, Teri)
SL3-40	Green Party of Utah/Sustainable Salt Lake (Fife, Scott)
SL3-41	Niederman, Elizabeth

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SL3-42	Nelson, Mark
SL3-43	Stats, Kathleen
SL3-44	Brehm, Michael
SL3-45	Wrathall, Deborah
SL3-46	Lord, Judy
SL3-47	Groenewold, Jason
SL3-48	Women Concened/Utahan United (Holtz, Mary)
SL3-49	Ward, Chip
SL3-50	Peterson, William
SL3-51	Peterson, William
SL3-52	Jenkins, Robin
SL3-53	Barrowes, Steve
SL3-54	Kirkpatrick, Robynne
SL3-55	Citizens Against Radioactive Waste in Utah (Cynthia of the Desert)
SL3-56	Nielson, Dianne (On behalf of Governor Leavitt)
SL3-57	Hoopiianian, Cory
SL3-58	Private Fuel Storage (Northard, Scott)