

**COMMENTS SUBMITTED BY THE STATE OF UTAH**

**September 20, 2000**

on the

**DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)**

**For the Construction and Operation of an  
Independent Spent Fuel Storage Installation  
on the Reservation of the Skull Valley Band  
of Goshute Indians and Related Transportation  
Facility in Tooele County, Utah  
NURIEG-1714**

**DOCKET NO. 72-22**

**Private Fuel Storage (PFS), LLC**

**U. S. NUCLEAR REGULATORY COMMISSION**

**Office of Nuclear Material Safety and Safeguards**

**DEPARTMENT OF THE INTERIOR**

**Bureau of Indian Affairs**

**Bureau of Land Management**

**DEPARTMENT OF TRANSPORTATION**

**Surface Transportation Board**

**DEPARTMENT OF THE INTERIOR**

**Bureau of Land Management**

**PONY EXPRESS RESOURCE MANAGEMENT PLAN (RMP)**

**UT-020-00-5101-ER-J206, U-76985**

**INTRODUCTION**

The following comments are provided by the State of Utah (State) in response to the June 20, 2000, NRC request for Comments on the Draft Environmental Impact Statement for the Construction and Operations 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, and the June 23, 2000, BLM Notice of Availability of a Draft Environmental Impact Statement and Proposed Plan Amendment to the Pony Express Resource Management Plan (RMP) issued by the U. S. Nuclear Regulatory Commission (NRC) and by the U.S. Department of Interior for the Bureau of Indian Affairs (BIA), the Bureau of Land Management (BLM), and the Surface Transportation Board (STB). These comments are also being provided in response to the BLM's separate Notice of Intent to Amend the Pony Express

## **Resource Management Plan (RMP).**

There are three agencies involved in this environmental decisionmaking process that were not involved at the time of the NRC's 1998 scoping process, and one agency which was not involved at the time of the NRC's 1999 scoping process. Therefore, the EIS Scoping Comments submitted by the State of Utah on June 19, 1998, and May 27, 1999, are hereby incorporated by reference, and should be included in the considerations of the agencies regarding the DEIS. A copy of the Comments are included as Attachments 1 and 2 to this document.

Comments are organized under topic headings for ease of consideration. However, issues are interrelated and commonly impact or encompass other issues under other topic headings. Issues should not be narrowly construed or evaluated, based on topic headings. If additional information or clarification is needed, please contact:

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The magnitude of this proposed facility, its consequences, and cumulative impacts are inadequately evaluated and in some cases not even identified in the Draft Environmental Impact Statement (DEIS). This site will store 40,000 metric tons of high level nuclear waste. The storage of this volume of waste in one location is unprecedented and is approximately the equivalent volume of all commercial high level nuclear waste currently in the United States. PFS plans to store the waste in up to 4,000 concrete storage casks on concrete storage pads. To put this in perspective, today there are only 436 storage units or casks for commercial spent fuel in the entire United States, 1/10<sup>th</sup> the number proposed for Skull Valley. Furthermore, 12 of the 15 storage sites are within ¾ mile of a nuclear power plant. The experience to date with transportation of commercial waste involves short distances compared to the cross-country route required for the PFS facility.

The DEIS ignores or inadequately addresses many issues that could have a significant impact on the health and safety of Utah's citizens. While NRC may claim that significant risks are analyzed in its Safety Evaluation Report, the environmental consequences and socioeconomic impact of those consequences of those risk must be described in the DEIS for the proposed facility, the transfer facility, and with respect to transportation impacts. Potentially significant risks and their consequences associated with earthquakes are not analyzed at all in the DEIS. For example, the storage casks operate on a passive cooling system and must be uprighted within 48 hours. There is no mention of this in the DEIS. Nor are risks and consequences associated with nearby military activities analyzed in the DEIS. Information about the risks and consequences resulting

from the transportation of high level nuclear waste to the facility is scarce in the DEIS; it is surprising that, given the unprecedented volumes of high level nuclear waste that would be transported if this project were approved, NRC has chosen to rely on outdated studies, with little project-specific analyses.

The individual and cumulative impacts on military installations and operations in, over, and near Skull Valley are not even described, much less analyzed in the Draft EIS. The risks from Cruise Missile and F-16 crashes, the emergency evacuation route through Skull Valley in case of a chemical agent leak, the essential ongoing use of the airspace over Skull Valley for access to the Utah Test and Training Range (UTTR), air to air combat training, and cruise missile testing – all of these and numerous other military activities are missing from the analysis in the Draft EIS. Furthermore, the socio-economic impacts to Hill Air Force Base and its surrounding communities if UTTR operations are curtailed are never considered in the Draft EIS. These are critical impacts of significant consequence. They cannot be ignored or overlooked.

The Draft EIS does not address potential economic costs of a storage or transportation accident. Despite the fact that the Price Anderson Act does not address liability for a private away-from-reactor storage facility, NRC has no onsite nuclear property or nuclear liability insurance requirements. If there is an accident or other problem, PFS's financial status will not allow it to cope with non-routine costs. Thus, PFS's precarious financial status as an alleged limited liability company without any assets demands that NRC require a centralized ISFSI operated by a limited liability company without any assets to have adequate insurance coverage for the centralized ISFSI. NRC cannot look to PFS's liability under the lease agreement between the Skull Valley Band because it is ordinarily limited to the amount of money available through commercially reasonable nuclear liability insurance, even if actual costs are much higher. Furthermore, the contractual lease arrangements between PFS and the Band are beyond NRC's control and may change over the life of the facility. In sum, there are no assurances that there will be financial resources available to address potential on or off Reservation impacts from an onsite incident.

It is unclear whether the Price Anderson Act will allow recovery of damages for accidents that occur in transportation of high level nuclear waste to or from this facility. But even if it does, nuclear utilities would be liable for less than a maximum of \$9.43 billion of accident costs. Congress must then determine whether the federal government – and ultimately U.S. taxpayers – would be responsible for the rest, and the rest could be significant. The estimated economic costs for a transportation accident in a metropolitan area ranges from \$9 to \$330 billion dollars. Just to put this into local perspective, \$330 billion is nearly 47 times Utah's state government's annual budget.

The PFS Facility is not temporary. There is no assurance that Yucca Mountain will be approved as a permanent repository. Even if it is approved, it is unlikely to have sufficient capacity to store all the nuclear waste that will have been generated by the time it opens. Therefore, even though utilities in the east, midwest, and California may retain ownership of their spent fuel rods,

those spent fuel rods will be sitting here, in Skull Valley, at a de facto permanent storage site. Amending the license or the EIS in the future will not solve the problem. The facility and the problem will be permanent. The Draft EIS ignores that problem.

It is clear reading this DEIS that NRC, the lead agency for preparation of this DEIS, is not objective about PFS's proposed project, and that it is championing this project. Examples of this skewed analysis may be found throughout the DEIS: the skewed cost/benefit analysis described in Part B.5 of these comments, and the NRC's unquestioning acceptance of PFS's proposal to "start clean, stay clean," upon which it bases its apparent determination that no contingency plans and minimal contingency funds are necessary. The State of Utah urges NRC and especially the cooperating agencies to carefully consider the objectivity of this process. We believe that an objective review would lead to the conclusion that this flawed document cannot support any decisionmaking.

The DEIS's lack of objectivity is particularly galling in light of the unfairness of this proposal. Commercial high level nuclear waste is generated from nuclear power reactors. In the United States, there are currently 104 commercial nuclear reactors located in 31 states. The bulk of commercial high level nuclear waste is generated east of Colorado where 92 percent of the reactors are located. Not one is located in Utah. It is unconscionable that Utahns are now being asked to solve the nuclear waste storage problems created in other states by hosting a de facto permanent site with far less protection and far greater risks.

The State of Utah urges careful review of these comments and other comments that the agencies receive. The State especially urges the cooperating agencies not to be complacent and assume that NRC has adequately analyzed the issues. It has not; in many cases NRC has vigorously opposed the State of Utah's contentions only to request the same information from PFS in the non-litigation forum. Furthermore, NRC Staff has zealously defended against those contentions the State has admitted into the adjudicatory proceeding before the Atomic Safety and Licensing Board. The Staff has acted as PFS's advocate rather than as an unbiased participant.

The magnitude, scope and unprecedented movement of spent nuclear fuel cross country solely as the result of the PFS proposal demand that all of the agencies conduct an independent and unbiased analysis. Please give this project the hard look it deserves.

A copy of Utah Governor Leavitt's comments, presented at the Salt Lake City DEIS hearing in July, 2000, is included as Attachment 3. Following are our more detailed comments.

#### **A. PROCEDURAL COMMENTS**

1. **A comment period of ninety days is too short for a document and project of this magnitude.**

The State of Utah has requested an additional ninety days to comment on this DEIS. The DEIS is



a long document that is difficult to review. It should fairly present complex issues. However, the way in which the agencies structured their less than objective presentation makes it all the more difficult to formulate comments because it has required the State to search for and analyze additional information the agencies should have initially presented to the public. Moreover from the perspective of the general public, electronic access to a copy of the DEIS is difficult if not impossible and NRC's parsimonious allocation of printed copies of the DEIS, especially prior to the public hearings in Salt Lake City, has created an formidable task for members of the public to grasp and understand the scope and ramifications of the PFS proposal. The DEIS was not even available at the designated government document repository at the University of Utah library until at least the end of July.

DOE's DEIS on the Yucca Mountain project, which is also national in scope and thus is similar in its impact to PFS, had an initial comment period of 180 days, and an additional extension beyond that time. See Attachment 4.

The DEIS attempt to make a case for the need for this facility but fails. There is no indication that such a centralized, 40,000 MTU ISFSI is currently needed. An extension of ninety days additional comment period for a facility that would have a lifespan of 20 to 40 years, and many believe far longer, is trivial to the project but significant to potential commenters. It should be granted.

**2. Three hearings, all in Utah, are far too few for a project with large and nationwide impacts.**

If approved, the PFS facility will precipitate the largest movement ever of nuclear waste across the country. It has been our experience, however, that few outside of Utah are even aware that large amounts of nuclear waste may be transported to Utah soon. That is not surprising, given that the responsible agencies have chosen to perpetuate that ignorance by refusing to hold hearings outside of Utah. In recognition of the nationwide impacts of the Yucca Mountain project, impacts which are very similar to the potential impacts from the PFS project, DOE held 20 hearings on the Yucca Mountain DEIS, half of them outside of the State of Nevada. Hearings were held as far away as Georgia, Chicago, and Washington D.C.

The NEPA process was created to assure that federal decisions are made after a public dialogue about a proposal. It was created to avoid the poor quality of decisionmaking that tends to occur when decisions are made by stealth. Residents of the transportation corridor states have been shut out of the dialogue in this process; it is not legitimate to rely on this DEIS process to make decisions that may profoundly affect those residents.

Providing notice and opportunity to comment to residents of corridor states is also practical. Nuclear waste transportation cannot occur surreptitiously; when waste begins to move, residents will become very aware of it and, we believe, will strongly object. Because the outcome of that delayed debate cannot be known, it is far more efficient to have the public debate at the time it is

required – prior to federal approval of the action that causes this impact.

Even the hearings in Utah were insufficient and ineffectual. There was essentially no advertising for the hearings, other than the Federal Register notice and the Utah Department of Environmental Quality's notices to the media. Two of the three hearings were held a mere 37 days after the Federal Register notice indicating the DEIS would be released. The notice for the third, two-part hearing in Salt Lake City was even shorter. At all of the hearings, the number of speakers exceeded the capacity of the time schedule, in some cases causing NRC to require that people speak for no more than two minutes and simply submit anything else they needed to say in writing. Even if other citizens from Utah or along the transportation corridor outside Utah had known of and desired to attend a hearing on the DEIS, there would not have been sufficient time for them to speak.

### **3. DEIS and close of public comment period are premature**

The agencies are improperly limiting public comment. New information and documents, upon which the noticed agency actions will be based, will not be available for review prior to the close of this public comment period on September 27, 2000, and no additional opportunities for public comment under the National Environmental Policy Act (NEPA) have been or are planned to be scheduled. Similar concerns were also discussed in the State's June 19, 1998, and May 27, 1999, Scoping Comments, included as Attachments 1 and 2. Although additional information has been submitted since the time of those comments, there are still substantial gaps in the information available and necessary to complete an EIS. Furthermore, the NRC has not completed its review of the license requirements.

The concern is also evidenced in numerous responses which the NRC has provided in public hearings, specifically the June 28, 2000, hearing in Grantsville, Utah, and in responses to requests for additional time for public comment on the DEIS, e.g. NRC correspondence to Ms Anne Sward Hansen, September 6, 2000, Attachment 5 wherein the NRC has referenced additional opportunities for public input. Those opportunities are identified as the NRC Atomic Safety and Licensing Board (ASLB) hearings on additional Contentions, scheduled for June 2001, the soon to be released Safety Evaluation Report (SER), and the likely opportunity for a Limited Public Appearance Hearing before the SLB in conjunction with its hearings in June 2001. What the NRC does not say, hence misleading the public, is that 1) there will be no public comment period on the final SER, 2) the SLB hearings in June of 2001 are limited to parties with standing before the SLB (not the public), and 3) the NRC is not required to consider or respond to any comments provided as part of a Limited Appearance Hearing, contrary to the procedure under NEPA, as clearly stated in the introductory comments of Judge Bollwerk before the ASLB Limited Appearance hearings on June 23, 2000:

“Under Sections 10.2.715(a) of the Commission's rules of practice, the Board has the discretion to entertain, from any person who is not a party to the proceeding, a written or oral statement of his or her position on the issues in the proceeding.

This provision, which was first adopted as part of the agency's hearing rules back in 1962, recognizes there is a need to provide an opportunity for input from members of the public who, despite not having sought party status, have an interest in the subject matter of the proceeding.

As we indicated in the April 19 and June 7 notices that were published in the Federal Register scheduling this and other sessions, limited appearance statements do not form part of the evidentiary record of the proceeding upon which the Board must rely in making decisions on the merits of the issues proffered by the intervening parties. Nonetheless, we also recognize in that notice the public's limited appearance statements may help the Board and/or the parties in their deliberations in connection with the issues to be considered in this proceeding." (emphasis added)

Unless the NRC schedules additional time for public comment and public hearings, the now concluding public comment period under the NEPA is the last opportunity the public will have to provide comment which must be considered by the agencies as they make decisions regarding the noticed license and related permits, licenses and amendments for the proposed facility.

**4. BLM can't participate in this process given §2815 of the 1999 National Defense Authorization Act**

PFS has applied for a new right of way across BLM land for its proposed rail line to the site. The current BLM Resource Management Plan (the "Pony Express RMP") for the area prohibits approval of such a right of way. BLM has proposed to amend its RMP, is participating in this planning process and the DEIS, and has noticed the proposed plan amendment. It has indicated it will use the NRC's DEIS as the basis for its plan amendment decision.

The language in the 1999 National Defense Authorization Act (§2815) precludes the Secretary of the Interior from amending individual resource management plans covering "Utah National Defense lands" pending completion of a Department of Defense study evaluating the impact of any land use changes upon military training, testing, and operational readiness. Utah national defense lands are defined to include, *inter alia*, lands beneath Military Operating Areas (MOAs) that make up the Utah Test and Training Range (UTTR). See excerpt from the 1999 National Defense Authorization Act, Attachment 6. The proposed right of way is located directly under the Sevier B MOA, part of the UTTR.

In a letter to U.S. Representative James V. Hansen, the Solicitor for the Department of Interior indicated that the 1999 National Defense Authorization Act freezes not only any decision to change the RMP, but also any planning with respect to that decision. See Letter from John D. Leshy to James V. Hansen, Attachment 7, p. 2. Accordingly, the BLM cannot participate in this EIS process and cannot take any other actions to amend or plan to amend the RMP.

**5. Failure to provide supporting documentation, including documentation that has**

**been withheld for proprietary reasons, means that the public has not had a sufficient opportunity to review and comment.**

The DEIS is far from a complete document. Any member of the public wishing to get an accurate picture of the proposed facility from this DEIS would have a very difficult time doing so. Some of the missing information could be obtained by a determined individual, but much of it has been claimed by PFS to be proprietary and is simply not generally available. Only one who is a party to the licensing proceeding and has entered into a confidentiality and non-disclosure agreement with PFS have access to certain proprietary information. Often this information is limited to the scope of the parties admitted contention in the NRC proceeding.

The DEIS does not meet NRC's own requirements for EIS preparation. NRC's NUREG-1555, "Environmental Standard Review Plan" (March 2000), which provides NRC guidance for preparing an EIS, indicates that a DEIS must "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 that cannot refer to other documents for essential information. *Id.* at pages 3 and 4. Whether licensing a nuclear power plant or an ISFSI, this general directive by the Commission to the NRC Staff must be followed in this EIS proceeding.

**6. Agency staffs have made it unnecessarily difficult to submit comments.**

Toward the end of this comment period, the State of Utah was flooded with calls from concerned citizens who were confused about how and where to submit comments, as the DEIS itself lacked any guidance; it is likely that many more were just as concerned but failed to call. Moreover, the agencies provided no method for Utah delivery on the day the comments are due, or for email delivery. This essentially shortens the comment period by the number of days it takes to mail comments, and may discourage many potential commenters from submitting anything.

**B. GENERAL COMMENTS**

**1. NRC does not have statutory authority to license this facility.**

The DEIS is fatally flawed because NRC is acting beyond its statutory authority in issuing a license to PFS. Congress has not authorized NRC to issue a license to a private entity for a 4,000 cask, away-from reactor, centralized, spent nuclear fuel storage facility. The NRC may only license the storage of spent fuel at facilities which are authorized by statute. Bowen v. Georgetown Univ. Hosp., 488 U.S. 204, 208 (1988) ("It is axiomatic that an administrative agency's power to promulgate legislative regulations is limited to the authority delegated by Congress.").

The Nuclear Waste Policy Act (NWPA), Part B, Interim Storage Program, 42 USC §§ 10151 - 10157, defines the scope of facilities authorized for interim storage of spent nuclear fuel. In light of the NWPA, NRC cannot rely on its general statutory authority or authority to license spent

nuclear fuel as the source of its authority to license a centralized 4,000 cask away-from-reactor facility operated by a corporation claiming limited liability. American Petroleum Institute v. EPA, 52 F.3d 1113, 1119 (D.C. Cir. 1995) ("EPA cannot rely on its general authority to make rules necessary to carry out its functions when a specific statutory directive defines the relevant functions of EPA in a particular area."); Sierra Club v. EPA, 719 F.2d 436, 455 (D.C. Cir 1983), *cert. denied*, 468 U.S. 1204 (1984). NRC's general licensing authority does not give NRC carte blanche authority to make any rules it wishes regarding away-from-reactor storage of spent nuclear fuel.

Initially, NRC licensed ISFSIs under its general regulation for the Domestic Licensing of Special Nuclear Material, 10 CFR Part 70. *See* 45 Fed. Reg. 74,693 (Nov. 12, 1980). Chapter 6 of the Atomic Energy Act deals specifically with special nuclear material in terms of the acquisition and domestic and foreign distribution of special nuclear material. 42 USC §§ 2071, 2073 to 2077. Under the Atomic Energy Act congressional authorization extended to NRC's authority to license civilian ownership and possession of special nuclear material. 42 USC § 2073. However, it was not until the NWPA that Congress specifically addressed storage of spent nuclear fuel.

In the NWPA of 1982 Congress specifically authorized private storage of spent nuclear fuel at reactor sites. Congress authorized storage of spent nuclear fuel away from reactors only at federally owned facilities. 42 USC § 10,155(h). Neither the NWPA, nor the statutory basis in 1980 for NRC to promulgate Part 72, can be construed as authorizing NRC to issue a license for a 4,000 cask, centralized, privately owned, away-from-reactor, nuclear waste storage facility that is being sought by PFS.

The NWPA expresses Congress's purpose and intent in dealing with spent nuclear fuel storage. 42 USC § 10,151. Congress directed the NRC and other authorized federal officials to encourage and expedite the storage of spent nuclear fuel at the site of each civilian nuclear power reactor. 42 USC §§ 10,151 and 10152. Congress granted the NRC rulemaking authority for licensing technologies for the storage of civilian spent nuclear fuel at the site of any civilian nuclear power reactor. *Id.* § 10,153. Finally, the NWPA authorized the "establishment of a federally owned and operated system for the interim storage of spent nuclear fuel at one or more facilities owned by the Federal Government with not more than 1,900 metric tons of capacity...." *Id.* § 10,151(b)(2).

Congress imposed limits on centralized storage of spent nuclear fuel. First, the facility is to be federally owned and operated. 42 USC § 10,155(a). Second, maximum storage capacity is no more than 1,900 metric tons. *Id.* Third, when providing storage capacity, Congress directed the Department of Energy (DOE) to seek to minimize the transportation of spent nuclear fuel. *Id.* at § 10155(a)(3). Fourth, storage of spent fuel must be removed from the site not later than 3 years following the date on which a repository or monitored retrievable storage (MRS) facility is available. *Id.* § 10,155(e). Finally, Congress imposed annual reporting requirements on DOE. *Id.* § 10155(f).

The stark contrast between what PFS is requesting NRC to authorize under Part 72 and the directives Congress imposed on the federal ownership and operation of centralized interim away-from-reactor storage under the NWPAA bespeaks the lack of statutory authority for NRC to license the proposed PFS facility. First, PFS's facility would not have the backing of the federal government but would be owned and operated by a company claiming limited liability and with no independent assets. Second, instead of a maximum limit of 1,900 metric tons, PFS requests a maximum limit of 40,000 metric tons. Third, spent nuclear fuel would be transported from all over the United States, primarily from the eastern states, thousands of miles to the Utah facility. Fourth, PFS's facility is de-linked from completion of Yucca Mountain or an MRS. There is no assurance that the stored fuel in Utah will ever be moved. Finally, as the licensing of an off-site ISFSI is totally an NRC regulatory creation, there are no Congressional reporting requirements.

Another glaring aberration between PFS's proposal and the centralized away-from-reactor storage under NWPAA is to contrast the involvement of States. *See* 42 USC § 10,155(d). First, under NWPAA, the Secretary of Energy must appraise the State Governor and its legislature of potentially acceptable interim storage sites and the Secretary's intention to investigate those sites. 42 USC § 10,155(d)(1). Second, the Secretary is required to give timely updates and results of investigations to the Governor and State legislator and enter into negotiations to establish a cooperative agreement between the Secretary and the State. 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 closures of storage capacity at a site or facility within such State for the interim storage of spent fuel from civilian nuclear power reactors." *Id.* § 10,155(d)(2). Third, 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. *Id.* § 10,155(d)(3). Fourth, the Secretary must periodically report to Congress. *Id.* § 10,155(f). Finally, a State may voice its disapproval to Congress of a proposal to construct storage capacity of 300 metric ton or larger at any one site. *Id.* § 10,155(d)(6).

In contrast to a cooperative federal-state role and meaningful involvement ascribed to the State under the NWPAA, Part 72 requires no federal cooperation or involvement with the State. The State is treated merely as any other party to the NRC proceeding. What has occurred to date is indicative of the pitiful role assigned to the State under Part 72. First, PFS made no effort to apprise the State of its proposed facility. The State first learned about the facility through press releases and by sending State officials to Washington, D.C. to attend meetings between PFS and the NRC, where the public was permitted to listen to the PFS-NRC discussion. Second, there has been no cooperation or consultation between PFS and the State. Failure to even allow the State to review and comment on the Emergency Plan, as required by 10 CFR § 72.32(a)(14), is just one conspicuous example of PFS's refusal to deal up-front with the State. Finally, there is no opportunity for State review or oversight of the project, except through litigation. This has meant that the State has had to expend hundreds of thousands of dollars to participate through intervention in the NRC formal license adjudication in order to have any voice in the siting and

licensing of this facility. This is a far cry from the role Congress assigned to the State under § 10,155(d).

After comparing what PFS is requesting and what Congress requires under the NWPA, it should be obvious that NRC by regulation is thwarting the national policy and directives Congress set in the NWPA. NRC is without statutory authority to license the proposed PFS facility.

**2. BLM does not have statutory authority to make any change in its Resource Management Plan.**

As described in Part A.3 of these comments, the BLM may not make any changes in its resource management plan until the Department of Defense completes a study evaluating the impact of any land use changes upon military training, testing, and operational readiness.

**3. This DEIS and related process cannot support BLM's proposed action.**

The Bureau of Land Management has independent authority in this proposal, and must make an independent examination of the facts and legal requirements. This is true even if the BLM is cooperating with other federal agencies in the preparation of the necessary NEPA work. The desire of federal agencies to cooperate in the preparation of an EIS is laudable and sometimes necessary, but none of the cooperating agencies may delegate any of their decision making authority to any of the other agencies. Neither may the BLM segregate its particular part of the whole project from the whole, and pretend its part of the EIS work is only covered by its authority. This is a proposal to transport to, and store within the state of Utah, high level nuclear waste. The decisions made by BLM must consider this.

Most importantly, the BLM has no authority to conduct any planning in this area, nor amend the Resource Management Plan. As mentioned above, the Defense Authorization Act of 1998 and a letter written by John Leshy, Solicitor of the Department of Interior, put a freeze on planning anywhere under or near the military operating area of the Utah Test and Training Range. The proposed site for the storage and the proposed rail spur are clearly under and near the military operating area. Thus, the BLM is prohibited from engaging in any planning or from amending the Pony Express Plan until the requirements of the Defense Authorization Act are met.

BLM has not, and is not following its normal procedures in the issuance of the NEPA work required for this proposal. This is a major federal proposal involving BLM lands and BLM authority. There have been many others in recent years, the massive multi-volume DEIS on wilderness, the DEIS and draft plan for the Grand Staircase-Escalante National Monument, the draft plan for the Dixie Resource Area. All of these were presented to the state and the public in a much more open posture than this proposal. All were given review times far in excess of 90 days. BLM and Department of Interior staff were much more available to meet with state, local and private interests, both to answer questions, and listen to concerns. The State of Utah strongly requests that the BLM resist what is obviously the overbearing attitude of the NRC, and live up

to these established procedures and policies. BLM must take the time to make information and personnel available to state, local and private interests.

BLM interests and authorities in this proposal are far more than the need to amend the Pony Express Resource Management Plan and authorize the construction of a spur railroad line or a transfer facility. The BLM must recognize and acknowledge in its portion of the DEIS that the purpose of the rail line or transfer facility is for the transportation and storage of high-level nuclear waste. BLM must consider all of the facts about this transfer and storage of high-level nuclear waste. Most importantly, BLM is specifically required by law to consider these facts in the light of consistency and inconsistency with state plans, policies, and programs.

The Grand Staircase-Escalante National Monument DEIS contained an entire section devoted to a discussion of consistency/inconsistency with state law, plans and programs. The DEIS for the proposed waste pile does not even mention the idea of consistency/inconsistency. The state will exercise, to the maximum extent, its right under federal law to consistency review. The state expects that BLM personnel, at the highest level, will participate with the Governor in this review at the earliest date.

Specifically, among other things, the BLM's portion of the DEIS does not address inconsistencies with state law, programs or policies related to siting of high level nuclear waste, the allocation of liability among corporations and the equity interest owners in those corporations, railroad crossings and studies related to Wild and Scenic River studies.

State law, Utah Code section 19-3-301 et. seq., contains the requirements for siting of high-level nuclear waste in Utah. Section 19-3-318 concerns the allocation of liability within corporations or other organizations and equity interest owners in those corporations. The BLM must consider the effects of these laws on the proposal, and indicate before any final decision, in coordinated action with the governor of Utah, how the proposed action may be inconsistent with state law, and what can be done about it. For example, because PFS is no longer a limited liability corporation pursuant to Section 19-3-318, has the BLM considered that an accident or other nuclear incident on the rail spur (which is on BLM land) may cause the federal taxpayers to bear the burden of clean-up? Alternatively, has the BLM considered that the equity interest owners are not aware that they may be personally liable for such an incident?

Section 54-4-15 of the Utah Code requires the permission of the state for the construction of a rail grade crossing across a public highway. This permission also requires the concurrence of the governor and legislature. Several public roads will be crossed by the proposed rail spur. These are roads owned by the state, some of which may have been granted by the federal government to the state pursuant to R.S. 2477. The BLM has not considered the effect of this law at all, nor the effects of inconsistency with this state law.

The BLM, the Forest Service, the National Park Service, and the State of Utah entered into an MOU in December of 1997. The MOU envisioned that Wild and Scenic River studies would



happen in a cooperative basis, and on a regional basis. Studies were coordinated in the Virgin River Basin, and in the Grand Staircase-Escalante National Monument. The DEIS contains conclusions about Wild and Scenic River eligibility which were made outside this process. The BLM conclusions are inconsistent with this cooperative MOU.

BLM also needs to consider its own requirements. The current BLM Pony Express RMP specifically requires that "public lands will not be made available for inappropriate uses such as storage or uses of hazardous materials (munitions, fuel, chemicals, etc.) And live artillery firing" The DEIS includes no specific justification or evaluation to support changing that prohibition. However, the rail spur cannot be constructed and operated under this restriction. The proposed action, as discussed in the DEIS is based in part on a specific finding of the "absence of significant conflicts with existing resource management plans or land use plans." Obviously, that finding cannot be supported.

The criteria for BLM's evaluation of the proposal, as listed on page 1-15 of the DEIS, are extremely limited. BLM is also obligated to consider other BLM-specific issues such as: the possibility that BLM lands will be contaminated as a result of PFS activities; the absence of a responsible party with respect to any such contamination; the potential for an increase in wildfires, especially after the worst wildfire season in history on rangelands as well as forests, and the adequacy of local firefighting forces. On this, it is important to note that one state legislator has remarked that all the firefighters who responded at Chernobyl died. See also Comment B.23.

There is also no indication of how BLM will comply with the requirement of the Federal Land Policy and Management Act that BLM is required to get fair market value for the use of its right of way. As evidenced by the payments that the Skull Valley Band will get (undisclosed but known to be very large, much greater than grazing fees), the market value for property that is to be used to handle extremely hazardous materials is much greater than the market value for land used for grazing cattle. This is particularly true when the party conveying an interest also retains interests in that or adjacent property, as is the case here.

The mission statement for BLM indicates that it seeks to sustain the health, diversity, and productivity of the land for use and enjoyment of present and future generations. The State of Utah requests that BLM take an independent, unbiased look at this DEIS, this process, and this project. We believe that with an unbiased look, BLM will conclude that it is not possible to make the changes proposed in this DEIS and still meet those mission objectives.

#### **4. Proposed action and process violates BIA statutory authority.**

The Secretary of Interior, through the Bureau of Indian Affairs, is required to approve PFS's lease with the Skull Valley Band of the Goshutes. Before 1970, it was acknowledged that the BIA's primary purpose in exercising that authority was to preserve the Indian 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.).

In 1970, however, the Indian leasing statute was amended by Public Law Number 91-275, which considerably broadened the list of factors that the Secretary must satisfy himself have been 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 U.S.C. § 415(a)(1993)) (Add. at 15). 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), reprinted in 1970 U.S.C.C.A.N. 3245 (Add. at 16).

The requirement in the 1970 amendment that environmental factors be considered by the Secretary in approving leases of tribal lands, led to a decision by this Court that the requirements of NEPA are triggered by the Secretary's action in approving Indian leases. In Davis v. Morton, 469 F.2d 593 (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. See Id. at 598. The Court held specifically that the purpose of the 1970 amendment to § 415(a) was to reaffirm "congressional intent that environmental considerations are to play a factor in any Bureau of Indian Affairs decisions." Id.

This DEIS cannot satisfy the requirements of 25 U.S.C. § 415(a). As these comments have made clear, there can be no expectation that nuclear waste will be removed from the facility at the end of the lease period, clearly a very negative impact on the environment.

Moreover, the consequences of an accident at the facility could be staggering, far more than the amounts of insurance to which PFS's liability is limited under the proposed lease. As PFS claims to be a limited liability company, the Skull Valley Band and affected individuals would not have much recourse in any event. This lack of financial resources could have large and

negative impacts on the environment that must be considered; these impacts are not discussed in the DEIS.

PFS's lack of financial resources means that the lease is also not in the best interest of the Band; the BIA will fail to meet its trust responsibility if it approves this flawed lease.

There is also no indication that there will be adequate police and fire protection and other services, as is required by statute.

The BIA has so narrowly defined the scope of its review in the DEIS that it has failed to meet its trust responsibilities. On DEIS, p. 1-15, BIA states that "[a]s part of its government-to-government relationship with the Skull Valley Band, 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)." BIA cannot wish away this part of its trust responsibility. Ultimate disposition of nuclear waste is central to the question of whether the Indian land base will be preserved for the long term.

**5. The cost benefit analysis is not impartial, but is one-sided, weighted heavily in favor of the PFS facility, and fails to consider many important negative impacts.**

**a. Cost benefit analysis is biased in favor of approving the project**

As described throughout these comments, the DEIS makes numerous errors in its cost/benefit analysis, and nearly every error skews the analysis to PFS's favor. If NRC's cost/benefit analyses were correct, there would not be a community in this country that would not welcome this facility. It is not correct, and accordingly every community other than the Skull Valley Band of Goshutes that has considered such a facility has rejected it. The Band has set a price for siting this facility – a price that has been kept secret throughout these proceedings. If this project is approved, they will receive their price, but all of Utah and the rest of the nation will pay the cost.

Costs to reactor companies and reactor communities should not be weighted more heavily than the costs to Utah communities, as they have been in the DEIS. The DEIS states major benefits of building the PFS facility include ensuring ongoing nuclear power output and potentially reducing nuclear waste storage costs for specific reactor companies. Utah generates an excess of electricity, which it exports. Utahns do not require or rely on the supply of nuclear power. Thus, Utahns will not benefit from ongoing nuclear power or the reduction in nuclear power costs. However, if the facility is approved, built, and operated, Utahns will 1) bear the risks of transporting an enormous volume of nuclear waste throughout the State, 2) bear risks associated with storage as neighboring communities, 3) bear negative economic impacts, 4) lose use of public lands and enjoyment of wildlife and recreation in Skull Valley, 5) bear the costs of training emergency responders and medical personnel, and 6) continue to bear, in addition, the costs of Utah's own power production externalities, including costs associated with air pollution.

**b. The DEIS does not even recognize, much less analyze, significant impacts on HAFB and the Utah economy**

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 Utah Test and Training Range. This DEIS, in contrast, does not even recognize that potential, much less describe any possible conflict or its economic and other impacts.

If an objective analysis had been done, it would have been clear that there would be substantial negative impacts to military training, military readiness, and Utah's economy. The DEIS must consider the effects to The Utah Test and Training Range and the operations of Hill Air Force Base. This is much more than an examination of the relative risk of a crash. Moreover, the State alerted NRC and the other cooperating agencies of these concerns in its supplemental scoping comments dated May 27, 1999. Thus, there is no excuse for the agencies to have ignored analyzing in the DEIS an issue of both national military significance and State economic importance. The storage facility and proposed rail spur in Skull Valley are located under a military operating area (MOA) and next to the Utah Test and Training Range (UTTR) land and Dugway Proving Ground. Numerous military flights, military exercises and weapons tests are conducted in the MOA over the proposed storage facility and rail spur. Use of the MOA is critical to the value of the UTTR to Hill Air Force Base because it offers an ingress route that is irreplaceable. Hill Air Force Base considers the use of the military operating area essential to training and national security.

The UTTR-Dugway Proving Ground is the largest overland military training land mass in the continental United States. The Air Force, in part, credits its success during Desert Storm and its overall military readiness to its ability to train at the UTTR. Because of military and public concern about the potential for extremely serious accidents involving the nuclear waste facility, the military would curtail its training in the military operating area. This would result in a loss of military readiness.

Impacts from curtaining military training because of the presence of the PFS facility would create adverse socioeconomic impacts to Hill Air Force Base, the Utah Test and Training Range, the Utah economy and the State and local communities. In order to avoid potential liability the military will be forced to voluntarily restrict or eliminate military training and weapons testing activities requiring currently authorized access through the Military Operating Area (MOA) over the proposed PFS site. In fact, the commander of a fighter wing, or arm of the military conducting a test of experimental aircraft or pilotless craft in the test range cannot afford even the slightest chance of a crash into the PFS facility or PFS transportation vehicle. The only relevant statistic to them is zero chance of impact. Thus, the effect of the current proposal to transport and store extremely dangerous high-level nuclear waste in above ground storage, under an active MOA, requires the military to place large portions of the UTTR off-limits to flight.

Without full use of UTTR, Hill AFB is at much greater risk during any future review

under the Base Closure and Realignment Act. Socioeconomic consequences that may ensue if the viability Hill AFB is threatened. Hill AFB employs a total of 21,077 positions (11,628 civilians, 4,619 military personnel, 1,112 reservists and 3,718 contractors) and is Utah's largest basic employer. The State estimates that 12,351 additional jobs are attributable to the operation of the base and new contracts and other realignments are expected to create about 3,000 additional new jobs in the next few years. State and local communities may experience a loss in tax revenue and direct and indirect socioeconomic impacts from the loss of Hill AFB will affect the entire State, including Davis, Weber, Morgan and Salt Lake counties. Further information is provided in Attachment 8, Utah Contention KK.

- c. The DEIS includes local economic development benefits in Tooele County in its cost benefit analysis without including the parallel local economic development impacts in the communities around the reactors in the no-action scenario**

The DEIS presentation in Chapters 8 and 9 is defective in that it counts as part of net benefits the economic development impacts in Tooele County of constructing and operating the PFS facility, while ignoring the corresponding benefits to the parallel communities in the No-Action alternative.

On DEIS, p. 8-10 the DEIS states "Benefits and costs are considered from a *societal perspective*." Given that the agency actions being considered in this proceeding are the actions of national regulatory bodies including the NRC, it is inappropriate to count as a benefit lease revenues, jobs, and economic activity in the Tooele County area when considering the benefits of the PFS alternative, but then not to consider the same very substantial parallel benefits as to jobs and economic activity in the alternative no-action scenario for onsite ISFSIs. See DEIS, p. 8-10 and 9-9.

As the DEIS has noted (DEIS, p. 1-7) there are a large number of on-site ISFSIs already operational, and even more in the works. These constitute the core of the No-Action Alternative. Construction and operation of these facilities – many of which may also hire Native Americans – will produce substantial benefits in jobs and incomes in the communities where they are built. It is a serious error in methodology and unreasonable not to reflect these parallel benefits.

Finally, to compound the problem, the DEIS lists as one of their four major points in recommending PFS over the alternatives the economic benefits for the Tooele County area. (DEIS, p. 9-13). The DEIS relies explicitly on a flawed analysis for its conclusion to prefer the PFS alternative. It is unacceptable to reach such a conclusion when the agencies have refused to consider the benefits of the alternative.

- d. Failure to consider costs to communities from transportation**

The DEIS fails to consider the infrastructure costs to communities along the transportation

routes. Unlike federal shipments, private shipments of spent fuel do not require any funding for assessment of emergency response needs, local emergency response training, equipment for radioactive incidents, or additional training for medical personnel. Responsible communities will have to make these expenditures anyway; those costs must be considered in an objective analysis.

**e. Stigma**

The economic impact from real and perceived risks must be evaluated. There is significant evidence that Utah will suffer economically from the stigma, as such large volumes of high level nuclear waste will be transported through the state and along the Wasatch Front and be stored close by. This is likely to result in a decrease in property values, and a decrease in tourism, two significant costs, neither of which have been evaluated in this DEIS.

**f. Some of the items identified as "costs" for the no action alternative are actually policy choices and should not be analyzed as costs in the DEIS.**

The DEIS indicates that some nuclear reactors are or will be prohibited by local policies from storing additional nuclear wastes such that the facilities may be forced to shut down. Prohibitions on storing additional waste are policy choices made by local citizens, made with awareness of the cost and power-related consequences. It is arbitrary and capricious to consider the natural consequences of these choices to be costs that will be used to justify the PFS facility.

**g. The DEIS's description of the PFS members and their nuclear facilities is outdated**

The Staff has concluded that the level of net benefits generated by the PFS facility is directly proportional to the spent nuclear fuel which passes through the facility. It is not unreasonable to assume that the primary source of customers, at least in the first instance, will be PFS members, since they have been the driving force behind PFS and they are all utilities with nuclear plants. In these circumstances it is unreasonable for the agencies not to reflect the substantial changes and pending changes in PFS member utilities (e.g. Illinois Power, GPU and Florida Power), and the impact of ownership changes on the location of member reactors, spent nuclear fuel, and timing questions on PFS' net benefits relative to the No-Action alternative, especially at low levels of throughput.

**h. The number of actual reactors which may reasonably provide a market for PFS should be reviewed. If PFS is not viable at the level of demand that may reasonably be forthcoming in the relevant period, there will be no benefits to even those reactors that might send spent nuclear fuel**

**i. Net benefits and market for spent fuel storage**

The DEIS is clear that the net benefits of the PFS facility are directly proportional to the amount of the market for spent nuclear fuel storage that it will attract. (e.g., DEIS at p. 8-9). The marketability of PFS has not been proven. To date, PFS has not disclosed whether any customers have signed up to store fuel at the PFS site. Furthermore, since filing its license application with the NRC the number of PFS members has been declining and thus there is a declining number of member companies who may store fuel at PFS. In addition, the DEIS tells us that the utilities have licensed 15 ISFSIs and have another 15 or 20 in the works (DEIS, p. 1-7). Also, other transshipment options have been implemented and continue to be utilized by utilities. Thus, there is no recognized market for spent fuel storage at the PFS facility which invalidates the DEIS's claimed net benefits from the PFS ISFSI alternative.

**ii. Viability and timing**

The potential net benefits of PFS relative to the alternatives depend upon a number of factors. Of critical significance is the timing of PFS relative to the needs of its potential customers, to the availability of the permanent repository and other alternatives, and to the 20-year life of PFS at issue in this DEIS.

For example, were PFS to come on line in 2003, and only be able to accept a limited amount of spent nuclear fuel each year, and were the permanent repository to come on line in 2010 with a policy of accepting spent nuclear fuel from decommissioned or decommissioning reactors on a priority basis, and if PFS had to get all its spent nuclear fuel off-site before the expiration of its 20 year license in 2021, then PFS's market share might well be so small that it would not be a viable operation. If under these circumstances PFS is not viable no benefits would accrue because it cannot be assumed that PFS would in fact operate even if NRC granted it a license.

The DEIS analysis is unreasonable in that it ignores or assumes away these very real timing issues. Chapter 8 needs to be rewritten to reflect timing factors in the net benefits of the PFS, Wyoming, and No-Action alternatives. At the heart of PFS's proposal is "interim" storage. Interim spent nuclear fuel storage is in essence a timing issue. Net benefits depend on timing, yet other than the 2010 versus 2015 scenarios for "Yucca Mountain" (but not 2025), the Staff has completely disregarded timing as a major variable – the timing of PFS, and of reactor need given the alternatives, and the timing of a competing facility, all are assumed fixed, or are ignored altogether. 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.)

**j. The DEIS assumption that the no-action alternative will require long term storage in pools is arbitrary and capricious.**

The DEIS recognizes that the industry is moving rapidly towards the construction of onsite ISFSIs. Fifteen ISFSIs already exist and 15 to 20 more are planned. Some reactors will cease operations before 2002 and will not require expensive in-pool cooling, but can rely instead on less costly local ISFSI's. In the case of Trojan, for example, Portland General Electric has,

during the pendency of the PFS application, elected to decommission Trojan by closing the pool and placing all its spent nuclear fuel in a new on-site ISFSI. Transfer of spent nuclear fuel from storage pools to onsite ISFSIs or local centralized intra-utility facility can be done after five years of cooling. There is no reason to assume that the expensive pools and the reactor systems required to support them need to be kept open beyond the five year cooling period for the youngest fuel.

From the foregoing it can reasonably be concluded that NRC has evaluated the wrong no action alternative to the PFS facility. The appropriate no action comparison to the PFS facility is on-site ISFSI storage, using five year or older cooled fuel and without a supporting spent fuel storage pool. The DEIS's assumption that the alternative to PFS is onsite pools because they are cheaper than onsite or local centralized ISFSIs is faulty and mischaracterizes the most economical no-action alternative. Significantly, it is unreasonable to assume that a pool will have to be kept open at reactor sites after all the spent nuclear fuel has been transferred to an onsite ISFSI, given that the NRC staff does not intend to require a pool at the PFS site.

Another aspect that the DEIS overlooks is that on-site ISFSI's are easy to license and comparatively cheap to maintain. There is no reason to assume that nuclear reactor shutdown is a necessary consequence of the no action alternative. Accordingly, the analysis in the DEIS, Chapter 8 (e.g., DEIS, pp. 8-5 and 8-6) is deficient and must be revised to delete the costs of maintaining backup pools after the spent nuclear fuel has been transferred either to an onsite ISFSI or to a local central offsite facility through transshipment. This in turn will require a re-analysis of the correct and most comparable no action alternative. To do otherwise is unreasonable and introduces a sharp bias in favor of the PFS facility and against the No-Action alternative.

**k. Deletion of the "Small Throughput" scenario when this is one of PFS' central scenarios, and when the first license condition focuses on it, is arbitrary and capricious**

Calculations for the storage costs without the PFS facility, the storage costs with the PFS facility, and the cost of the PFS facility for Scenario I, II, III and IV (Table 8-2, DEIS, p. 8.6) leaves out a most relevant scenario. Staff claim that it "makes no judgment about the comparative likelihood" (DEIS, p. 8-1) of the various scenarios and yet eliminates one of the most useful and probable scenarios, the Small Throughput Scenario, *i.e.* a capacity of 6,600 or 8,000 MTU and spent nuclear fuel throughput of 12,565 MTU from PFS member utilities only, DEIS at 8-1. To comply with NEPA, the benefits and costs created by the small throughput scenario must be included in Table 8-2 and 8-3.

The DEIS' Benefit/Cost chapter, at DEIS pp. 8-1 and 8-2, deletes from consideration the Small Throughput" scenario for PFS. The NRC Staff's only apparent reason for the deletion is that as a result of NRC's confidential evaluation of PFS financial qualifications "a license condition has been proposed that would require PFS to have service agreement providing for long-term storage



of SNF in excess of the 8,000 capacity scenario.” DEIS at 8-2. From this statement the NRC Staff concludes that it may eliminate the Small Throughput Scenario. The NRC Staff has kept the volume capacity under proposed license condition confidential. It is grossly unfair to the public and a violation of NEPA to fail to analyze either the volume amount under the proposed license condition or under the small throughput scenario. The next largest scenario is four to five times as large as the small throughput scenario and skews the preferred alternative analysis in favor of PFS.

The Staff has conceded that the viability of the PFS facility is very sensitive to quantity throughput. Furthermore, it is uncertain whether PFS may be able to attract sufficient storage customers to be viable for a small volume facility (see Marketing comments above). Thus, it is unwarranted and arbitrary and capricious to eliminate the small throughput scenario. Furthermore, it is almost certain that an analysis of the small throughput scenario or the volume amount under the proposed license condition would show that PFS is not the preferred alternative and sharply biases the DEIS’s conclusion in favor of the PFS alternative when compared to the No Action (on-site storage) Alternative. The DEIS should be rewritten to include an analysis of a small throughput scenario based on the volume capacity under the proposed license condition. To do otherwise is unreasonable.

**l. The DEIS fails to reflect the fact that this proceeding is for a 20-year license**

On DEIS, p. xxix the Staff is clear what action this DEIS is concerned with:

“NRC’s action is to grant or deny a *20-year license* to PFS to receive, transfer, and process spent nuclear fuel on the Reservation.”

DEIS xxix. (Emphasis added).

It is inappropriate to consider costs or benefits other than for the action being reviewed. Thus, the cost benefit analysis in Chapter 8 is altogether misconceived in that it is based on Supko’s and the agency staffs’ assumption that the facility will be a 40 year facility. Not only does the DEIS base its analysis solely on a 40 year accumulation of net benefits, but even in its sensitivity analysis it doesn’t provide a 20 year scenario. Chapter 8 needs to be redone to reflect the fact that the action here being considered is for a 20 year license. There is the possibility of a subsequent 20 year license, but that license is not at issue here, nor is it automatic. Moreover, any subsequent license issuance would depend on data not available in this proceeding.

**m. The DEIS fails to mention, much less consider, the impact of a second off-site ISFSI to the PFS alternative**

The DEIS analyses ignore the fact that there may be a second off-site ISFSI proposal that may have an impact on the net benefits from the PFS facility. NRC has stated:

In addition, the NRC is reviewing an application for an away-from-reactor Independent Spent Fuel Storage Installation (ISFSI), and a second application is expected in fiscal year 2000.

64 FR 68007 (December 6, 1999). NRC, *Status Report on the Review of the Waste Confidence Decision* (Emphasis added).

The DEIS emphasizes at a number of points that the viability of the PFS facility, vis-a-vis the alternatives, depends on the quantity of spent nuclear fuel shipped to it:

From an economic perspective, the net benefit of the proposed PFS FACILITY is directly proportional to the quantity of SNF shipped to the facility.

DEIS, p. 8-9. In light of this, it is arbitrary and capricious to ignore in this DEIS what the NRC announced in its Waste Confidence Decision Review only last December. If, in fact, NRC no longer contemplates a second off-site license application, the DEIS should clearly state that fact. The DEIS needs to be revised to reflect whether there is a competing off-site ISFSI and, if so, to describe its impact on the PFS proposal.

**n. Transshipment of spent nuclear fuel between reactors has been ignored in the discussion of the on-site storage alternative**

The Staff has ignored the obvious probability (and current reality) of shipments of spent nuclear fuel 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, there is no apparent reason why the NRC would not allow the utility to store spent nuclear fuel from some or all of its reactors at a common site. The NRC has already held that ISFSIs are, as a general matter safe, and has allowed transportation of spent nuclear fuel from commercial reactors to away-from-reactor spent nuclear fuel storage facilities in the past, for instance at Hatch, with spent nuclear fuel transfers from Brunswick and Robinson.<sup>1</sup>

Failure to consider the possibility of intra-utility transshipment of spent nuclear fuel, given its current authorized use, sharply biases the DEIS toward the PFS and against the no-action alternative. This is clearly arbitrary and capricious, especially in light of the fact that the Staff concedes that the industry is in the middle of a building boom of local ISFSIs:

As of January 2000, there were 15 ISFSIs operating in the U.S., and approximately 15 to 20 additional ISFSIs are proposed in the near term.”

DEIS, p. 1-7.

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<sup>1</sup> See, for example, the ASLAB ruling in *Carolina Light and Power et al* (Shearon Harris), 23 NRC 525 (1988), May 29, 1986.

The agency staffs need to redo Chapters 8 and 9 to reflect the economics of intra-utility multi-site storage sharing.

- o. The DEIS's assumption that deliveries to the geologic repository will be based on the Oldest Fuel First (OFF) Principle is incorrect**

The Staff's conclusion that the PFS facility is a superior alternative is based in significant part on its assertion that some utilities 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 Staff's assertion is based on the faulty assumption that all movements of spent nuclear fuel from commercial reactors to the geologic repository are governed by an "oldest fuel first" priority system:

"(E)ven after the permanent repository is complete and begins to accept SNF, it would be able to take only a limited amount of fuel in any given year. PFS assumed that DOE would accept the oldest fuel first (OFF) at the permanent repository. This assumption is used for all shipments bound for the repository."

DEIS, p. 8-3.

The problem with this assumption is that it is both factually incorrect and unreasonable. What determines the priority ranking for fuel shipments into the geologic repository is the Standard Contract between the utilities and DOE contained in 10 CFR 961.11. This contract has three provisions of interest in the current context:

- Article IV(B)(5) sets forth a general statement that the priority for fuel deliveries to the geologic repository will be based on the relative age of the utilities' spent nuclear fuel<sup>2</sup>;
- Article IV(E) provides, however, that utilities may trade their priority rankings within the OFF queue. This provision allows the creation of a market where a utility with old fuel but no shortage of space could contract with another utility with young fuel and a space problem to allow the younger fuel to be sent first; and,
- Article VI(B)(1)(b) provides:

Notwithstanding the age of the SNF . . . , priority may be accorded

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<sup>2</sup> This does not mean that the utility has to actually deliver the oldest fuel first, but only that the number of MTUs it is entitled to send from any of its storage sites year by year is based on the age structure of its spent nuclear fuel overall relative to other utilities. As a practical matter, any particular utility might wind up sending younger fuel from a space-short reactor, rather than its oldest fuel.

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.

Given these provisions of the Standard Contract, it is clearly arbitrary and capricious for the agency staffs to conclude (e.g. at DEIS, p. 8-11, last paragraph) that a major benefit of the PFS facility is that it will solve the spent nuclear fuel storage problem for utilities with plants awaiting decommissioning and unfavorable OFF queue positions problem. The DEIS fails to document that such a problem exists as a practical matter and it hasn't addressed the on point provisions of the Standard Contract (especially Article VI(B)(1)(b)) which appear to deal with the issue and provide a resolution.

The agencies should revise their analysis underlying Chapter 8 of the DEIS in light of the provisions of the Standard Contract cited above.

- p. The DEIS analysis of transport-related costs and risks is defective in that it assumes that the geologic repository will be at Yucca mountain, contrary to the NRC's explicitly articulated position in the Waste Confidence Decision**

The DEIS, for the purposes of its comparative transportation analysis of the PFS facility versus the Wyoming or No-Action Alternatives, has assumed Yucca Mountain will be the geologic repository. DEIS, p. 5-39, lines 41-46. Yet given the NRC's clear statement in its 1990 Waste Confidence Review Decision<sup>3</sup>, Yucca Mountain is *not* to be assumed to be the location of the geologic facility:

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."

NRC, Waste Confidence Review, 55 FR 38505 (September 18, 1990)(emphasis added).

Moreover, since most of the nation's commercial reactors are located to the east of Utah (DEIS, p. 5-1), and closer to the alternative site in Wyoming (Map, DEIS, p. 5-41), it is quite possible that a permanent repository site other than at Yucca would enhance the transportation benefits of the Wyoming site in relation to the Goshute site.

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<sup>3</sup> Affirmed without change in its December 6, 1999 review. 64 FR 68005 et seq.

In light of the explicit determination made by the NRC in its Waste Confidence Decision, it is arbitrary and capricious for the agency staff to contradict the Nuclear Regulatory Commission and assume that for the purposes of the DEIS, Yucca is not only "a" possibility to consider, but the "only" possibility it would consider. This assumption is integral to the DEIS's analysis of both the PFS and Wyoming alternatives and its conclusion that the Wyoming Alternative is not "obviously superior." (DEIS xli).

The agencies should revise the analysis without the assumption that Yucca Mountain is the site of the geologic repository. At the very least, the agencies should consider another site, either a specific site or a composite location, and provide a full sensitivity analysis.<sup>4</sup>

**q. The DEIS fails to reflect the regulatory costs and bonding requirements applicable to PFS as set forth in the Utah Radiation Control Act**

The Utah Radiation Control Act establishes substantial regulatory fees and bonding requirements for the class of facilities which includes PFS. See, for example, Utah Code Ann. §§ 19-3-308 (application fees) and 19-3-306(10) (bond requirement). Since these amounts are significant, it is unreasonable to ignore them when calculating the costs of the PFS facility.

The agencies should revise their analysis to reflect these requirements or explain why they should not be included.

**r. Benefits to the Skull Valley Band of Goshutes must be disclosed**

PFS's request for right-of-way across public lands and BIA's approval of the lease between Skull Valley Band of Goshutes are major federal actions. In weighing the costs and benefits, the DEIS claims substantial benefits will be derived by the Skull Valley Band of Goshutes. The economic terms and conditions of the deal between PFS and the Skull Valley Band are contained in the lease, which has been conditionally approved by BIA. Neither the parties to the lease nor BIA will release a full copy of the lease. In order to determine the appropriateness of the federal decisions as well as the full cost and benefits of the PFS proposal, the terms of the lease, including lease payments to the Skull Valley Band must be publicly disclosed. Without such disclosure the public and governmental officials not privy to the lease are deprived of evaluating the DEIS's claimed benefits to the Band.

**s. The assumptions of the expected production of spent nuclear fuel are wrong**

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<sup>4</sup> As it did by choosing the Maine Yankee location as the composite location of the nation's reactors for the purpose of its incoming spent nuclear fuel shipping analysis. It would be easy to take some centralized major rail center as the composite location and re-run the staff tables with the new location. The task is too simple not to be reasonable to do.

In calculating the expected production of spent nuclear fuel, no credence is given to unreliability experienced with respect to some U.S. nuclear reactors. There is no sensitivity analysis comparing anything other than each reactor completing a 40-year operating life with an 80 percent capacity factor.

Several plants owned by member utilities have not produced electricity over a significant period of time. Cook unit 1 has been off-line for three years (9/97). Indian Point 2 has not produced power since February 15<sup>th</sup> of this year. Cook 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 periods of time extending into years.

Many reactors have been retired well before their 40 year expected life, including three plants owned by member utilities: LaCrosse, Indian Point 1 and San Onofre 1. Furthermore, a number of researchers have estimated that several operating US reactors will retire early from service.

These predictable changes will mean less nuclear waste will be generated, and the need for this facility will be correspondingly less. The DEIS should be revised to reflect this reality.

**t. Costs of spent nuclear fuel storage wrong**

The assumption which is reflected in Table 8-2 and 8-3, DEIS at p. 8-5 that PFS FACILITY has a 30 percent cost advantage for overpacks and canisters is unusually biased in favor of PFS FACILITY. The DEIS, at the very least, should incorporate equal costs for overpacks and canisters in the sensitivity analysis in Table 8-3.

**u. Costs associated with facility are time-sensitive; potential for delay not analyzed.**

Many of the net benefits of PFS described in Table 8.3 of the DEIS turn negative if the PFS facility is delayed by only two years.<sup>5</sup> The DEIS describes a "detailed chain of logic" (DEIS, p. 8-2) which leads from the ERI April 2000 report<sup>6</sup> to the figures in Table 8.2 and 8.3. We assume

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<sup>5</sup> This is true even allowing PFS's assumptions we find unusually biased in favor of PFS facility, e.g. PFS facility is given a 30 percent cost advantage for overpacks and canisters, and the DEIS accepts the assumption that most nuclear power plants would continue to keep spent nuclear fuel in storage pools after the reactor is closed.

<sup>6</sup> Energy Resources International, Inc., "Utility At-Reactor Spent Fuel Storage Costs For The Private Fuel Storage Facility Cost-Benefit Analysis Revision 2," April 2000. Within the last few days the State received a copy from PFS of the proprietary data supporting the ERI report, after entering into a Confidentiality and Non-Disclosure agreement with ERI. The State is in the process of analyzing the data and will submit separate proprietary DEIS comments at the beginning of next week. The State requests the agencies to accept these comments because the

the net benefits of the PFS facility accepting spent nuclear fuel in the years 2002 and 2003 in the ERI April 2000 report flow through this chain of logic into the overall net benefits of the PFS facility in the various scenarios in Table 8.2 and 8.3. If this is so, the net benefits shown in Table 8.2 and 8.3 would be greatly overstated if PFS FACILITY is not available to accept waste in these early years.

The proprietary ERI analysis shows that a delay in opening PFS facility could greatly reduce the net benefits. The DEIS does not adequately address these concerns. State comments based on the proprietary ERI analysis are attached separately and addressed only to the NRC Staff.

**v. The DEIS's sensitivity analysis fails to analyze a number of reasonable and obvious scenarios**

A defensible DEIS will have a well prepared sensitivity analysis. In this DEIS the sensitivity analysis is in Table 8-3 (DEIS, p. 8-8) and associated text. The sensitivity analysis needs to be redone to correct for all of the problems identified in these comments, including:

- The lack of a "small throughput" scenario;
- The re-specification of the analysis to reflect the benefits and costs limited to the costs and benefits of a 20-year PFS facility;
- The lack of the an analysis of the impact of a second away-from-reactor ISFSI competitor to PFS;
- The lack of an analysis of the impact of transshipment on the benefits and costs of PFS;
- The unreasonable \$8 million per year pool maintenance cost;
- The lack of timing scenarios of when PFS would come online relative to when a permanent geologic repository would come on line;
- 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.

The sensitivity analysis as currently drawn is arbitrary and capricious for these reasons and must be redone.

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timing of receipt of the data for the ERI report was beyond the State's control and the information was not otherwise available. Furthermore, evaluation of the ERI data by the State's experts is time-consuming and cannot be completed any more expeditiously than next week.

**6. Failure to analyze incompatibility with surrounding military activities.**

The PFS facility is incompatible with surrounding military activities. The PFS facility will be located east of the Utah Test and Training Range (UTTR) property and underneath the UTTR airspace designated as a military operating area. The activities approved in the airspace over the PFS storage facility include air-to-air training, low-altitude training, cruise-missile testing, and major military exercises. The main use of the Skull Valley airspace is to allow low- and medium-altitude entries of F-16s into the UTTR from Hill Air Force Base. The risk of aircraft crashes, including military aircraft, into the storage facility has not been evaluated at all in this DEIS. Although PFS has contended that the risk is insignificant, the State will demonstrate during the licensing proceeding that there is a significant risk that has not been evaluated in this DEIS.

Additionally, the military tests large footprint weapons, including cruise missiles, on the UTTR. Cruise-missile testing may last up to five hours, as the cruise missile follows a preplanned flight path through the UTTR airspace. Three cruise missiles have crashed since December 1997, including two outside of military property under the military operating area airspace. The risk of such crashes to a nuclear storage facility has not been evaluated at all.

See also Attachments 9, 10, and 11.

**7. Failure to include the Department of Defense as a consulting agency.**

The Department of Defense, and specifically the U.S. Air Force and the U.S. Army and their installations, have a clear interest in, impact on, and consequence from the proposed facility and transportation corridor. Congress clearly felt that was the case when it passed the 1999 National Defense Authorization Act, discussed above in Part A.3. The military's interest in the area is so significant that the Department of Defense should have been added as a cooperating agency in this process. In this DEIS process, however, there is no indication that the Army and Air Force have even been consulted.

**8. Analysis of alternatives does not meet the requirements of NEPA, and implementing regulations**

The DEIS has selected an appropriate "no action" alternative – leaving waste "near facility" at individual reactors until a permanent repository is ready – but it has not come close to giving it the fair analysis it deserves. The comparison should have come down to one between the fairly weak impacts from additional near facility storage – increased cost, additional easily obtained licensing of local ISFSIs, overcoming some physical limitations – and the potentially very substantial impacts from transporting nuclear waste throughout the country, as well as the substantial costs to the State of Utah described in Part B.5 of these comments. That comparison was not made.



If the DEIS had fairly made this comparison, it would have come to the same conclusion reached by the GAO in its 1991 report "Nuclear Waste Operating Monitored Retreivable Storage Facility Unlikely by 1998," GAO/RCED 91-194: there is sufficient on-site storage for waste, and that is where the waste should stay. The DEIS's failure to consider the GAO findings represents a serious oversight.

**9. The DEIS does not demonstrate a need for the proposed facility.**

The environmental review staff from the NRC, BIA, BLM, and STB have concluded that the benefits of the proposed facility outweigh the costs based in part on the supposed need for an alternative to at-reactor storage, and, for some facilities, for economical storage. DEIS, p. 9-13. The staff is simply wrong about the assumption of need for additional storage. The GAO Report described in Part B.8 clearly identifies adequate existing storage for spent nuclear fuel. Again, the GAO Report's findings should have been included in the discussion in the DEIS, and the findings utilized or specifically refuted with facts. In the limited case where space is not available and cannot be secured, the utility could build its own dry cask storage at the reactor site or contract with the US Department of Energy to manage waste fuel.

There may, in some cases, be local laws or local political pressure that prevent expansion of on-site or near-site storage. Those are choices that local communities have made; those communities have indicated by passing those laws that they are willing to live with the consequences, including shutting down of the facility. NRC and the cooperating agencies must not mistake these local choices for a need for additional storage space.

In addition, the action alternatives analyzed are not adequate. The second Skull Valley site is indistinguishable from the first, and is contiguous to it, and the Wyoming site is not even described and is clearly not taken seriously in the analysis.

The loss of full core offload capacity data, Table 1.1 is not sufficient to justify the need for the proposed facility. The DEIS fails to evaluate the impact of numerous other actions under consideration by individual PFS members and prospective customers, actions which, if taken, would extend the dates of loss of full core offload capacity. All of those actions are part of the No Action Alternative and should be evaluated.

Furthermore, the DEIS must identify the potential impacts of the No Action Alternative to the individual PFS participants and prospective customers. The DEIS fails to show how the individual members and participants will actually be impacted. It is not sufficient to describe impacts in terms of "broad observations about the nuclear power industry." DEIS, p. 6-41.

**10. The DEIS does not support the need for such a large facility.**

PFS has applied for a permit for a 40,000 MTU facility. The State of Utah does not believe this DEIS or the record in the proceeding before the NRC can support a conclusion that there is a

need for any facility at all. But even if the need for a facility is demonstrated, there is plainly no need for a facility of this size. There are approximately 40,000 MTUs of commercial high level nuclear waste in the entire country; much of this could continue to be stored on the site of the generating nuclear reactor. Obviously, the risks associated with the facility – particularly with transportation of fuel to the facility – will be smaller if the facility is smaller. This option has not been analyzed in the DEIS, and it should be in order to give the federal agencies an appropriate basis for their decisionmaking.

Furthermore, PFS's phased approach to construction is evidence that even PFS does not now see the need for a 40,000 MTU facility. The NRC should not license any facility larger than that for which PFS can demonstrate the need. It is unconscionable that NRC will consider issuing PFS a license so that PFS may canvas the nation for customers to store fuel at the PFS site. Each agency has cited need for the facility as a justification for its proposed action in this DEIS. In fact, no such need has been or can be demonstrated for a 40,000 MTU facility.

**11. The DEIS fails to adequately address obvious safety and environmental concerns regarding the rail spur.**

The proposed rail spur will cross numerous unpaved public roads between Low and the Reservation. These crossings will create a potential hazard to motorists. Under Section 2.1.1.3, New Rail Line, on page 2-14, the second to last paragraph states that there will be no need for active warning devices. We do not believe that this statement is correct. Under the Utah Code, the responsibility for approval and control of all at grade public crossings is assigned to the Utah Department of Transportation. Upon receipt of a formal request for a public crossing(s), a railroad surveillance would be performed by UDOT, following Federal Highway Administration (FHWA) guidelines. In the interest of public safety and concurrent with FHWA, it is our goal to reduce the number of at grade crossings by 25%. Where new crossings become necessary, the current practice is to require active warning devices. We will also need to know the exact routes to be taken by trains entering the State of Utah carrying spent fuels, in order to determine if any existing warning devices need to be upgraded.

**12. Risks and costs of transportation are not adequately discussed.**

The EIS does not adequately address the responsibilities and liabilities of PFS in the event of an incident. The proposed rail spur would begin in the vicinity of Interstate 80, which is the principal east-west highway corridor for the State of Utah and Wasatch Front. Closure of I-80 due to a spent fuel incident could create serious public safety and interstate commerce problems. Additionally, the proposed spur will cross numerous streams along the route. Again, the EIS does not adequately address the responsibilities and liabilities of PFS in the event of an incident. The questions of liability, cleanup, and routing of traffic need to be addressed.

The State has also included significant additional comments as Attachment 19.

**13. Inappropriate reliance on the waste confidence decision means many significant impacts are not addressed.**

Much of analysis in DEIS is based on the assumption that this is an interim facility. See e.g., 6-42. If this assumption had been objectively analyzed in the DEIS, it would not have survived. There is no way to ensure the nuclear waste will ever be removed from the site. The proposed permanent repository at Yucca Mountain, Nevada, is still undergoing extensive testing to determine whether the site is suitable for geologic disposal of high level nuclear waste. If construction of the Yucca Mountain site is determined to be not viable, then the contentious repository siting process will start over again, and the PFS site would almost certainly become a defacto permanent storage site.

If Yucca Mountain is built, there is still no certainty if or when all the high level nuclear waste stored at Skull Valley will be removed to Yucca Mountain. Current federal law limits Yucca Mountain's capacity for commercial high level nuclear waste to 63,000 MTUs, and capacity cannot be increased until a second repository is built. 42 U.S.C. § 10134(d). Currently, no second repository is even being considered, but DOE projects that more than 105,000 MTUs of commercial spent fuel will be generated. Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste in Yucca Mountain, Nye County, Nevada, Volume I - Impact Analyses, July 1999, at 1-23. Thus, under current law over 40,000 MTUs (the amount potentially stored in Skull Valley) will not have a disposal place. Simple arithmetic makes it clear this repository will not be temporary.

Even if a permanent repository were to become available, DOE and the owners of the nuclear waste, not PFS, would determine what and when waste from PFS will go to any available permanent repository.

The DEIS relies on NRC's Waste Confidence Decision (55 Fed. Reg. 38474; Sept. 18, 1990)<sup>7</sup> in support of its faulty assumption that the PFS facility will be temporary (DEIS, p. xxxii), but it provides no other support or basis for the assumption. The NRC's reliance on the Waste Confidence Decision in this context is misplaced because it flies in the face of the facts, as described above. But there is also no indication anywhere in any incarnation of the waste confidence rule that the Commission considered its confidence that waste would be moved off-site from an away-from-reactor ISFSI. The only consideration of an away-from-reactor ISFSI, in fact, leads to the opposite conclusion. The Commission cites this PFS application (although not by name) in further support of its Waste Confidence Decision. 64 Fed. Reg. 68005) In other words, other nuclear facilities may have confidence that they will not have to store waste for extended periods of time, because that waste will be coming to Utah to be stored. Clearly, this does not reflect an expectation on the part of the Commission that this facility is temporary. The Waste Confidence Decision should not be applied with respect to this facility at all.

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<sup>7</sup> Iterations of the Waste Confidence Decision are scattered in Federal Register notices, but the rule itself is in 10 C.F.R. § 51.23.

Even if the Waste Confidence Decision were intended to be applied to this away-from-reactor facility, however, it is not appropriate for the cooperating other agencies to use that rule to avoid doing their own analysis of the permanence of this facility. Those analyses need to be made in light of their own statutory and regulatory mandates and obligations. BIA, for example, is required to evaluate the effects of the environment from the use of leased lands. 25 U.S.C. § 415(a). This reflects a trustor's obligation to assure that the trustee's land will not be saddled with problems upon the lease's end. BIA must perform its own analysis to assure that is the case.

If there is no permanent repository for this waste at the end of the licensing period, as appears likely, the agencies will be faced with two choices. Either the facility will have to continue to store the waste indefinitely, or the waste will have to be returned to its owners. The latter choice may not be possible for facilities that are decommissioned. The consequences of both of these choices should have been analyzed in the DEIS and must be analyzed before any decision may be made which results in moving nuclear waste to Utah.

**14. Mixed oxide fuel poses special storage and disposal problems that have not been addressed in this DEIS.**

PFS has indicated that it intends to accept and store mixed oxide fuel at the facility. ER, at 1.2-8, Rev 6. However the certificate of compliance for the Holtec cask system that PFS proposes to use has not been approved for storage of mixed oxide fuel. In addition it is not clear, even if Yucca Mountain goes forward as a permanent repository for commercial nuclear waste and has room for other wastes from PFS, that it will accept mixed oxide fuel, thus making the PFS facility the de facto permanent storage facility for this fuel. Failure to consider this scenario is a serious omission in the DEIS.

**15. Facility's lack of a contingency plan for spills, and a realistic closure plan means that there is a risk of contamination that has not been described.**

In many cases, the NRC appears to have uncritically accepted PFS's assurance that it will "start clean, stay clean." DEIS, pp. 2-19, 2-25, 4-42. It has been the experience of the State of Utah as a regulator that, while some polluters intend to pollute, most do not. We do not take our regulated entities word that they will not spill or release contaminants, however. In most cases, we require management practices and controls to prevent spills, contingency plans to respond to them, and financial assurance to assure that problems are addressed. With minor exceptions, none of the commonsense regulatory mechanisms have been employed by NRC. As a consequence, the agencies can have no assurance that problems will be avoided or addressed at the PFS facility.

It should also be noted that the Surface Transportation Board requires there be contingency plans for spills in place, a requirement that has not been met by PFS in time for this public review.

**16. Impacts of PFS's claimed limited financial responsibility and liability not described.**

As the Governor stated in his September 20, 2000 letter introducing these comments, all federal agencies who assisted in the preparation of the DEIS should be aware that PFS does not enjoy limited liability under Utah law. However, PFS continues to claim limited liability.

The DEIS does not address PFS financial responsibility and liability to ensure impacts to the environment and human health will be minimized. PFS claims to be a limited liability company with no assets of its own. 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. If PFS does not have adequate financial resources to safely operate, the DEIS evaluation is meaningless.

NRC has not required PFS to submit detailed financial information. Prior to license issuance, NRC will *not* require PFS to demonstrate that it will likely be able to obtain sufficient funds to build, operate, and close the proposed facility. Instead, NRC will allow PFS to build the storage facility upon a showing that PFS has sufficient commitments, rather than actual funds in hand, to fund phased construction. In addition, NRC will allow PFS to operate if it has contract commitments, not funds, to cover costs of storing the volume of waste covered by PFS contracts.

Because NRC is deferring any financial evaluation, the BLM, BIA, and STB will be asked to make decisions before a financial analysis is completed. The environmental consequences that may flow from PFS's lack of a solid financial foundation cannot be assessed. Thus the BLM, BIA and STB will need to make an independent analysis of the environmental impacts associated with granting approval to a corporation that claims limited liability and with no assets for their respective federal actions.

NRC has a poor record of evaluating a licensee's financial reliability. NRC failed to ensure that a private company had adequate funds to cleanup the Atlas tailings contamination near the Colorado River. Atlas declared bankruptcy and, therefore, was not ultimately responsible for the necessary cleanup.

**17. Dry cask technology presents risks not discussed.**

The proposed canisters and casks have not been subjected to any full scale tests. Moreover, some casks in use today have had numerous problems, such as hairline fractures during manufacturing, an explosion due to a chemical reaction during loading of the casks, and cask-weld failures. Furthermore, as to the PFS site, there is no discussion of the very real risk of cask sliding and tip over that may occur as a result of an earthquake. See Attachments 12 and 13, regarding Utah Contention GG.

**18. The risks and consequences of sabotage must be discussed.**

Rather than evaluate them, the DEIS simply opines that the consequence of sabotage accidents would not be "unacceptably large." DEIS, p. 5-53. In order to assess impacts, the potential consequences of sabotage or terrorism while the spent fuel is in transportation and storage must

be determined. Consequences may be significant because new armor-piercing weapons are currently available that may easily penetrate the transportation casks.

**19. Analysis of required federal and state permits is incorrect.**

The Draft Environmental Impact Statement ("DEIS") does not list all permits, licenses, approvals and other entitlements which must be obtained in connection with the PFS ISFSI License Application (DEIS pp. 1-18 to 1-23). The State believes these permits should be referenced in the EIS. There are unlisted State permits and approvals for activities which are not on the reservation. There are also State requirements which apply to activities on the reservation which are also not listed. The Skull Valley Goshutes have no environmental regulations. The federal government, in many of the listed circumstances, does not have rules which cover the PFS activities. Because of this void in regulatory oversight, the State's interests are potentially directly affected; therefore, State approvals must be obtained and State requirements must be met to protect State interests.

NRC and this DEIS are primarily concerned with radiological pollution. Unless the State's jurisdiction is accepted as described below, there would be a void in regulation. This is particularly true for sources of pollution not regulated by the EPA, e.g., septic tanks, ground water.

**a. State Jurisdiction on Skull Valley Reservation.**

PFS has challenged the State's authority to enforce otherwise applicable state regulations because the proposed storage project will be located on the reservation of the Skull Valley Band of Goshute Indians, and has asserted that State law has no application to activities in "Indian Country." This is a simplistic and 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.

State civil-regulatory authority over tribes and tribal members has been recognized in a variety of circumstances, including record keeping and collection responsibilities for state cigarette sales taxes (Washington v. Confederation Tribes of Colville Indian Reservation, 447 U.S. 134, 159-60, 65 L.Ed.2d 10, 100 S.Ct. 2069 (1980) and Moe v. Confederated Salich and Kootenai Tribes, 425 U.S. 463, 482-83, 48 L.Ed.2d 96, 96 S.Ct. 1634 (1976)), state regulation of on-reservation liquor sales by tribal members for off-premises consumption (Rice v. Rehner, 463 U.S. 713, 732-33, 77 L.Ed.2d 961, 103 S.Ct. 3291 (1983)) and tribal member fishing practices (Puyallup Tribe, Inc. v. Department of Game, 433 U.S. 165, 53 L.Ed.2d 667, 97 S.Ct. 2616 (1977)).

Under the Supremacy Clause of the United States Constitution (Article VI, cl.2), state laws clearly in conflict with federal law or policy are preempted. However, federal

preemption of state law will not be lightly inferred.<sup>8</sup> Preemption will only be found where there is express statutory language signaling an intent to preempt and the courts

infer such intent where 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[.]<sup>9</sup>

Where, as here, 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."<sup>10</sup> 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."<sup>11</sup> In connection with such a preemption analysis, "any applicable regulatory interest of the state must be given weight."<sup>12</sup>

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. 3291 (1983).

State interest may also be greater where a third party locates a pollution source on tribal trust lands primarily to avoid State regulation. In the case of State of Washington v.

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*International Paper Co. v. Ouellette*, 479 U.S. 481, 491, 93 L.Ed.2d 883, 107 S.Ct. 805 (1987) and *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230, 91 L.Ed. 1447, 67 S.Ct. 1146 (1947).

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*Northwest Central Pipeline Corp. v. State Corporation Comm'n*, 489 U.S. 493, 509, 103 L.Ed.2d 509, 109 S.Ct. 1262 (1989); accord *English v. General Electric Co.*, 496 U.S. 72, 79, 110 L.Ed.2d 65, 110 S.Ct. 2270 (1990); *California Fed. Savings & Loan Ass'n v. Guerra*, 479 U.S. 272, 280-81, 93 L.Ed.2d 613, 107 S.Ct. 683 (1987); *Cotten Petroleum Co. v. New Mexico*, 490 U.S. 163 (1989).

<sup>10</sup> *White Mountain Apache Tribe v. Bracker*, 448 U.S. 136, 142, 65 L.Ed.2d 665, 100 S.Ct. 2578 (1980).

<sup>11</sup> *Id* at 145.

<sup>12</sup> *Id* at 144.

Confederated Tribes of the Colville Indian Reservation, 447 U.S. 134, 65 L.Ed.2d 10, 100 S.Ct. 2069 (1980) the Court held that the state could tax on-reservation sales of cigarettes at tribal smokeshops to nonmembers who traveled to the shops to purchase cigarettes sold at a lower cost because state taxes were not being paid. The Court's reasoning was as follows:

We do not believe that principles of federal Indian law whether stated in terms of preemption, tribal self-government, or otherwise, authorize Indian tribes thus to market an exemption from state taxation to persons who would normally do their business elsewhere. (Emphasis added). Id. at 155.

In the case of California v. Cabazon Band of Mission Indians, 480 U.S. 202, 219-220, 94 L.Ed.2d 244, 107 S.Ct. 1083 (1987), the court recognized that state claims to jurisdiction are stronger where the tribe is primarily marketing an exemption from state laws.

In making the preemption analysis required in the instant case, several points are important to consider:

- (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. Specifically, Section 510 of the Federal Water Pollution Control Act recognizes the right of Utah to adopt and enforce water quality protections. 33 U.S.C. §1370. Similarly, the federal Clean Air Act, Section 116, retains Utah's authority over air pollution sources. 42 U.S.C. §7416.
- (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 induced to locate within Indian reservations as a way of evading State regulations.

As has been amply demonstrated, the argument that pertinent State air quality and ground water regulations have no application because the proposed project is located on an Indian reservation is incorrect. In fact, the required preemption analysis leads inevitably to the conclusion that State law dealing with the vital matters of air and ground water has not been preempted and that it is enforceable.



**b. State and Other Permits**

**(1) Water Quality**

UCA § 19-5-107 provides that it is unlawful for any person to discharge a pollutant into waters of the state or to cause pollution which constitutes a menace to the public health and welfare, or is harmful to wildlife, fish or aquatic life, or impairs domestic, agricultural, industrial, recreational, or other beneficial uses of water, or to place or cause to be placed wastes in a location where there is probable cause to believe it will cause pollution. It is also unlawful, without first securing a permit from the Executive Secretary, to construct, install, modify, or operate any treatment works, the operation of which would probably result in a discharge. Treatment works includes disposal fields and lagoons under UCA § 19-5-102(15).

Surface waters in the Skull Valley area are classified under UAC R317-2-13.14 Unclassified Waters which provides that all surface waters not specifically classified are presumptively Class 2B, 3D. Water Quality Standards and numeric criteria are listed in UAC R317-2 for these classes of waters.

**(a) UPDES Storm water**

In circumstances where the State has jurisdiction, if there will be a storm water discharge, a UPDES permit is required under UAC R317-8-2.1(1)(a). Even if the storm water permit is covered by a general permit, the Executive Secretary may call for a permit on a case-by-case basis under the provisions of UCA R317.8-2.1(3) and 2.5(2)(b). It should be specifically noted that UAC R317-8-3.1(2) requires that facilities proposing a new discharge of storm water associated with industrial activity shall submit an application 180 days before that facility commences the industrial activity which may result in a discharge of storm water associated with that industrial activity.

PFS proposes a retention basin to collect storm water. The Draft EIS (p. 4-12) indicates that PFS would sample and analyze water from the basin when water is present to determine if contaminants are present (PFS/ER 2000). This is not an accurate description of what PFS proposes. See p. 4.2-8 of PFS/ER2000. PFS states that under current state and federal storm water regulations since the storm water flows into an on-site retention pond and since PFS considers there is no possibility of discharge to the waters of the United States, a UPDES or NPDES storm water permit, with its associated monitoring and reporting requirements, is not applicable to PFS and its operations. Nevertheless, PFS states that it

considers it prudent to obtain samples of water from the retention pond to verify that storm-water runoff is contamination free of radiological contaminants but PFS does not plan to sample for non-radiological contaminants. Water collects from across the facility to the storm water detention basin. If there have been any spills of either radiological or non-radiological contaminants, the down gradient repository is the detention basin.

The DEIS (p. 4-10) describes the PFS facility as a zero release facility. It is not a zero release facility. It is specifically identified that water from the detention basin will infiltrate into the ground (DEIS p. 4-10). Of specific note is the fact that PFS will be discharging to waters of the State of Utah. The DEIS notes that water from the storm water detention basin will be seeping into the ground and hence will be discharging to groundwater, which is waters of the State, even if the seepage occurs on the Indian reservation. See discussion below.

Further, the DEIS represents that water in the detention basin will be pumped out if it accumulates (DEIS p. 2-10). There is no indication in the DEIS where the water is going to be pumped and where it is going to be discharged. Any discharge to waters of the State requires permits as described.

For construction activities of five acres or more, a state UPDES permit is required for storm water discharges associated with those activities. UAC R317-8-3.8(6)(d)10. A state general permit may be issued which requires 48 hours prior notification of construction activities and development of a Storm Water Pollution Prevention Plan (SWPPP) prior to construction to be kept on site for review. The Executive Secretary may call for a specific permit if circumstances warrant. PFS has represented that a draft SWPPP is under preparation. Construction activities for each of the Low rail corridor railroad, and the ITF, and for the ISFSI involve five acres or more.

(b) Construction Permit - Septic Tank Systems.

If the domestic wastewater discharges exceed 5,000 gallons per day, the requirements of UAC R317-5 must be met and a construction permit must be issued by the State. UAC R317-5-1.3. 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. Both State and local approvals require construction inspections to insure compliance with State

requirements.

Additionally, the DEIS at p. 4-12 indicates that drains from process systems are kept separate from septic systems. No indication is given as to where drains from the process system are discharged which would require State and federal permitting.

(c) Construction Permit - Wastewater retention pond

UAC R317-1-2.2 requires a construction permit for construction of the wastewater retention pond. Design requirements are contained in UAC R317-3. PFS describes its proposed retention pond as being free-draining and sized to accommodate 100-year storm event. Water dissipates by evaporation and percolation into the subsoils. This would not meet the State design requirements unless the storm water is uncontaminated. If the storm water is contaminated by substances of concern, design standards would be governed by criteria established by the ground water permit in order to protect ground water quality, and the current design would not meet standards. Again, water collects from across the facility to the storm water detention basin. If there have been any spills of either radiological or non-radiological contaminants the down gradient repository is the detention basin.

(d) Groundwater Permit UAC R317-6-6 and 317-6-6.2(C)

No person may construct a new facility which discharges or would probably result in a discharge of pollutants that may move directly or indirectly into ground water, including, but not limited to . . . . . ponds, and lagoons whether lined or not, without a groundwater discharge permit from the State. UAC R317-6-6. On July 8, 1997, because of the potential for pollution of waters of the State, the Executive Secretary of the Utah Water Quality Board called for an application from PFS under the provisions of UAC R317-6-6.2(C) as an exception to any permit by rule which may be applicable. A groundwater discharge permit will be issued only if the State determines that the applicant has demonstrated that it will meet applicable class TDS limits, ground water quality standards protection levels and permit limits, monitoring requirements, and sampling and reporting requirements. In addition, the applicant must use best available technology to minimize the discharge of any pollutant, and there must be no impairment of present and future beneficial uses of the ground water. UAC R317-6-6.4(A).

The application for a groundwater discharge permit must include maps

showing all water wells and a geologic, hydrologic, and agricultural description of the geographic area. The applicant must identify the type, source and characteristics of the water, information on control measures, and information to classify the ground water sufficient to determine the applicable protection levels. A proposed monitoring and compliance plan must be submitted identifying groundwater flow direction and gradient, monitoring well construction, parameters to be monitored, and plans and specifications for construction, modification, and operation of the systems. A complete description of information required in the application is contained in UAC R317-6-6.3.

While the ground water potentially affected by the PFS facility is as yet unclassified, it is likely the highest class of ground water, Class IA - Pristine Ground Water. Protection levels are listed in UAC R317-6-4. Ground water quality standards are listed in UAC R317-6-2.

PFS has represented that groundwater in the area of the ISFSI site is approximately 125 feet below the surface. PFS has also indicated 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 not drain to the retention pond raising additional permit and groundwater protection issues.

Even if an exemption may apply which establishes a permit by rule, the Executive Secretary has the authority to call for a groundwater permit for lagoons and leach fields if the Executive Secretary determines that the discharge is likely to cause increases above water quality standards or limits or would otherwise interfere with probable future beneficial use of the ground water. UAC R317-6-6.2(C). As indicated, the Executive Secretary has determined that the proposed facilities may interfere with probable future beneficial use of the ground water, and has determined a permit is necessary. (See Attachment 14, Letter to PFS dated July 8, 1997, from Don Ostler, Executive Secretary, Utah Water Quality Board, to John D. Parkyn, Chairman of the Board, Private Fuel Storage, L.L.C.)

(e) Section 404 Permits and State Certification

A Section 404 permit is required from the U.S. Army Corps of Engineers for discharge of dredged or fill materials into waters of the United States which includes inland waters, lakes, rivers, streams including wetlands and tributaries to navigable waters. 33 U.S.C. § 1344. State certification of 404 permits is required under Section 401 of the Clean Water Act, 33 U.S.C. § 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.

It should be noted that there has been no official delineation of wetlands by the Army Corps of Engineers in the area of the rail corridor, ISFSI or ITF. To adequately assess wetland impact, such a delineation must formally occur.

(f) UIC - Class V Permit

UAC R317-7-1 et seq. regulates underground injections. Under State jurisdiction, the septic tank/leach fields are Class V wells under UAC R317-7-3.5(I) because they are used to inject the waste or effluent from a multiple dwelling, business establishment, community, or regional business establishment septic tank. The systems are not exempted by UAC R317-7-3.5(i) because they have the capacity to serve more than 20 persons per day or there is the potential they will not be used solely for the disposal of sanitary waste. 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 a Underground Sources of Drinking Water (USDW). The ground water in the area of the Goshute Reservation is a USDW by definition. UAC R317-7-2.47.

EPA requirements for the PFS septic tank/leach fields which serve 20 or more people, 40 CFR 144.26(a), is simply registration. There are no construction standards or requirements. EPA has similar authority to the State to require a UIC permit. The State would request EPA call for a UIC permit if it asserts jurisdiction. At a minimum, since the two PFS FACILITY septic tank/leach fields will qualify as Class V injection well, a UIC inventory form would need to be filed with EPA prior to placing these septic tank/leach field systems into service.

(2) Drinking Water

a. Construction Permit - Drinking Water System

Under authority of UCA § 19-4-104(1)(b), the Utah's Drinking Water Board requires the submission to its executive secretary of plans and specifications for approval prior to construction of any public water system. UAC § R309-102-2. For the purpose of protection of the public

health and the environment, the public drinking water system must meet the construction and operation requirements and standards in UAC R309-200 et seq. There must be protective zones established for wells used in the system before the system can be approved. UAC R309-113 et seq. A public drinking water system is defined as any system, either publicly or privately owned, providing water for human consumption and other domestic uses, which has at least 15 service connection, or serves an average of at least 25 individuals daily at least 60 days out of the year. PFS has represented it will be employing a significant number of individuals, including Utah citizens, above the 25 threshold. It will be providing water for human consumption and other domestic uses that must meet state requirements. Neither the Goshute tribe or EPA have comparable construction standards and approval process.

b. Drinking Water Requirements

During operation of the system, the public water system must meet the monitoring and operation requirements of the State rules. Water quality maximum contaminant levels must be met with appropriate monitoring and reporting. UAC R309-103 and 104. Even if PFS is determined not to be subject to state requirements, it would qualify as a public drinking water system under the federal Safe Drinking Water Act, 41 USC §§ 300g et seq., and would be subject to the operation and monitoring requirements of implementing federal rules.

(3) Water Rights

The State has jurisdiction over the water within the State, to include water on or under the Skull Valley Goshute reservation, contrary to the representation in the DEIS (p. 1-23).

The water law of Utah embodies the appropriation doctrine. Priority and quantity of a water right is established by the date and in the amount the water was first put to beneficial use. Congress has recognized this state system in determining reserved water rights for federal lands. United States v. City and County of Denver, 656 P.2d 1, 4-8 (Colo. 1982). The Courts developed a reserved water rights doctrine which was formally identified in Winters v United States, 207 U.S. 564 (1908). Under Winters, tribes hold implicitly reserved water rights. Congress has attempted to integrate reserved water rights into state water appropriations systems by authorizing states to adjudicate such rights in general adjudication proceedings and to administer those rights.

In 1952, the Congress passed the McCarran Amendment, waiving the sovereign

immunity of the United States and allowing it to be named as a defendant in state water rights general adjudication and administration proceedings. In Colorado River Water Conservation District v. United States, 424 U.S. 800 (1976), the Supreme Court held that the McCarran Amendment allowed Indian water rights to be adjudicated in state court by suing the United States in its role as trustee for the tribes. The Court has stated that the intent of Congress in enacting the McCarran Amendment was to subject all federal water rights of whatever nature to comprehensive state proceedings. Arizona v. San Carlos Apache Tribe, 463 U.S. 545 (1983).

The reserved rights of the Goshute Skull Valley Reservation have not as yet been determined either in quantity or priority through a State general adjudication proceeding. It is clear that all water, both surface and groundwater, on and within the reservation are held in trust by the State of Utah. Utah Code Annotated § 73-1-1. The Goshutes may have reserved rights to an as yet undetermined quantity of water. The exact quantity must be determined by assessing the "practicably irrigable acreage". That quantification standard was established by the Supreme Court in Arizona v. California (Arizona I), 373 U.S. 546 (1963) and (Arizona II) 460 U.S. at 605 (1983).<sup>13</sup>

The appropriation, adjudication, and supervision of diversion and distribution of recognized water rights for both surface water and groundwater are functions of each state water law system. The Goshute Tribe's reserved rights are subject to that Utah State system. In United States v. Anderson 736 F.2d 1358 (9th Cir. 1984) the court upheld the State of Washington's permitting authority with respect to unappropriated waters on the Spokane Indian Reservation. Appropriators are entitled to the maintenance of the conditions substantially as they existed on the date they first exercised their rights. Orr v. Arapahoe Water and Sanitation Dist., 753 P.2d. 1217 (Colo. 1988). The State of Utah and water rights holders have direct interests in the surface water and groundwater on the Goshute Skull Valley Reservation, and specifically so where the proposed PFS facility affects quality and quantity of water use beyond the reservation boundary.

(a) Well Permit

The DEIS indicates that the "large quantities" of water needed for dust control, soil compaction, and concrete case manufacturing may require new on-site wells (p. xxxv and p. 2-11 of DEIS). UCA § 73-3-25 requires that "no person may construct a well in this state without first obtaining a license". Well drillers are required to comply with the rules enacted by the State Engineer in UAC R655-4 et seq. Prior to commencing work on any

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<sup>13</sup> see also *In Re Big Horn River System*, 835 P.2d 273 (Wyo. 1992).

well, all drillers must file a written notice of intention to start as provided in UAC R655-4-4 which must include a currently valid authorization to drill, approved by the state engineer as described in Section R655-4-2.27. Wells intended for public water systems must comply with the requirements of the DEQ rules. UAC R655-4-13.

Evaluation of potential draw down from wells and impact on private or reservation groundwater is part of the evaluation to obtain the approvals required from the State Engineer.

(b) Certificate of Appropriation of Water

UCA § 73-3-1 et seq. requires an application and certificate to appropriate an waters of the State, including groundwater on the Skull Valley Indian Reservation.

(c) Change of Point of Diversion, Place or Nature of Use of Water.

Any change of place of diversion or use or change of purpose for which water was originally appropriated requires the grant of an application. UCA § 73-3-3.

(4) Air Quality

(a) State Approval Order

Any person intending to construct, modify, or relocate a new installation which will 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. Submitted with the notice of intent must be a description of the processes, expected emissions, control apparatus, location and elevation of emission points, sampling points, operating schedule, and construction schedule. UAC R307-401-2. A public review and comment period for State approval is required (UAC R307-401-4), and best available technology as defined in UAC R307-101-2 must be applied (UAC R307-401-6). An evaluation must be made as to whether National Primary and Secondary Ambient Air Quality Standards and Prevention of Significant Deterioration concentration requirements are met. UAC R307-401-6.



PFS has represented that it will 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.

It should be noted that it is unclear from the DEIS (p 4-13 to 4-16) the time and extent of operation of the concrete batch plant during construction and operation of the facilities.

The State would treat all activities of PFS as a single source for purposes of issuing an approval order which would require inclusion of the gas heating units and fugitive dust control as part of the State permit.

A State or Federal PSD permit may be required if emission thresholds are exceeded, UAC R307-405-6 and 40 CFR 52.21.

(b) Fugitive Dust

To the extent applicable, the control of fugitive dust requirements in UAC R307-205-3 and 4 must be complied with. Construction activities for the low corridor, ITP and ISFSI site will require the control of fugitive dust.

(c) Title V Permit

The concrete batch plant (p. 2-5 of DEIS) is potentially an NSPS source and therefore a Part 70 Source. UAC R307-415-4(1)(b) and R307-415-5a(3)(c), 40 CFR § 71.3(a)(2) and § 71.4(b) (tribal area). To the extent the State has jurisdiction, PFS would be required to apply for and obtain a Title V Permit. 40 CFR 70.3(a)(2)

The aggregate processing for the batch plant is not defined and may be covered by 40 CFR Part 60 Subpart 000 as an NSPS source which would also make it an area source subject to the requirements of Title V of the federal Clean Air Act. In that circumstance, the State Title V requirements or the Part 71, EPA requirements would be applicable.

No mention is made of use of an asphalt plant other than a reference to use of existing plants in the area. An asphalt plant is also an NSPS source under Subpart I, 40 CFR Part 60, and consequently is covered by Title V. Part 71, EPA requirements would be applicable if the State did not have jurisdiction. If an asphalt plant is going to be used, and should EPA determine it has jurisdiction on the Skull Valley Reservation, PFS would be required to obtain a Title V Permit from EPA.

A diesel generator, depending on the amount of nitrogen oxides emissions, may trigger a requirement for a Title V permit. UAC R307-415-4.

Title V of the Clean Air Act requires submission of information for a permit that documents the emission characteristics of the PFS emission points and inventories of Title III Hazardous Air Pollutants.

40 CFR 60 Part 116 may be applicable to diesel tanks and would need to be documented in a Title V permit application.

(5) RCRA and State Solid and Hazardous Waste

PSF has projected that it will not generate sufficient quantities of RCRA regulated Hazardous Waste to be classified as a small quantity generator. However in order to manage and track offsite disposal of its de minimus quantities of generated RCRA wastes, PFS FACILITY represents that it may still file for a RCRA ID number. The State is 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, hydraulic and miscellaneous lubricants are substances of concern.

(6) Spill Prevention for Diesel Fuel.

PFS is subject to the requirements of 40 CFR 112.3(b).

(7) Stream Alteration Permit - Utah State Engineer

The DEIS represents the rail route will cross 32 streams with ephemeral flows (p. xxxiv of DEIS). Any stream relocation or alternation or change of the beds and banks of any natural stream must receive written approval of the State Engineer. UCA § 73-3-29. The DEIS incorrectly identifies the Utah Department of Environmental Quality as the State agency having jurisdiction over stream alteration permits (p.1-23 of DEIS).

(8) Permits and Approvals under UCA § 19-3-301 et seq.

No mention is made in the DEIS of the construction and operating license from the Utah Department of Environmental Quality 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. A transfer facility includes any facility which transfers waste from and between transportation modes and includes an intermodal transfer point.

Information to be contained in an application and findings required for approval by DEQ are listed in UCA § 19-3-305 and 307. Information that must be submitted includes identification of groundwater resources in the area, transportation routes and plans, environmental, social and economic impacts of the facility, detailed engineering plans and specifications for construction, operation and closure of the facility, detailed cost estimates and funding sources, a security plan, description of site suitability to include geologic, meteorologic, and ecologic features, identification of sources of waste and persons having legal responsibility, quantitative and qualitative environmental and health risk assessments, qualification and training of personnel, quality assurance/radiation safety/ and environmental monitoring programs, regional emergency plan, and other information determined by the DEQ necessary to insure protection of the public health and the environment.

DEQ may not issue a construction and operating license to any waste transfer, storage, decay in storage, treatment, or disposal facility unless the facility location meets the siting criteria in UCA § 19-3-307. Unless an exemption is granted by the DEQ based on a demonstration that a modification of the criteria would be protective of and have no adverse impacts on the public health and the environment, the facility may not be located within or underlain by: parks or wilderness areas, in ecologically or scientifically significant natural areas, including areas for listed or proposed endangered species, 100 year flood plains, areas 200 feet from Holocene faults, underground mines or salt beds, dam failure flood areas, landslide or mud flow areas, prime farmlands, areas within 5 miles of existing residential areas, areas within 5 miles of surface wastewaters including intermittent streams, areas within 1000 feet of archeological sites, aquifer recharge zones, and drinking water source protection areas. The PFS facility would be required to request an exemption from a number of the listed criteria, to include proximity to waters of the State, recharge zones, water protection areas, and residential areas.

Application fees and annual fees are listed in UCA § 19-3-308. An initial fee of \$5 million is required with subsequent payment to cover additional costs to the state associated with review of the application. To cover state oversight, a per ton annual fee is assessed. A benefits agreement is required under UCA § 19-3-310 which is sufficient to offset adverse environmental, public health, social, and economic impacts to the state as a whole, and also specifically to the local area in which the facility is to be located.

(9) Rail Construction

No tract of any railroad may be constructed across a public road, highway, or street at grade without the permission of the Utah Department of Transportation.

UCA § 54-4-15. The requirements in UAC R930-5 must be met. There is no mention in the DEIS that the proposed rail line will be crossing public roads, and is therefore subject to UDOT approval.

(10) State Roads and Excavation in State Right-of-Way

UDOT UCA § 72-7-102 requires that no person may dig or excavate within a right-of-way of any state highway without approval from the State. Permits may require a surety bond or other security.

The State has assumed responsibility and control over the Skull Valley Road. Any road improvements must be performed in cooperation with the State and meet State requirements. These issues should be addressed under the requirements of 10 CFR § 51.45(d). Additionally, as is noted in the DEIS (p. xxxviii and 2-42), special permits would be required from the State of Utah because of the size and weight of heavy-haul vehicles. PFS has inaccurately represented that the Skull Valley Road is capable of handling the heavy haul vehicles without road improvements or upgrades (p. xxxviii of DEIS). The DEIS has inadequate information to support such a conclusion.

(11) State Lands.

State lands are located throughout the proposed area. If any state lands are to be impacted, easements, rights of way, or use of state lands is regulated by the Division of Forestry, Fire and State Lands. UCA § 65A-1-1 et seq.

(12) Underground Storage Tank

If tanks for storage of petroleum products are underground (see p.4-12 of DEIS which refers to on site vehicle fuel tanks), they are subject to State (UCA § 19-6-401 et seq. and implementing regulations, UAC § 311-200 et seq.) or federal law if the State does not have jurisdiction.

(13) Liquified Petroleum Gas

The provisions of UCA § 53-7-301 et seq. and implementing rules must be complied with.

(14) Fire Prevention

The provisions of UCA § 53-7-201 et seq. and implementing rules must be complied with.

(15) Division of Oil Gas and Mining - Permits and Approvals

Depending on the nature of the activities, permits may be required under UCA §§ 40-8-1 et seq and implementing rules.

NRC and this DEIS do not consider or evaluate any form of pollution other than radiological. It relies on PFS's "start clean/stay clean" statement to conclude that PFS won't pollute. There is a void in regulation here. Either the State or local jurisdiction would usually be regulating those sources. EPA seems to be absent or, alternatively, the sources are not the type EPA usually regulates (e.g., septic tanks). Accordingly, the EIS must include the above-referenced state permits and requirements.

**20. The DEIS's analysis of risks associated with seismic instability is legally and factually inadequate.**

Earthquake, ground motion, soil stability concerns, surface rupturing, and other major geologic and seismic considerations are not addressed in the DEIS, but instead according to the NRC are addressed only in the NRC's Safety Evaluation Report (SER). The DEIS states that the "adequacy of the proposed PFS facility design to withstand earthquakes will be addressed in the NRC's final Safety Evaluation Report (SER) and is not addressed in this DEIS." DEIS, p. 4-2. See also "Background Information on NRC's Safety Review Process," DEIS, p. 1-14. This is unacceptable and represents a significant flaw in the DEIS, both technically and procedurally. NRC's deferral of this important issue to the SER does not meet the requirements of NEPA. It avoids public access and public comment on the issue. Even if the SER were open for public review and comment, its purpose is not the same as for the DEIS, and it cannot serve the same function. The DEIS must address environmental consequences of subsurface hazards, including seismic, faulting, and soil/foundation hazards to transportation, transfer, and storage of high level nuclear waste. The DEIS must also be capable of withstanding public scrutiny of NRC's geotechnical analysis. The State has challenged the quality, interpretation, and comprehensiveness of PFS's seismic data. The public should have the same opportunity through review of the DEIS. Moreover, environmental consequences due to subsurface hazards may be significant, particularly if the structures and equipment are not adequately designed to withstand potential ground motion or loading. In addition, the SER does not evaluate 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.

In addition, the NRC's draft SER dated December 15, 1999, revised and reissued on January 4, 2000, cannot serve as a stand-in for a DEIS on this issue because there are substantial problems with the geological analyses in that document. See Attachment 6, Utah's Contention GG.

NRC staff, despite objections from the State and significant evidence of geologic and seismic problems, is considering exempting the proposed facility from certain existing NRC seismic

regulation. If that does occur, it would allow the PFS to build and operate a facility to a lower design standard which may have significant environmental consequences. Since the SER is not subject to public notice and comment, it would also not meet the requirements of NEPA, and may not be relied upon in finalizing the EIS. Because the general public is excluded from participation in hearings before the Licensing Board, the public will be unable to fairly and completely respond to these critical decisions, contrary to the requirements of the National Environmental Policy Act and federal administrative procedures.

**21. Future land use is inadequately analyzed for this fast-growing area.**

In numerous sections of the report, the percentage change from the 1996 population is used to determine impacts to the Tooele County population. There is more current year information, which should be used. See Part C.5 of these Comments. Tooele County's growth rate has continued to climb. The DEIS does not acknowledge that, but instead relies on a growth rate of 2.9%. No discussion of expected land use can be complete without a better understanding of population growth than this DEIS exhibits.

**22. Construction schedule not provided.**

The DEIS provides no construction schedule. DEIS p. 2-3. PFS has indicated it is planning to construct after the FEIS and license have been issued, but the ER also says construction will begin in September of 2000. (ER, § 3-2). Construction must not be allowed to begin until all agency decisionmaking has been completed; no agency should be forced to try and make an objective determination in the face of PFS's commitment of large amounts of resources to this project.

It is also important to have a construction schedule in order to accurately assess costs and benefits. See Part B.5.h(ii) above.

**23. Adequacy and cost of local emergency services, including firefighting capability, not discussed.**

PFS's planned fire fighting unit is inadequately staffed and trained, as has become clear in the course of the licensing hearings. Furthermore PFS cannot rely on timely fire fighting assistance from Tooele County because the distance involved and the all volunteer nature of the Tooele County Fire Department. The Staff's SER is inadequate to support the environmental consequences of PFS's inability to deal with an on-site fire and thus, this aspect must be addressed in DEIS. The discussion in the DEIS is relegated to a statement that PFS will plant crested wheat as a fire barrier. See e.g., DEIS at 4-25. Nowhere is there a substantive discussion of the consequences that will result from PFS inadequately staff and trained fire fighting unit. Moreover, PFS will have no fire fighters on-site after normal working hours.

The EIS must adequately and accurately describe the environmental effects of the proposed

action. The Applicant's proposal to build a rail spur down the middle of Skull Valley and ship casks by locomotive from Low at Interstate-80 to the reservation presents a new wildfire ignition source. This is a serious matter in an area that is prone to wildfires and which the DEIS. See Attachment 16, Utah Contention HH. The NRC Staff's attitude to the State's concern about a new ignition source in Skull Valley was that the PFS proposal to build a rail spur down the middle of Skull Valley "does not raise any issue that does not appear to apply as well to the rail spur alternative contained in the original application." See Attachment 17, Staff's Reply to Contention HH at 4. In the original application PFS proposed to build the rail spur in the right-of-way next to Skull Valley Road. The Staff's myopic view and basic misunderstanding of the potential for wildland ignition sources is perpetuated by the DEIS's failure to address wildland fires.

The local Tooele County Fire District is a volunteer fire department. DEIS, p. 3-43. Of particular concern is the fact that local volunteer fire fighters will not go anywhere near radioactive materials and the facility may have to be evacuated for several days. As Utah Sen. Ron Allen from Tooele County testified during the ASLB's special appearances session:

I served as the fire chief for nearly ten years and frequently fought fires in Skull Valley. Because the area is dry and often experiences high winds, it is very common to have range fires in this area in which thousands of acres burn. These wind-driven fires typically travel at speeds of over 30 miles per hour and sparks and embers often travel as much as a half mile in front of the active fire line. This often sets fires on ranches and lands that would normally be protected by roads and fire breaks. The most common procedure in fighting these fires in the Skull Valley area has been to evacuate all persons at risk as quickly as possible, miles ahead of the fire. If PFS were to promote the security of the area by planning to have a fire brigade on site, in front of the advancing flames, it would violate the basic wildfire training of every firefighter in the fire service: That you never get in front of a wind-driven advancing wildfire; you fight from the area already burned. I'm wondering if PFS is willing to completely evacuate and abandon the site for what could be a period of several days. I have not seen a plan to deal with site evacuation and abandonment in an area where the fires occur nearly every fire season. In terms of providing fire assistance to the site, I have talked to the county and city fire chiefs in this area that would provide support, and not one of them has been contacted or asked about potential aid agreements to the site. Fire chiefs and medical crews have been completely left out of the planning process. Interestingly enough, I have heard proponents talk about the excellent level of fire service available to the area. This is simply not true. In fact, the departments are all staffed by volunteers who are very highly trained but many of them have expressed their intention to not assist in fire suppression in an area that contains nuclear material, regardless of how safe it may be. The primary concern is it takes them out of their area of protection. Several also offered their observations that they just finished some training concerning nuclear hazards in the fire service and

were informed of the fact that all the firefighters brought in to Chernobyl later died. When I reminded them there's a big difference between a reactor accident and materials stored in casks, they said they would not respond anyway. As a volunteer, the risks are just not worth it.

So to summarize, we are creating a major economic disincentive for others business that would otherwise locate in Tooele County, and fire suppression and public safety have not been addressed at a practical operational level. Those providing the service have not been included at all in the process and we are now aware of the fact that many volunteers are reluctant to respond to a fire in the area.

Accordingly, PFS must be prepared to abandon the facility for several days if a wildfire comes through the site and the consequences of leaving the facility unattended for several days must be addressed in the EIS. Furthermore, PFS cannot rely on local firefighters to fight fires near the PFS facility or near its spent fuel shipment en route to the PFS ISFSI. This, too must be analyzed in the EIS.

The DEIS fails to address PFS's reliance on local government fire fighting resources, as well as local law enforcement nor does the DEIS address the adequacy of these resources for the task. In addition, there is an economic and societal cost in providing these services. PFS 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 these costs that would occur from PFS using governmental resources.

**24. Constancy of electrical power sources may not be assumed.**

The DEIS indicates that the facility will have a backup diesel generator. DEIS, p. 2-10. At the Tooele Chemical Demilitarization Facility, we have learned that backup systems do not always work when primary systems have failed. However the DEIS has failed to provide any information about the possible consequences of loss of power.

**25. Potential impacts of lighting on the facility have not been described.**

Aside from a brief acknowledgment that lighting will make the facility visible to Skull Valley motorists at night, impacts from lighting are not discussed. Increased light pollution could have significant impacts on astrological observatories at Dugway, as atronomers Wayne Springer and Lawrence Wienche testified during NRC limited appearances in June 2000.

**26. Failure to provide "hot cell" creates considerable risks that have not been considered in the DEIS.**

PFS will not have a hot cell or other facility in which it may open the casks, inspect the condition of spent fuel and cladding or conduct any necessary canister repairs. PFS's license, if granted



will allow it to receive up to 4,000 casks. It is highly probable that with the massive amount of shipments to PFS there will be some casks or canisters that are damaged or contaminated. If a canister is damaged or is contaminated, PFS plans to refuse the shipment and send the damaged or contaminated canister back across country to the originating power plant without first addressing the problem or store the damaged fuel on-site. This obviously would create significant risks, as described in Utah's Contention J, which is included with these comments in Attachment 1. The EIS must address the significance and environmental consequences of PFS not having on-site access to a hot cell.

**27. Impacts on wildlife inadequately described.**

The DEIS still fails to recognize that the areas near the site are important migratory bird areas. This issue was also addressed during our scoping comments.

**28. Impacts on historical resources inadequately described.**

The State of Utah is amazed that federal agencies would appear to give so little consideration to destroying and blocking historic trails. These are important historical resources that deserve protection. This issue was also addressed in our scoping comments.

**29. Impacts on proposed wilderness inadequately described.**

The rail spur will 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. BLM should insist on a more comprehensive analysis of potential conflicts with the wilderness it administers.

**30. Reclamation of rail spur not addressed.**

The DEIS fails to commit to decommissioning or reclaiming the rail spur right of way. If the facility is not temporary, the rail spur and the ITF also cannot be temporary. Yet, the DEIS fails to evaluate impacts of a permanent rail line or ITF.

**31. Impacts to nearby state lands, private lands, and R2477 roads not addressed.**

The DEIS completely fails to evaluate impacts to nearby state lands, private lands, and to rights of way owned by the state (RS2477 roads).

**32. Steps to protect ground water not taken.**

Under Utah law, and by common sense, potential sources of ground water contamination are separated from the ground by a liner and monitored to assure protection of the ground water. Under PFS's proposal, however, two significant potential sources of ground water contamination

are left unlined and unmonitored. As described at DEIS, p. 2-8 and 2-9, the pad upon which the casks will be placed will be made from native soils mixed with cement. As further described at DEIS, p. 4-19, surface water runoff from the restricted-access area would be routed to a detention pond. PFS currently has no plans to protect either of these sites with a liner, however, or to monitor them. They both need to be lined and monitored.

**33. Monitoring proposed is inadequate.**

PFS has proposed no biological monitoring during operation, but has indicated instead that it will simply implement surveillance programs to prevent wildlife habitation within the storage area. DEIS, p. xxxvi. The impossibility of this goal was evidently recognized by the agency staffs. In the DEIS "Mitigation Measures" section, they indicated that PFS would be required to develop an adequate wildlife monitoring program before initiating operations. DEIS, p. xlv. The State of Utah agrees with the requirement, but disagrees with the timing; any such monitoring plan should be subject to review in this DEIS process. The State also does not believe that the requirement goes far enough. Vegetation and soils should also be monitored. There is no point in establishing baseline for these media, as specified at DEIS, p. 2-28, if there is no ongoing monitoring.

**34. Failure to adequately address Alternative Action--Federal Government Taking Possession of Spent Nuclear Fuel**

The DEIS fails to adequately describe or fully evaluate the Alternative Action identified under Section 2.2.1.3. No analysis of the environmental impacts of spent fuel storage can be complete without considering the management program preferred by the U.S. Department of Energy (DOE). The NRC summarily dismisses the program as unripe. In fact, the program has sufficient credibility and detail that it would be arbitrary and capricious not to consider it. Moreover, the program was formulated, in part, to avoid some of the impacts that this facility would create.

Under DOE's management program, DOE will take title to spent fuel while that fuel remains in on-site facilities associated with the reactors where the fuel was generated. On a case-by-case basis according to the preference of the utility, DOE would either undertake responsibility for managing these on-site storage facilities or would reimburse the utility for its management costs. See, e.g., 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, which is included with these comments in Attachment 2 (Scoping Comments dated May 27, 1999, Attachment C).

DOE prefers this on-site storage option to a centralized DOE interim storage facility because it will postpone the costs and potential hazards of waste 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. *Id.* at 4. DOE also prefers this option

because it avoids the additional costs associated with building a new, temporary DOE repository. *Id.* Both of these reasons apply to a privately-owned temporary repository as well. *Id.* See also the discussion of cost/benefit analysis in the May 27, 1999, Utah scoping comments.

Federal regulations require consideration of reasonable alternatives even if they are not within the jurisdiction of the lead agency (Council on Environmental Quality (CEQ) regulations at 40 C.F.R. § 1502.14(c); and NRC regulations, 10 C.F.R. Part 51, Subpt A, App. A, Section 5 (incorporated through 10 C.F.R. 51.70(b)).

**35. The environmental consequences of the rail line cannot be limited to the immediate, proposed rail spur.**

The logical termini of the project may not be adequate. FHWA regulations state that:

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 (1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope.

23 CFR 771.111(f).

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.

**36. Failure to address impacts of rise in Great Salt Lake.**

The EIS must address the relation of the elevation of the rail bed and the historic high lake water levels of the Great Salt Lake. Rises in the level of the Great Salt Lake in the late 1980s and early 1990s jeopardized the use and safety of the rail transportation corridor on the south end of the Lake. The DEIS does not reference the problems, much less provide an evaluation of risks, an alternative if flooding occurs in the future, and an evaluation of the financial impacts to remedy the problems.

**37. The DEIS fails to address significant impacts on highways and highway users.**

If the Skull Valley Road (State Route 196) Alternative is selected as a haul road in place of the Rail Alternative, it would create substantial impacts on the highway and highway users. This haul would create numerous safety concerns and would likely cause substantial pavement damage. Specific concerns and comments are:

- The planned haul vehicles would be oversize and overweight. Oversize/overweight permits would be required for each trip. A separate permit for hauling the nuclear waste material would also be required. Escort vehicles would be required for each haul. The hauling and permitting are governed by provisions of the Utah Code and Utah Administrative Code.
  - The pavement subgrade materials over much of the highway length are weak. The pavement shows extensive cracking over much of the area. Frequent heavy loads from the proposed haul would cause severe pavement and subgrade damage. Oversize/overweight permits would likely not be granted until the pavement and subgrade can be strengthened. Highway drainage structures may also need to be strengthened. There are currently no plans in the Statewide Transportation Improvement Program to improve this highway. The Permittee would likely be required to make the necessary improvements as a condition of the permits.
  - Motorist safety on this highway is a major concern. Although the average accident rate for this route is below the expected rate, the severity rate is high. The highway was not designed and built to accommodate heavy trucks. The pavement is narrow, with narrow unpaved shoulders. Because of the long tracker/trailer combinations required, there is high potential for head-on accidents. There are numerous horizontal and vertical curves that have insufficient passing sight distance to accommodate vehicles of the size required. The roadway will require significant improvements in order to handle the planned haul. Improvements could include widened pavements, increased shoulder widths, flattened highway curves, and pullout areas to facilitate safe passing and to accommodate vehicle safety inspections. Again, there are no plans in the Statewide Transportation Improvement Program for this highway. The Permittee would likely be required to make these improvements before a permit could be issued.
  - Prior to making the above improvements to the Skull Valley Road (SR-196), and any other related roadway, an environmental analysis would have to be completed. NEPA or state and local requirements would apply. The needed improvements would require addressing impacts to stream/drainage crossings, rare and endangered species, and cultural and historic resources. State permits, including an UPDES storm water discharge permit for construction would be required.
- 38. Agencies have failed to address impacts of geologic hazards along the proposed rail spur.**
- a. Earthquake hazards**

New data collected by Private Fuel Storage and provided to the State of Utah indicates that the railway may be subject to fault rupture of the surface during large earthquakes and subject to strong ground shaking. Either surface rupture or strong ground shaking could be sufficient to

cause derailment of a train carrying nuclear materials.

The railway would cross at least two branches of the 'East' and 'West' capable faults, recently identified by PFS's consultants while investigating hazards at the proposed storage site. PFS's consultant's also identified at least 2 dozen other young faults under or adjacent to the storage site, the size and extent of which are as yet undetermined. The Utah Geological Survey is currently evaluating the PFS data and it appears that there are more faults present than those recognized by PFS's consultants.

The railway would cross the western extension of the Pass Canyon fault, labeled the 'Pass Canyon structure' by PFS. This geologic feature needs to be evaluated to determine if it is a capable fault.

Just south of Interstate highway 80, the proposed railway parallels segments of the Cedar Mountain fault. The size, extent, location, and nature of this fault is poorly known. We do not at present know how much of a hazard the Cedar Mountain fault presents to the railway.

We believe that a large earthquake on the nearby Stansbury Fault could trigger significant earthquakes on the shallow buried faults in the valley. 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.

Fault zones similar to that underlying the storage site and parts of the railway, exist in many areas of the world, including parts of the Wasatch Fault. In similar zones of multiple faults, history demonstrates that 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.

Therefore, we strongly encourage the EIS to consider the impacts of strong ground shaking, and the possibility of a surface rupturing earthquake that might occur anywhere, at any time, along the railway.

**b. Expansive and collapsible soils**

The railway crosses the piedmont slope on the eastern edge of the Cedar Mountains. The slope is underlain by Lake Bonneville and alluvial-fan deposits. These deposits may contain expansive and collapsible soils which may subject the rail bed to instability because of volumetric change.

**c. Debris flows and floods**

The alluvial fans were formed as sediment and debris were deposited by streams flowing from mountain canyons. Debris flows, debris floods, and stream floods emanate from canyon mouths and flow down the fans during periods of intense rainfall or rapid snowmelt. These processes are

expected to continue and pose a hazard to the operation of a rail spur in their path.

**39. The DEIS does not consider impacts to Wasatch Front**

The DEIS addresses only purely local impacts, those to Tooele County and the Skull Valley Reservation. A reader unfamiliar with the area would barely be aware that the proposed site is close to Salt Lake City, or that much of the nation's nuclear waste would be transported through downtown Salt Lake City as a result of the approval of this project. The DEIS also fails to discuss the substantial transportation impacts to the Wasatch front. The DEIS needs to expand the area in which the impacts may occur and do more than a purely local analysis. Salt Lake City is only 45 miles from the proposed site. The rest of the Wasatch front is not much further. In the vast area of the western U.S., these distances are close.

**40. Greater than Class C Wastes**

NRC has proposed allowing storage of greater than Class C wastes at ISFSIs (including off-site ISFSIs). Accepting these classes of waste at the PFS facility could be done after only a fairly simple license amendment. The possibility and impacts of storing these wastes should have been considered in the DEIS. See Attachment 18, Comments by the State of Utah on NRC's proposed rulemaking.

**C. SPECIFIC COMMENTS**

1. Page 1-1: Illinois Power is no longer a member, having been bought out by Florida Power and Light.
2. Page 2-8 and 2-9: The DEIS states that surface soils would be enhanced with a soil concrete mix to stabilize soil for loading, however the construction and stability are not adequately described. PFS has said it will easily be engineered during design to meet the "necessary strength requirements" but not even those requirements are described.
3. Page 2-10: Wood power poles could pose fire danger; steel should be required.
4. Page 2-11: Descriptions of the septic tank/leach field system leave many important questions unanswered. All of PFS's wastewater, including drainage from the Cask Transfer Building, would be disposed of using a drain to a leach field in soil. It is impossible, based on the information provided in the DEIS, to determine whether this is adequate. What would be going down the drain? What quantities? What about truck or cask wash down? What about runoff, both rain and washdown of equipment. What about non-radiological pollution?
5. Various: There is more current data available for the following statistics from the Governor's Office of Planning and Budget, Demographic and Economic Analysis (DEA)

website ([www.qget.state.ut.us](http://www.qget.state.ut.us)) with respect to the following:

- For Section 3.5.2.2
  - Tooele County and Tooele City population projections
  - State of Utah and Tooele County persons per square mile
- For Section 3.5.2.3
  - State of Utah and Tooele County employment and income statistics
  - Tooele County residential building permits (University of Utah, Bureau of Economic and Business Research)
- For Section 4.5.1
  - Tooele County average school aged children per household





UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of:	Docket No. 72-22-ISFSI
PRIVATE FUEL STORAGE, LLC (Independent Spent Fuel Storage Installation)	ASLBP No. 97-732-02-ISFSI  November 23, 1997

STATE OF UTAH'S CONTENTIONS ON THE  
CONSTRUCTION AND OPERATING LICENCE APPLICATION  
BY PRIVATE FUEL STORAGE, LLC FOR  
AN INDEPENDENT SPENT FUEL STORAGE FACILITY

Pursuant to 10 CFR § 2.714(b), the State of Utah hereby submits its contentions regarding the construction and operating license application by Private Fuel Storage, LLC's for an Independent Spent Fuel Storage Installation on the Skull Valley Band of Goshutes reservation, Utah. Contentions regarding general NEPA issues, the intermodal transfer site, quality assurance, financial assurance, emergency planning, geotechnical and seismic issues are supported by the Declaration of Lawrence White, PE, Executive Vice President and Senior Program Manager of Versar, Inc., attached hereto as Exhibit 1. Contentions regarding NRC dose limits, facilitation of

decommissioning, thermal design, inspection and maintenance of safety components, quality assurance, helium in canisters, technical qualifications, impacts of onsite storage and transportation of spent nuclear fuel, are supported by the Declaration of Dr. Marvin Resnikoff, Senior Associate of Radioactive Waste Management Associates, attached hereto as Exhibit 2. Other contentions are supported by Affidavits as specified in the particular contention. As documented below, the Applicant, Private Fuel Storage, LLC, does not comply with 10 CFR Part 72 and regulatory guidance. In fact, the license application is substantially incomplete. The State of Utah therefore respectfully submits that this license should be denied.

#### A. Statutory Authority

**CONTENTION:** Congress has not authorized NRC to issue a license to a private entity for a 4,000 cask, away-from reactor, centralized, spent nuclear fuel storage facility.

**BASIS:** The NRC may only license the storage of spent fuel at facilities which are authorized by statute. Bowen v. Georgetown Univ. Hosp., 488 U.S. 204, 208 (1988) ("It is axiomatic that an administrative agency's power to promulgate legislative regulations is limited to the authority delegated by Congress."). The Nuclear Waste Policy Act (NWPA), Part B, Interim Storage Program, 42 USC §§ 10151 - 10157, defines the scope of facilities authorized for interim storage of spent nuclear fuel. In light of the NWPA, NRC cannot rely on its general statutory authority or authority to license spent nuclear fuel as the source of its authority to license a centralized 4,000 cask away-from-reactor facility operated by a limited liability corporation. American Petroleum Institute v. EPA, 52 F.3d 1113, 1119 (D.C. Cir. 1995) ("EPA cannot rely on its general authority to make rules necessary to carry out its functions when a specific statutory directive defines the relevant functions of EPA in a particular area."); Sierra Club v. EPA, 719 F.2d 436, 455 (D.C. Cir 1983), *cert. denied*, 468 U.S. 1204 (1984). NRC's general licensing authority does not give NRC carte blanche authority to make any rules it wishes regarding away-from-reactor storage of spent nuclear fuel.

Initially, NRC licensed ISFSIs under its general regulation for the Domestic Licensing of Special Nuclear Material, 10 CFR Part 70. See 45 Fed. Reg. 74,693 (Nov. 12, 1980). Chapter 6 of the Atomic Energy Act deals specifically with special nuclear material in terms of the acquisition and domestic and foreign distribution of special nuclear material. 42 USC §§ 2071, 2073 to 2077. Under the Atomic Energy Act congressional authorization extended to NRC's authority to license civilian ownership and possession of special nuclear material. 42 USC § 2073. However, it was not until the NWPA that Congress specifically addressed storage of spent nuclear fuel.

In the NWPA of 1982 Congress specifically authorized private storage of spent nuclear fuel at reactor sites. Congress authorized storage of spent nuclear fuel away from reactors only at federally owned facilities. 42 USC § 10,155(h). Neither the NWPA, nor the statutory basis in 1980 for NRC to promulgate Part 72, can be construed as authorizing NRC to issue a license for a 4,000 cask, centralized, privately owned, away-from-reactor, nuclear waste storage facility that is being sought by this Applicant.

The NWPA expresses Congress's purpose and intent in dealing with spent nuclear fuel storage.<sup>1</sup> 42 USC § 10,151. Congress directed the NRC and other

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<sup>1</sup> As stated in the legislative history of the Nuclear Waste Policy Act of 1982, PL 97-425, House Report No. 97-491, Pt. 1, p.26 "Background," U.S. Code Cong. & Admin. News 1982, at 3,792: "The need for legislation to address problems besetting nuclear waste management, and Congressional efforts to address these problems, has increased and become urgent since the early 1970's. Prior to this time, the inventory of wastes from nuclear activities grew with little public notice and minor

authorized federal officials to encourage and expedite the storage of spent nuclear fuel at the site of each civilian nuclear power reactor. 42 USC §§10,151 and 10152.

Congress granted the NRC rulemaking authority for licensing technologies for the storage of civilian spent nuclear fuel at the site of any civilian nuclear power reactor.

Id. § 10,153. Finally, the NWPA authorized the "establishment of a federally owned and operated system for the interim storage of spent nuclear fuel at one or more facilities owned by the Federal Government with not more than 1,900 metric tons of capacity...." Id. § 10,151(b)(2).

Congress imposed limits on centralized storage of spent nuclear fuel. First, the facility is to be federally owned and operated. 42 USC § 10,155(a). Second, maximum storage capacity is no more than 1,900 metric tons. Id. Third, when providing storage capacity, Congress directed the Department of Energy (DOE) to seek to minimize the transportation of spent nuclear fuel. Id. at § 10155(a)(3). Fourth, storage of spent fuel must be removed from the site not later than 3 years following the date on which a repository or monitored retrievable storage (MRS) facility is available. Id. § 10,155(e). Finally, Congress imposed annual reporting requirements on DOE. Id. § 10155(f).

The stark contrast between what the Applicant is requesting NRC to authorize under Part 72 and the directives Congress imposed on the federal ownership and operation of centralized interim away-from-reactor storage under the NWPA bespeaks

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Congressional concern. (*emphasis added*).

the lack of statutory authority for NRC to license the proposed PFS facility. First, the Applicant's facility would not have the backing of the federal government but would be owned and operated by a limited liability company with no independent assets. Second, instead of a maximum limit of 1,900 metric tons the Applicant requests a maximum limit of 40,000 metric tons. Third, spent nuclear fuel would be transported from all over the United States, primarily from the eastern states, thousands of miles to the Utah facility. Fourth, the Applicant's facility is de-linked from completion of Yucca Mountain or an MRS. There is no assurance that the stored fuel in Utah will ever be moved. Finally, as the licensing of an off-site ISFSI is totally an NRC regulatory creation, there are no Congressional reporting requirements.

Another glaring aberration between this Applicant's proposal under Part 72 and the centralized away-from-reactor storage under NWPA is to contrast the involvement of States. *See* 42 USC § 10,155(d). First, under NWPA, the Secretary of Energy must appraise the State Governor and its legislature of potentially acceptable interim storage sites and the Secretary's intention to investigate those sites. 42 USC § 10,155(d)(1). Second, the Secretary is required to give timely updates and results of investigations to the Governor and State legislator and enter into negotiations to establish a cooperative agreement between the Secretary and the State. 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 closures of storage capacity at a site or facility within such State for the interim storage of spent fuel from civilian nuclear power reactors." Id. § 10,155(d)(2). Third, 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. Id. § 10,155(d)(3). Fourth, the Secretary must periodically report to Congress. Id. § 10,155(f). Finally, a State may voice its disapproval to Congress of a proposal to construct storage capacity of 300 metric ton or larger at any one site. Id. § 10,155(d)(6).

In contrast to a cooperative agreement and meaningful role ascribed to the State under the NWPA, Part 72 requires no cooperation or involvement with the State. What has occurred to date is indicative of the pitiful role assigned to the State under Part 72. First, the Applicant made no effort to apprise the State of its proposed facility. The State first learned about the facility through press releases and by sending State officials to Washington, D.C. to attend meetings between the Applicant and the NRC that were open to the public. Second, there has been no cooperation or consultation between the Applicant and the State. Failure to even allow the State to review and comment on the Emergency Plan, as required by 10 CFR § 72.32(a)(14), is just one conspicuous example of the Applicant's refusal to deal up-front with the State. Finally, there is no opportunity for State review or oversight of the project, except

through litigation. The State endeavored to place some its concerns before the NRC, prior to NRC's acceptance of the application, through 2.206 petitions but the NRC ignored those efforts. Instead, the State has to expend thousands of dollars to participate through intervention in the NRC formal license adjudication if it wants to have any voice in the siting and licensing of this facility. This is a far cry from the role Congress assigned to the State under § 10,155(d).

Another salient factor in the analysis of whether NRC has statutory authority to license the PFS facility is the way in which the Applicant will use public services without any compensation to government coffers. Congress recognized that there would be social and economic impacts associated with a large centralized storage facility. 42 USC § 10,156(e). Accordingly, Congress authorized payment of up to \$15 per kilogram of spent fuel or ten percent of costs associated with planning, public services and other social and economic impact costs. Part 72 imposes no requirements on the Applicant to give financial assistance to governmental entities. For example, if NRC licenses the PFS facility, 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. The State at least receives training and financial assistance from the federal government for the military nuclear waste shipments (such as WIPP 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. In fact, 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. Rather than receiving financial assistance, the State of Utah will be forced to expend funds to ensure that its citizens will not be harmed.

After comparing what this Applicant is requesting and what Congress requires under the NWPA, it should be obvious that NRC by regulation is thwarting the national policy and directives Congress set in the NWPA. NRC is without statutory authority to license the proposed PFS facility.

B. License Needed for Intermodal Transfer Facility

**CONTENTION:** PFS's application should be rejected because it does not seek approval for receipt, transfer, and possession of spent nuclear fuel at the Rowley Junction Intermodal Transfer Point ("ITP"), in violation of 10 CFR § 72.6(c)(1).

**BASIS:** PFS has applied to NRC for a materials license to possess spent nuclear<sup>2</sup> fuel rods for storage at the proposed ISFSI site on the Skull Valley Indian Reservation. See Notice of Hearing, 62 Fed Reg. 41,099 (July 31, 1997). PFS in its license application states: "Transportation of spent fuel shipping casks from the originating reactor to the [Private Fuel Storage Facility] will occur in accordance with 10 CFR 71 and the originating reactor's license, and is not a part of this License Application." LA at 1-3. PFS identifies two alternatives of shipping spent fuel to the ISFSI. The first alternative is to ship spent fuel by rail to an "Intermodal Transfer Point" at Timpie, also known as Rowley Junction, which lies about 24 miles north of the proposed ISFSI. SAR, Section 4.5.4. The ITS consists of a "rail siding off the Union Pacific Railroad mainline, a 150 ton gantry crane, and a tractor/trailer yard area." *Id.* The crane is single-failure proof, and housed in a weather enclosure. *Id.* At the ITS spent fuel casks will be transferred from railroad cars to heavy-haul tractor/trailer trucks for transport to the ISFSI. *Id.*

The other alternative identified PFS is to build a railroad spur from Rowley

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<sup>2</sup> This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.

Junction directly to the ISFSI. SAR, Section 4.5.5.1. However, PFS has not shown that it will be feasible to construct a rail spur from the Union Pacific mainline to the proposed ISFSI. See Contention T (Inadequate Assessment of Required Permits and Other Entitlements), whose basis 1(c) is incorporated herewith. Until such time as PFS can prove by documentary evidence that it will have the technical, legal and financial capability to construct a rail spur, the assumption should be made that shipments will be offloaded at Rowley Junction and transferred from rail to truck by PFS at the ITP at an intermodal building constructed at Rowley Junction. See SAR Fig. 4.5-1.

Contrary to PFS's assertions, the Rowley Junction operation is not merely a part of the transportation operation. Rather, PFS will be receiving and handling thousands of tons of spent nuclear fuel at a fixed location, using fixed equipment that is owned and operated by PFS for the purpose of facilitating the onsite storage of the spent fuel at the ISFSI. Moreover, given the enormous volume of spent fuel that must pass through the ITS, the laborious operation that is required to transfer the extremely heavy casks from railroad cars to heavy haul trucks, it is more than likely that casks shipped to the ITS will become bottlenecked there.<sup>3</sup>

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<sup>3</sup> Even in the unlikely event that PFS finds a way to build a rail spur from the Union Pacific mainline located to the north of Interstate 80 at Rowley Junction, by bringing the rail spur over or under Interstate 80, and acquiring the appropriate rights-of-way and other necessary approvals for a 24 mile long rail track to the Skull Valley reservation, the volume of rail traffic will likely result in some storage at Rowley Junction.

The sheer volume of rail traffic carrying spent fuel casks coming into Rowley Junction will be substantial. The Applicant expects to receive shipments of up to 200 casks per year, all of which will come through Rowley Junction. SARat 1.4-2. Each cask will contain approximately 10 MTU (metric tons of uranium) of spent fuel.<sup>4</sup> Contrasting the anticipated volume and quantity of fuel shipments that will pass through Rowley Junction with similar shipments that occurred during 1979 to 1996, illustrates the magnitude of the shipping regime required under this license application. NRC's compilation of total spent nuclear fuel shipments from nuclear utilities and research facilities during the period 1979 to 1996 shows there were 1,319 total shipments or 77 shipments per year. The total amount of fuel shipped was 1,413 MTU or 83 MTU per year, of which 75% was shipped by rail. U.S. NRC, Public Information Circular for Shipments of Irradiated Reactor Fuel, NUREG-0725, Rev. 12, Washington, DC: October 1997, at 4. The foregoing also illustrates that the volume of fuel to be handled at the Applicant's intermodal transfer facility will be unlike the intermodal transfer operations that have actually occurred at commercial nuclear power plant sites, such as heavy haul truck to onsite rail, when the power plant's on-site fuel handling building did not have a rail spur.

The volume of fuel shipments will not be capable of passing directly through

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<sup>4</sup> The Applicant is requesting a license for 40,000 MTU of spent fuel which will require approximately 4,000 casks. LA at 3-1.

Rowley Junction, especially given the recent and ongoing operational and safety - concerns Union Pacific is experiencing with its railroad system, without undergoing storage. See State of Utah's Request for Hearing and Petition for Leave to Intervene, Docket No. 72-22, Exh. 3. (filed Sept. 11, 1997). It is reasonable to assume that a number of casks will arrive via rail contemporaneously, necessitating some type of temporary storage at the site of the ITP. The operational constraints on the ITP associated with the anticipated slow speeds and long travel distances (24 miles one-way) required for heavy haul transport from the transfer point to the proposed ISFSI, the anticipated volume of shipments (100 to 200 casks annually, requiring 200 to 400 one-way heavy haul trips), and the anticipated use of a public highway (with no available heavy haul routing alternatives), a queuing of casks at the intermodal transfer point awaiting heavy haul transport is apparent. During the projected lifetime of the facility a large number of casks will be transported through the Rowley Junction, and at least part of the time, a cask or casks will be present at Rowley Junction, thus, making Rowley Junction a storage facility for nuclear materials.

The application fails to discuss the number of heavy haul trucks (referred to in the SAR as "heavy haul transport tractor/trailers") that will be available to transport the casks, the mechanical reliability of these units, and their performance under all weather conditions. Such an explanation is necessary to analyze the amount of queuing and storage that will occur at Rowley Junction. SAR 4.45.4.2 states that the maximum

weight of the loaded shipping cask will be 142 tons and require the use of overweight trailers. The tractor/trailer are 12 feet wide and travels at "low speeds." Given the special design features, size and probably costs of these units (see Fig. 4.5-4), it is important to ascertain whether the Applicant anticipates acquiring more than only a few of these units.

Another factor that may significantly contribute to the queuing of casks at Rowley Junction is the fact that PFS intends to return defective or contaminated casks to the originating utility. Thus, there are likely to be heavy haul trucks and railroad shipments going in both directions, necessitating greater use of cranes and more coordination of transfer operations.

As a result, the ITP will constitute a de facto interim spent fuel storage facility, as defined in 10 CFR § 72.3, at which PFS will receive, handle, and possess spent nuclear fuel for extended periods of time. Accordingly, PFS should not be granted a license unless it includes possession of spent nuclear fuel at the ITP.

Moreover, Part 72 licensing is necessary in order to protect the public health and safety. The ITP is stationary in nature, including the construction and installation of a facility and heavy equipment, the continuous presence of spent fuel arriving at or departing from the ITP, and the potential long-term storage of some of the fuel. Because of the stationary nature of the ITP, it is important to provide the public with the regulatory protections that are afforded by compliance with 10 CFR Part 72. For

instance, PFS 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 ITP. In addition, the boundaries of the ITP site should be identified, and dose analyses performed to ensure that nearby members of the public are not exposed to unacceptable doses from spent fuel that is sitting on the site. PFS should also provide assurance that the ITP is designed in a way that protects public health and safety, using appropriate structures, equipment, and protective measures. None of this information is currently provided in the SAR. In the absence of such measures, the ITP poses an unacceptable safety and health risk to workers and the public.

C. Failure to Demonstrate Compliance With NRC Dose Limits.

CONTENTION: The Applicant has failed to demonstrate a reasonable assurance that the dose limits specified in 10 CFR § 72.106(b) can and will be complied with.<sup>5</sup>

BASIS: Pursuant to 10 CFR § 72.106, any individual located on or beyond the nearest boundary of the controlled area of an ISFSI may not receive a dose greater than 5 rem to the whole body or any organ from any design basis accident. NRC regulations at 10 CFR § 72.126(d) require the submission of analyses that demonstrate compliance with this requirement. In addition, 10 CFR § 72.24(m) requires that an application for an ISFSI or MRS license must contain an "analysis of the potential dose equivalent or committed dose equivalent to an individual outside the controlled area from accidents or natural phenomena events that result in the release of radioactive material to the environment or direct radiation from the ISFSI or MRS." The dose calculations "must be performed for direct exposure, inhalation, and ingestion occurring as a result of the postulated design basis event." *See also* NUREG-1567, Standard Review Plan for Spent Fuel Dry Storage (Draft) at 12-3 (October 1996), 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."

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<sup>5</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.



The Applicant does not meet the requirements of 10 CFR §§ 72.106(b), 71.126(d), or 72.24(m) in two respects. First, the Applicant makes assumptions about the HI-STORM and TranStor casks that have not been reviewed or approved in a proceeding for approval of those casks. Second, the Applicant fails to provide an adequate evaluation of the dose consequences of a design basis accident involving loss of containment barrier. The analysis performed by the Applicant is internally inconsistent, and fails to take into account significant factors affecting the dose consequences of a design basis accident involving loss of confinement barrier.

The Applicant's failure to demonstrate that offsite doses can be contained within acceptable limits not only violates 10 CFR §§ 72.106(b), 71.126(d), and 72.24(m), but undermines the Applicant's basis for failing to require offsite emergency planning measures in the event of an accident. As discussed in the preamble to the Commission's 1986 proposed amendments to the Part 72 standards, the determination that "special offsite emergency preparedness" is not necessary for spent fuel storage is based on the assumption that doses calculated to result from potential accidents are "far below" EPA protective action guides. 51 Fed. Reg. 19,106, 19,109 (May 27, 1986). Because this assumption appears to be valid in the case of the proposed ISFSI, the need for offsite emergency planning must be considered.

1. Use of unreviewed data about HI-STORM and TranStor casks.

According to the Applicant, the design basis accident is based in part on the design of

the Holtec-HI-STORM and SNC TranStor casks. See, e.g., SAR at 8.2-2 - 8.2-10, 8.2-16 - 8.2-17, 8.2-22, 8.2-25 - 8.2-26, 8.2-31 - 8.2-34, 8.2-38. The design for these casks has yet to be fully reviewed or approved by the NRC; thus, they provide an inadequate basis for the SAR.

2. Selective and inappropriate use of data sources, failure to consider significant dose contributors, and use of outdated model. In Section 8.2.7, the Applicant evaluates a hypothetical loss of confinement barrier, which is defined in the applicable industry guidance (ANSI/ANS 57.9) as a Design Event IV. Although the Applicant does not deem this accident to be credible, it nevertheless proceeds to evaluate the dose consequences of the accident, and concludes that they are below the dose limits specified in 10 CFR § 72.106(b). The Applicant's assertion that a loss of confinement accident is not credible is contradicted by studies showing the credibility of sabotage-induced accidents which lead to loss of confinement barrier. See, e.g., Halstead and Ballard, Nuclear Waste Transportation Security and Safety Issues: The Risk of Terrorism and Sabotage Against Repository Shipments, for the Nevada Agency for Nuclear Projects at 25 (October 1997), Exhibit 3. Moreover, the Applicant's analysis of the dose consequences of loss of containment barriers is inadequate, because it makes selective and inappropriate use of data sources regarding doses, and fails to take important dose contributors into account.

a. Selective and inappropriate use of data sources. First, the

Applicant's accident analysis, presented in Section 8.2.7.2 of the SAR, makes inconsistent use of regulatory guidance and studies to support its conclusion that doses from the postulated accident scenario will be below regulatory limits. As presented in the table on page 8.2-37, the Applicant assumes that the fraction of Cs-134, Cs-137, and Sr-90 that will be released into the canister is  $2.3 \text{ E-}5$  for each constituent. This fraction comes from NUREG-1536, Standard Review Plan for Dry Cask Storage Systems. Then, PFS uses figures from a report by Sandia National Laboratories on impacts of transportation accidents, to argue that of the fraction released from the spent fuel to the canister, 90% of the volatiles (Co-60, Sr-90, I-129, Ru-106, Cs-134 and Cs-137) will not escape the canister. SAR at 8.2-38, citing Table XIX of SAND80-2124, Transportation Accident Scenarios for Commercial Spent Fuel, Sandia National Laboratories (1981) (hereinafter "Sandia report"). The use of the 90% figure is suspect in two respects. First, PFS's use of the Sandia Report is selective. The Sandia Report also provides an estimate of the initial release fraction into the canister, of  $4\text{E-}3$ . *Id.* at 8.2-39. This is almost 200 times greater than the initial release fraction estimated in NUREG-1536, and used by PFS. PFS appears to have selectively chosen data that would support a lower dose calculation. As a result, PFS estimates a release from the canister of  $1.15 \text{ E-}7$ , which is a factor of almost 3,000 smaller than the release of  $3 \text{ E-}4$  estimated by Sandia. SAND-2124 at 42, Scenario 4. Moreover, the assumption that 90% of the inventory will not be released is based on a transportation accident

scenario, in which the cask is breached through a high-velocity impact. See SAND-2124 at 25-30, Accident Scenarios. In contrast, the scenario evaluated in the SAR involves an accident during onsite storage. PFS does not appear to have evaluated the differences in the characteristics of high-velocity transportation accidents and accidents involving static storage of dry casks, and thus does not provide a basis for the use of the Sandia figure.

The Applicant also relies on the Sandia report for its assumption that only 5% of the release fraction of Co-60 and Sr-90 will be respirable.<sup>6</sup> SAR at 8.2-39. Based on this assumption, the Applicant calculates a committed effective dose equivalent (CEDE) to an adult at 500 meters from the HI-STORM cask to be 547 mrem, that is, less than the regulatory limit of 5 rem. Again, PFS does 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 PFS. Moreover, Sandia's assumption of a 5% respirable release fraction is based on a transportation accident involving impact and fire, in which some irradiated fuel will flake off in large pieces and not be respirable. SAND-2124 at 38. While this may be an appropriate assumption for a transportation accident, PFS provides no evidence that it is an appropriate assumption for the fuel failure accident evaluated in the SAR. In fact, it is reasonable to anticipate that in an onsite

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<sup>6</sup> Respirable particles have a diameter of less than 10  $\mu\text{m}$ .

accident not involving a high-velocity impact that breaks fuel into large chunks, particulates in the gap between the canister and the cask will be of a smaller size. Therefore a greater percentage will be respirable.

b. Failure to take dose contributors and relevant guidance into account. PFS calculates the dose to an adult 500 m from the accident, due solely to inhalation of the passing cloud. SAR at 8.2-39. Other relevant pathways, such as direct radiation from cesium deposited on the ground, and ingestion of food and water or incidental soil ingestion, are not considered, in violation of 10 CFR § 72.24(m). PFS also appears to assume that local residents will be evacuated until contamination is removed, although this is not expressly discussed. This is an unreasonable assumption because PFS's emergency plan does not assume residents are evacuated. In addition, PFS fails to calculate doses to children, which are higher because a child's ratio of surface area to volume of organs is higher. Finally, PFS uses the ICRP-30 dose model, which is an outdated dose model that is inadequate to calculate radiation doses to humans, especially inhalation doses. PFS should be required to use the ICRP-60 dose model which is more accurate for human radiation doses, and also correctly calculates the dose to children.

D. Facilitation of Decommissioning

**CONTENTION:** The proposed ISFSI is not adequately designed to facilitate decommissioning, because PFS has not provided sufficient information about the design of its storage casks to assure compatibility with DOE repository specifications. Moreover, in the reasonably likely event that PFS's casks do not conform to DOE specification, PFS fails to provide any measures for the repackaging of spent fuel for ultimate disposal in a high level radioactive waste repository. Moreover, PFS provides no measures for verification of whether the condition of spent fuel meets disposal criteria that DOE may impose.<sup>7</sup>

**BASIS:** Pursuant to 10 CFR § 72.130, an ISFSI or MRS:

must be designed for decommissioning. Provisions must be made to facilitate decontamination of structures and equipment, minimize the quantity of radioactive wastes and contamination of structures and contaminated equipment, and facilitate the removal of radioactive wastes and contaminated materials at the time the ISFSI or MRS is permanently decommissioned.

Reg. Guide 3.48 also states that "the applicant should discuss the considerations given in the design of the facility and its auxiliary systems, including the storage structures, to facilitate eventual decommissioning." *Id.* at 3-8.

Proposed measures to facilitate the decommissioning of the proposed PFS facility are discussed in Appendix B of the License Application, and in Section 3.5 of

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<sup>7</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.

the SAR. Neither of these discussions proposes any measures for addressing the significant impediment to safe, timely, and efficient decommissioning of the proposed ISFSI, posed by the potential incompatibility between the design of PFS storage canisters and the DOE's acceptance criteria for the packaging of spent fuel in a high level nuclear waste repository. These criteria are currently under development.

The SAR states 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." *Id.* at 3.5-2. 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. Section 2.4 of the TranStor application does not address the issue of compatibility with DOE requirements at all. Section 2.4 of the HI-STORM application states that the HI-STORM canister is "[d]esigned to be completely congruent with the MPC concept, as articulated by the U.S. Department of Energy." However, 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. In the absence of any such information, there is no basis for concluding that PFS has taken any measures to facilitate the decommissioning of the ISFSI by ensuring compatibility of its storage casks with DOE acceptance criteria.

Moreover, although 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 PFS's storage canisters. For instance, DOE will have requirements on thermal limits per unit area. DOE will have limits on the size and weight of shipping containers. Sierra Nuclear and Holtec storage casks may be incompatible with these acceptance criteria. DOE's MPC cask is designed to hold 21 PWR fuel assemblies, i.e., less fuel assemblies than the Holtec (24 or 32 PWR assemblies) and the Sierra Nuclear canister. DOE, Office of Civilian Radioactive Waste Management, Multi-Purpose Canister (MPC) Implementation Program, Conceptual Design Phase Report, Volume I - MPC Conceptual Design Summary Report (Final Draft: September 30, 1993) attached as Exhibit 4. DOE may also require that irradiated fuel be transferred to the proposed Yucca Mountain repository in DOE casks, which may not be compatible with the Holtec or TranStor canister.

DOE may also place limits on the acceptable physical state of irradiated fuel, i.e., by requiring a demonstration that there are no gross cladding defects. It is reasonable to anticipate that in connection with such a requirement, 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 PFS to confine spent fuel in a way that degradation of fuel during storage will not pose operational safety problems with respect to its removal from storage, PFS has no means of inspecting the interior



of spent fuel canisters in order to determine the condition of the fuel for purposes of complying with this requirement.

In order for PFS to transfer fuel to casks that are compatible with DOE requirements, or to inspect the fuel for degradation of cladding, a hot cell is needed. In the hot cell, fuel cylinders with degraded cladding would be removed from the canister, repackaged, and replaced in the canister. However, PFS's design makes no provision for a hot cell. Instead, PFS apparently expects that these operations will take place at the originating reactor or at the Yucca Mountain repository.

Neither of these expectations is realistic. Few, if any of the originating reactors will be available to handle irradiated fuel by the time Yucca Mountain is ready to receive spent fuel, which may be as late as 2063, or even later. The proposed repository is not expected to operate until the year 2015, according to the NRC, or as late as the year 2023, according to the GAO. GAO/T-RCED-93-58, Yucca Mountain Project Management and Funding Issues, statement of Jim Wells (1993). A queue has been established for the first ten years of repository operation. DOE/RW-0457, Department of Energy Annual Capacity Report (OCRWM: March 1995), attached hereto as Exhibit 5. On average, power plants will be able to unload approximately ¼ of their irradiated fuel inventory the first ten years. It may require an additional 30 years to dispose of the remainder. That is, it is entirely possible that all irradiated fuel may not leave the PFS site until the year 2063, if the Yucca Mountain repository is

indeed licensed in the year 2023. At such a late date, it is unlikely that irradiated fuel pools will be available to transfer fuel from one canister to another.

It is also unreasonable to rely on a facility to transfer individual fuel assemblies at Yucca Mountain. First, if fuel is degraded, it should not be shipped from the ISFSI. Degradation of cladding increases the risk of accidents during transportation, because it diminishes or removes one of the key barriers to environmental release of radiation. Instead, the problem should be addressed at the ISFSI. Moreover, there is no reason to believe that the Yucca Mountain facility 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. It is far more reasonable for the DOE to require all potential users of the repository to properly package their waste before shipping it to the facility.

Thus, contrary to the requirements of 10 CFR § 72.130 and Reg. Guide 3.48, the PFS facility is not designed to facilitate decommissioning, because the facility does not have the capability to repackage canisters by transferring individual fuel assemblies.

E. Financial Assurance.

CONTENTION: Contrary to the requirements of 10 CFR §§ 72.22(e) and 72.40(a)(6), the Applicant has failed to demonstrate that it is financially qualified to engage in the Part 72 activities for which it seeks a license.<sup>8</sup>

BASIS: A Part 72 application must state "information sufficient to demonstrate to the Commission the financial qualifications of the Applicant to carry out, in accordance with the regulations in this chapter, the activities for which the license is sought." 10 CFR §72.22(e).

The Commission will issue a license upon a finding that "the applicant for an ISFSI or MRS is financially qualified to engage in the proposed activities in accordance with the regulations of this part." 10 CFR § 72.40(a)(6).

The 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. A recent decision by the Licensing Board, interpreting the financial requirements in 10 CFR Part 70, illustrates the reasons why it is appropriate to apply the Part 50 standards to PFS. See Louisiana Energy Services, L.P. (Claiborne Enrichment Center), 44 NRC 333 (1996) (appeal pending) (hereafter "Claiborne"). In that case, the Licensing Board relied on the Part 50 regulations to review the financial qualifications of a newly formed special purpose entity without an operating record in a Part 70 licensing action.

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<sup>8</sup> This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.

Under Part 70, the Commission will approve a license if it determines that "the Applicant appears to be financially qualified to engage in the proposed activities in accordance with the regulations of this part." 10 CFR §72.23(a)(5). The Part 50 standard contains very similar language, requiring the Commission to consider whether "[t]he applicant is technically and financially qualified to engage in the proposed activities in accordance with the regulations in the chapter." 10 CFR § 50.40(b). In Claiborne, the Board turned to the rule of statutory construction that provisions that relate to the same subject matter should be construed *in pari materia*. Id. at 384, citing 2B Sutherland Stat. Const. §§ 51.05, 51.05 (5th ed. 1992). Moreover, the Board found the Part 50 and Part 70 regulations "essentially began as twins." Id. At 391. As the Board observed:

Although the paths of the regulations have diverged somewhat since 1967, the essence of the Part 70 and Part 50 regulations with respect to construction financing and the standard the Commission must apply in granting a license under these Parts has not significantly changed since the initial issuance of the regulations. At that time, because the critical language of the provisions was nearly identical, the provisions had the same basic meaning. Indeed, as the Director of Regulation's response to a congressional inquiry indicated, the Commission's financial qualifications reviews of Part 70 and Part 50 license applicants applied the same principles under both regulations at that time.

44 NRC at 391. Thus, the Board concluded that the regulations began with "the same basic meaning" that "has not significantly changed since the issuance of the regulations." Id. Finally, the Board found that Part 50 was applicable because the "fundamental purpose" of the Appendix C requirements, to protect public health and

safety is "equally involved" in the licensing of a nuclear plant and "the first privately owned enrichment facility in the United States." Id. at 392.

The same analysis is applicable under Part 72. First, the language of the Part 50 and Part 72 standards is identical, requiring the license applicant to demonstrate that it "is financially qualified." Moreover, the congruent history of the Part 50 and 70 standards, which the Board describes in detail at 42 NRC 384-391, is equally applicable to the development of the Part 72 standard. Until 1980, ISFSIs were regulated under Part 70. The "Information Handbook on Independent Spent Fuel Storage Installations," NUREG 1571 at 1-1, 2, gives a brief history of the development of Part 72 regulations:

ISFSI regulation was originally governed by 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material." In 1974, the Atomic Energy Commission (predecessor of the NRC) issued a regulatory guide on storage of spent fuel in ISFSIs, Regulatory Guide 3.24, "Guidance on the License Application, Siting, Design, and Plant Protection for an Independent Spent Fuel Storage Installation," which then supported 10 CFR Part 70.... In November 1980, the staff issued 10 CFR 72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation," superseding 10 CFR Part 70 and Regulatory Guide 3.24 with respect to the regulation of spent fuel storage in ISFSIs.

Moreover, the "fundamental purpose" of the Part 50 standard is "equally involved" in this case, where a newly formed entity seeks permission to construct and operate a first-of-its kind, major nuclear facility for the long-term storage of thousands of tons of spent nuclear reactor fuel. Thus, Part 50 provides relevant guidance to

review whether this Applicant has demonstrated adequate financial assurance under Part 72.

The Applicant, Private Fuel Storage, LLC (PFS), is a Delaware limited liability company. LA at 1-4. The company was formed to construct and operate a privately owned ISFSI for the purpose of providing private centralized spent nuclear fuel storage to the nuclear utility industry. ER at 1.2-2. The Applicant is a newly formed special purpose entity without an operating record. Thus, the regulatory standards in Part 50 for financial qualifications of newly formed entities must be applied to PFS's license application.

Under Part 50.33(f) "[e]ach application for a construction permit or an operating license submitted by a newly-formed entity organized for the primary purpose of construction or operating a facility must also include information showing:

- (i) The legal and financial relationships it has or proposes to have with its stockholders or owners;
- (ii) Its financial ability to meet any contractual obligation to the entity which they (sic) have incurred or proposed to incur; and
- (iii) Any other information considered necessary by the Commission to enable it to determine the applicant's financial qualifications.

Additional guidance, provided in Part 50, Appendix C, describes the general kinds of financial data and other related information that will demonstrate the applicant's financial qualifications. In Appendix C, the Commission distinguishes between two classes of applicants: those which are established organizations (App C.I) and those that are newly formed entities (App C.II). PFS is a newly formed entity

without an established operating record and thus its financial qualifications should be reviewed under the criteria established in Appendix C.II.

As to the source of construction funds, Appendix C.II requires the applicant to specifically identify the source or sources upon which the applicant relies for the funds necessary to pay the cost of constructing the facility, and the amount to be obtained from each. With respect to each source, the applicant should describe in detail the applicant's legal and financial relationships with its stockholders, corporate affiliates, or other (such as financial institutions) upon which the applicant is relying for financial assistance.

When the Applicant relies on parent companies or corporate affiliates as a source of funding, it must also demonstrate "the financial capability of each such company or affiliate to meet its commitments to the applicant" and "[o]rdinarily, it will be necessary that copies of agreements or contracts among the companies be submitted." *Id.* Finally, the Applicant should "include in its application a statement of its assets, liabilities, and capital structure as of the date of the application." 10 CFR Part 50, App C.II. While Appendix C recognizes that construction costs will vary by the type of facility, it requires construction costs "be itemized by categories of cost in sufficient detail to permit an evaluation of its reasonableness." *Id.* App. C.I.<sup>9</sup>

The Applicant's financial qualifications to carry out the activities it seeks under this license application and the information the Applicant submitted to demonstrate its financial qualifications are deficient in the following respects:

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<sup>9</sup> Appendix C generally treats estimates of construction costs the same for established organizations and newly formed entities. 10 CFR § 50, App. C.II.A.1.

1. Information in the application about the legal and financial relationship among the owners of the limited liability company (i.e. the license Applicant) is appallingly deficient. The Applicant merely states it is "a limited liability company owned by eight U.S. utilities which serve more than 17 million customers in 21 states." LA at 1-3. These owners are not explicitly identified, nor are their relationships discussed, as required by 10 CFR §§ 50.33(c)(2) and 50.33(f) and Appendix C, § II. Instead, the only information provided by the Applicant which might conceivably be relevant to this requirement is a list seven nuclear utility officials who serve as Directors of PFS as of June 1997. LA at 1-10. It is not clear whether these individuals represent the owners of the business, or if so, what happened to the eighth owner. This extremely limited information does not even begin to satisfy the NRC's financial qualifications to engage in the Part 72 activities it seeks under this license application.

2. The Applicant is a limited liability company organized under the laws of Delaware. LA at 1-4. There is no evidence that the Applicant is anything more than a shell company devoid of any assets or capital. 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. See 10 CFR Part. 50, App. C.II.

3. The Applicant has not taken into account the difficulty of allocating financial responsibility when casks are centrally stored and owned by different entities.



Further, the Applicant also does not address its financial responsibility as the "possessor" of spent fuel casks. The Applicant assumes that the "owner" of the spent fuel will retain responsibility for the fuel. However, the proposition that the originating reactor licensee retains assumption of responsibility for the fuel even when it is in the Applicant's possession create numerous problems. The Applicant intends that its facility will provide storage of spent fuel from commercial nuclear power reactors that are located throughout the United States. LA at3-1. A complex and unworkable liability scheme arises from the storage of fuel casks owned by a myriad of licensees. For example, how will liability, response and cleanup be allocated should there be an accident involving nuclear materials or a spill or release of nuclear materials. The potential for accidents given the surrounding hazardous military activities is not inconsequential. See State of Utah's Petition to Intervene, pp. 4, 13. Furthermore, the casks will be located less than four feet apart and will be "owned" by different licensees. This will make it exceedingly difficult to allocate liability and responsibility. The Applicant must address these issues as part of its financial qualification to undertake the licensed activities. 10 CFR § 72.22(e)

4. As the Licensing Board has observed, reasonably accurate cost estimates are important safety requirements under the financial qualifications regulations, because " a licensee in financially straitened circumstances would be under more pressure to commit safety violations or take safety 'shortcuts' than one in good

financial shape." Gulf States Utilities Co. (River Ben Station, Unit 1), LBP-95-10, 41 NRC 460, 473 (1995), *quoting* Gulf States Utilities Co. (River Ben Station, Unit 1), CLI-94-10, 40 NRC 43, 48 (1994). However, the Applicant has failed to show that it has the necessary funds to cover the "[e]stimated operating costs over the planned life of the ISFSI" as required by 10 CFR § 72.22(e)(2) because the application is devoid of specifics about financial information, including cost estimates.

For example, the License Application estimates total construction costs at \$100 million, "including site preparation; construction of the access road, administration building, visitors center, security and health physics building, operations and maintenance building, canister transfer building and storage pads; procurement of canister transfer and transport equipment; and transportation corridor construction." LA at 1-5. Similarly, in the ER, the Applicant aggregates 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." ER at 7.3-1, ER Table 7.3-1. The Applicant lists total life cycle cost for the facility and its operation at \$1.526 billion (40 year life) or \$1.125 billion (20 year life). *Id.*

Such vague and generalized cost estimates are insufficient to satisfy 10 CFR Part 50, App.C. § II, which requires that construction costs must be itemized by categories of cost in sufficient detail to permit an evaluation of its reasonableness. Indeed, 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.

Moreover, PFS appears to have significantly underestimated construction costs. In 1993, the Department of Energy (DOE) considered locating a monitored retrievable storage installation (MRS) at the same Skull Valley Reservation. DOE proposed a dry cask storage MRS with a capacity of 15,000 MTU (42 USC § 10168(d)(4)), half the quantity of spent fuel proposed by the Applicant. DOE estimated the construction cost, in 1992-93 dollars, of a dry cask storage facility at \$530 million. Skull Valley Band of Goshutes MRS brochure, attached hereto as Exhibit 6. The Applicant's 1997 construction cost estimates are less than one fifth of DOE's 1993 estimates although the Applicant proposes to store twice as much spent fuel as the DOE MRS proposal. Itemization of costs and justification for the cost estimates are essential to estimate cost estimates.

5. Part of the Applicant's plan to obtain funding for its operations includes "equity contributions from PFSLLC members pursuant to Subscription Agreements." LA at 1-4. The Applicant indicates that each of the eight consortium members will contribute equity contributions of an additional \$6 million each for a total of \$48 million. LA at 1-5. However, the application does not include pertinent portions of subscription agreements or other legally binding commitments to give any assurance

that the Applicant will obtain the necessary funds or even the initial \$48 million.

When the Applicant relies on its owner members (or its parent companies or corporate affiliates) to provide a source of funding, the Applicant must submit a copy of each Subscription Agreement between PFS and its member companies. See Part 50, Appendix C.II.

Moreover, the amount of equity contributions is dependent upon the number of members in the limited liability company; thus the amount of available funds is affected by any withdrawing utility member. In fact, the number of member utilities has already decreased since the formation of the consortium. PFS was initially organized with eleven utility members. The application itself mentions eight members but only identifies seven board members; apparently each board member represents a consortium member. The Applicant must demonstrate financial qualification prior to licensing the facility—not at some future date. See Claiborne, 44 NRC at 403. The Applicant's failure to document its funding source is one reason why this Applicant has not shown it either possesses the necessary funds or has reasonable assurance of obtaining or even retaining necessary funds for the activities sought under its license application. See 10 CFR § 72.22(e)

6. The Applicant also plans to raise additional capital through "Service Agreements" with customers. LA at 1-5. Based on the Applicant's own estimates, at a minimum it must raise an additional \$52 million just to complete construction. The

Applicant must demonstrate "reasonable assurance of obtaining the necessary funds" not simply identify a mechanism for obtaining funds. Furthermore, the terms of the service agreements are not even provided, including items such as costs, periodic terms, liability, performance, and breach clauses.

To show it has reasonable assurances of obtaining funds, the Applicant should document an existing market and the commitment of a sufficient number of service agreements to fully fund construction of the facility. The Applicant implies that 15,000 MTU of storage commitments would be adequate to fund construction. LA at 1-5. The Applicant has not substantiated how storage commitments for 15,000 MTUs would be adequate. In addition, there must be sufficient funds committed for operation, decommissioning, and contingencies for the number of casks contracted to fund construction.

7. The Applicant also mentions an option to finance construction costs through debt financing secured by service agreements. LA at 1-6. Similarly, debt financing will not be viable until a minimum value of service agreements is committed. Moreover, the Applicant will not be capable of securing debt financing without providing supporting documentation, including the service agreements. Thus, the Applicant failed to show that it has reasonable assurance of obtaining necessary funds through debt financing.

8. The License Application states that "on-going operations and maintenance costs . . . will be paid by the customer on an annual basis." LA at 1-6. Although the Applicant states that it will require financial information from its "customers," Id., it has not addressed funding contingencies in the event a customer breaches the service agreement or becomes insolvent while the customer's spent fuel is stored at the ISFSI. The Applicant does not provide reasonable assurance that adequate funds are available to ensure the safe operation and maintenance of spent fuel storage in the event of insolvencies or even while disputes are being resolved.

**F. Inadequate Training and Certification of Personnel.**

**CONTENTION:** Training and certification of PFS personnel fails to satisfy Subpart I of 10 CFR Part 72 and will not assure that the facility is operated in a safe manner.<sup>10</sup>

**BASIS:** "Under Subpart I, operation of equipment and controls that have been identified as important to safety in the SAR and in the license must be limited to trained and certified personnel or be under the direct visual supervision of an individual with training and certification in the operation." Further, under 10 CFR § 72.192, the applicant for a license shall establish a program for training, proficiency testing and certification of ISFSI or MRS personnel. This program must be submitted to the Commission for approval with the license application." Finally, under 10 CFR § 72.194, the physical conditions of operators must ensure that operational errors are not caused. Conditions that might cause impaired judgment must be considered in the selection of personnel.

PFS organizational structure, including responsibilities and qualifications is laid out in Section 9.1 of the SAR. The pre-operational testing program is discussed in section 9.2; the testing program in section 9.3. These sections do not satisfy the minimal NRC requirements and do not provide assurance the facility will be operated in a safe manner.

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<sup>10</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.

1. Training and certification program. Contrary to these regulations, the Applicant has not explicitly defined a training and certification program. A training, certification and testing program has not been submitted with the license, and a listing of physical conditions that would bar a person from employment in specific positions has not been defined.<sup>11</sup>

2. Physical condition of operators. The SAR has no discussion regarding the physical condition of operators, as required by 10 CFR § 72.194. A potential operator should be required to pass a medical examination that certifies the operator has the physical ability to carry on 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.

3. Trained and certified personnel. The minimum qualification of personnel are detailed in SAR § 9.1.3. For example, the general manager must have ten years of experience within the nuclear power industry (though up to four years could be academic training) and must have a BA. The Lead Mechanic/Operator must have a high school diploma and a minimum of six years experience in mechanical maintenance. The Lead Mechanic/Operator will become, according to the SAR, a certified storage facility operator prior to facility operation. The Lead Nuclear Engineer shall have a minimum of a BS in nuclear engineering and four years

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<sup>11</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.



experience in the nuclear power industry. Id.

The Applicant has not shown that these qualifications are sufficient to guarantee that the facility will be operated safely. For example, neither the General Manager nor Operators are required to have any experience in dry storage operations. The details of instruction courses, training programs or work on simulation facilities is not laid out in detail. No tests are specified for certification, that is, evidence the trainee has successfully manipulated real or simulated equipment. The Applicant has not specified any written examinations and operating tests, including the items that would be on such a test. The Applicant has not specified the terms of qualification and revocation of operators license, provisions for requalification, and enforcement. The Applicant merely states that "each member of the site staff involved with important safety activities will be required to meet the minimum qualifications of the License," without stating these minimum qualifications and how they will assure the public health and safety. SAR at 9.1-27. The Applicant promises "Programs for additional site familiarization training and ongoing training and retraining" without stating the specific details of the training program and the minimum passing grade for certification. Id. Specific operational tests are stated on SAR 9.2-5 without indicating the minimum terms for passing the course. A training program is mentioned in Section 9.3 of the SAR, but it constitutes nothing more than a promise without specific details. Thus, it is inadequate to satisfy the regulations.

G. Quality Assurance.

CONTENTION: The Applicant's Quality Assurance ("QA") program is utterly inadequate to satisfy the requirements of 10 CFR Part 72, Subpart G.<sup>12</sup>

Basis: NRC regulations at 10 CFR § 72.24(n) require each applicant for an ISFSI license to submit "a description of the quality assurance program that satisfies the requirements of subpart G to be applied to the design, fabrication, construction, testing, operation, modification, and decommissioning of the structures, systems, and components important to safety." Subpart G sets forth numerous quality assurance requirements, including the requirement that the description of the QA program must discuss which requirements of Subpart G are applicable, and explain how they will be implemented. 10 CFR § 72.140(c).

The description of the QA program submitted by PFS in support of its license application falls woefully short of this standard. Private Fuel Storage L.L.C., Quality Assurance Program Description (August 1996) (hereinafter "QAPD"). The QAPD constitutes nothing more than a general summary of PFS's intentions to implement a QA program. Moreover, contrary to the requirement of 10 CFR § 72.24(140)(c) that the applicant must describe "how" the program is to be implemented, the QAPD contains not a shred of information about how PFS intends to implement the general goals set forth in the QAPD. Nor does it address the unique QA problems raised by

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<sup>12</sup> This contention is supported by the Declarations of Lawrence A. White, attached hereto as Exhibit 1 and Marvin Resnikoff, attached hereto as Exhibit 2..

this license application, relating to the Applicant's lack of control over procurement of materials and packaging of spent fuel by nuclear power plant licensees, and the ISFSI's lack of design features for inspection of canisters and fuel cladding.

1. Lack of detail. The proposed ISFSI is a huge and complicated operation that will accept thousands of casks, from all over the country, and store them for at least 20 years. A QA program description for such a facility should contain enough detail to demonstrate how the Applicant can and will conduct a QA program that complies with the numerous quality assurance standards set forth in Subpart G. The QAPD submitted by the Applicant, however, contains only the sketchiest information regarding the Applicant's intentions. In effect, it constitutes a list of broad goals for quality assurance corresponding to the regulatory requirements, rather than a description of the means by which quality assurance will be achieved. Virtually no information is provided about the nature of the ISFSI or its unique operations. Instead, the QAPD is a "one size fits all" document, apparently intended to be vague enough to cover any licensee or operation related to spent fuel handling. Indeed, the QAPD originally was submitted in 1995 under the NRC's Part 71 transportation regulations, by the Mescalero Apache tribe. The fact that PFS merely changed the name of the Applicant and made virtually no changes to the QAPD for an entirely new organization and operation, vividly illustrates the non-specific and non-informative nature of the QAPD. As such, it is completely inadequate to "provide

sufficient detail. . . to enable staff to determine its adequacy." NUREG-1567, Draft Standard Review Plan for Spent Fuel Dry Storage Facilities, USNRC at 15-1 (1996).

For instance, 10 CFR § 71.146 establishes requirements for design control.

Subsection (a) requires the applicant to:

establish measures to ensure that applicable regulatory requirements and the design basis, as specified in the license application for those structure, systems, and components to which this section applies, are correctly translated into specifications, drawings, procedures, and instructions. These measures must include provisions to ensure that appropriate quality standards are specified and included in design documents and that deviations from standards are controlled. Measures must be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the functions of the structures, systems, and components which are important to safety.

The Applicant provides virtually no information about how this requirement will be met, other than to state that "design control procedures" will be prepared. Id. QAPD at 5. The QAPD says nothing about how design reviews will be conducted under these procedures, or by whom, other than "by qualified personnel other than those performing the design." Id. There is no description, for instance, of the structure or content of the QA organization, or who in the QA organization will fulfill this function. Thus, the description is utterly inadequate to satisfy the regulations. For instance, while the QAPD briefly refers to training of QA program employees, it does not specify the type of training and the level of training required for

specific Quality Assurance functions. Id. at 4. Moreover, it fails to identify what training will be provided for all types of personnel as a QA measure. Thus, it lacks sufficient detail to comply with 10 CFR § 72.144(d).

Similarly, while the QAPD program states that the QA program will be reviewed at established intervals, it does not specify the minimum review intervals nor does it define what will trigger an earlier review (*e.g.*, implementing corrective action on the same activity, etc.). Id. at 4.

The rest of the QAPD is written in the same way, substituting a statement of the QAPD's goals for a description of the actual program.

2. Lack of quality control. The QAPD is completely inadequate to satisfy the requirements of 10 CFR §§ 72.154 (control of purchased material, equipment and services), 72.156 (identification and control of materials, parts and components) and 72.166 (handling, storage, and shipping control). PFS's cursory discussion of these requirements, in Sections 7, 8, and 9 of the QAPD, completely fails to address the specific quality control issues raised by the proposed ISFSI.

The nature of the proposed ISFSI and its operation, as proposed by PFS, poses unique QA problems. Ordinarily, for an ISFSI operated by a single reactor licensee, all of the operations affecting storage of spent fuel are controlled by the licensee. The licensee also procures and owns all of the materials involved. In the case of the proposed ISFSI, although the SAR is not clear, it is Petitioner's understanding that PFS

will own the shipping casks, canisters, and associated materials. Nevertheless, PFS will not control the packaging of spent fuel inside the casks and canisters. Instead, numerous utilities with their individual team of welders and other staff will load the canisters for transport to the proposed ISFSI. Here, PFS will be accepting spent fuel packaged at 19 different nuclear plants, by up to 19 different sets of employees, under up to 19 different sets of procedures.

While quality in the operations and the materials used in the packaging of the canisters is extremely important to the safe handling and storage of spent fuel, the license application gives the Applicant no control over these operations. No attention is given in the QAPD or Chapter 11 of the SAR to the procurement of materials or the training and quality control of so many technicians beyond the control of the storage facility operators. Instead, this responsibility seems to rest with the cask manufacturer and the nuclear power plant licensee.

For instance, 10 CFR § 72.154(a) requires that:

The licensee shall establish measures to ensure that purchased material, equipment and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures must include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery.

PFS's extremely brief discussion in Section 7 of the QAPD gives no indication whatsoever of how PFS's QA program will deal with the significant problem that,

while PFS has responsibility for maintaining the integrity of the casks during transfer and 20-plus year storage, it has no apparent control over their purchase or manufacture. This appears to be left to the nuclear power plant licensees.

The QAPD also fails to address PFS's measures for satisfying the requirements of 10 CFR § 72.156. Among other things, this regulation requires that "identification and control measures must be designed to prevent the use of incorrect or defective materials, parts, and component." *Id.* Section 8 of the QAPD vaguely calls for paper documentation that identifies materials, parts and components, and a "means of identification." But it says nothing about the means PFS intends to "control" its operation to prevent the use of degraded or substandard parts, as also required by the regulation. This is an extremely grave omission, in light of the recent Demand for Information issued by the NRC to Sierra Nuclear Corporation, manufacturer of the TranStor casks for defective cask construction, EA 97-411 (October 6, 1997) ACN # 9710100120. *See also* description of defective or degraded cask contents in Contention J (Inspection and Maintenance of Safety Components) whose Basis 1 (Regulatory Violation) is herewith incorporated by reference. The QAPD also fails to address the important question of how welds on shipping casks and canisters will be inspected. These welds should be inspected using ultrasound, to ensure that the welds are secure. This is a standard technique recommended by the NRC. There is no indication as to whether this inspection will be performed by the licensee, the cask manufacturer, PFS,

or anyone else. As a result, this important QA operation may fall through the cracks, in violation of 10 CFR § 72.158.

The QAPD completely fails to address PFS's measures for controlling the quality of handling, storage, and shipping of spent fuel casks to prevent damage or deterioration, as required by 10 CFR § 72.166. For instance, improper handling of fuel during packaging at the originating nuclear power plant could lead to fuel degradation and reduction in the safety margin during storage. PFS proposes no specific QA measures for verifying the adequacy of these handling measures. The QAPD is completely vague as to whether and how it will conduct inspections on receipt of the casks. The QAPD mysteriously states that receipt inspection will be performed "consistent with importance and complexity," but fails to define those terms or state which components satisfy them. QAPD at 12. From the SAR, it appears that PFS intends to accept the casks as-is, with only the most cursory physical inspection to the outside of the casks. *Id.* § 5.1.4.2. Moreover, as discussed in Contention J (Inadequate Inspection and Maintenance of Safety Components), PFS has no means of verifying the adequacy of handling at the originating nuclear power plant by opening the canisters or of verifying that the casks have been properly packaged. Thus, PFS's QAPD is completely inadequate to describe how the Applicant will fulfill its responsibility under 10 CFR § 72.154 for control of purchased material, and equipment and services.

3. Inconsistency with SAR. The QA program description in the SAR is



inconsistent with the description in Docket 71-0829. For example, QA Docket 71-0829 describes a different organization for PFS than that described in the SAR. *Compare* QA Docket 71-0829 at 3 with SAR Figures 9.1-1, 9.1-2, and 9.1-3. For example, the QA Docket 71-0829 identifies a Business Services Unit, NRC Liaison, and a Human Resources Development Group not identified in the SAR. *Id.* Similarly, the SAR shows a number of positions and company units, such as a transportation specialist and a safety review committee, not described in the QA Docket 71-0829. *Id.* There is no attempt to show how or whether the positions and company units described in these two documents correspond to each other, or why the organization of the same company is described so differently in these two documents.

Similarly, the QA Docket 71-0829 indicates that for organizational independence the QA organization shall have direct access to the Board of Directors. QA Docket 71-0829 at 3. However, the SAR makes no reference to a Board of Directors but refers to a Board of Managers. SAR at 11.1-1, -3. QA Docket 71-0829 Figure 1 depicts the QA organization as reporting to the Board of Managers and indicates that the Board of Managers is responsible for budget approval, financial oversight, step IV planning, liaison to utilities, and business development. If the Board of Managers responsible for cost and schedule referred to in the SAR is the group to which the QA organization will report, organizational independence may be jeopardized. As stated in 10 CFR § 71.103(d), "[t]he persons and organizations

performing quality assurance functions shall report to a management level that assures that the required authority and organizational freedom, including sufficient independence from cost and schedule, when opposed to safety considerations, are provided."

#### 4. Failure to Demonstrate Independence of QA Organization

The SAR describes the Applicant's personnel organization in three stages: (1) pre-licensing, (2) licensing and construction, and (3) operational. SAR figures 9.1-1, 9.1-2, and 9.1-2. The QA responsibilities of the Board of Managers, the Architect/Engineer, and the QA Committee during the pre-licensing stage. SAR at 11.1-1 to -3, SAR figure 9.1-1. Although the SAR indicates that the "QA Committee is an independent organization reporting to the Board of Managers" and it "has the organizational freedom and authority to identify quality problems; to stop unsatisfactory work," the SAR fails to describe the interrelationships between the Architect/Engineer group and the QA Committee and how the relationship enhances QA. See e.g., SAR at 11.1-2. In addition, the SAR fails to identify who is responsible for pre-licensing "day to day activities, costs, or schedules" and how the organizational structure ensures QA in quality- and safety-related activities.

In addition, although the SAR briefly describes broad QA responsibilities for the Board of Managers and Lead QA Technician, it fails to provide any meaningful description of the licensing and construction, and operational functional

responsibilities, interrelationships, and various authority for performing quality and safety related activities. *See e.g.*, SAR at 11.1-3. Pre-licensing and pre-construction planning is vital to the success of an operation. However, construction, operation, and decommissioning QA are also critical to ensuring quality and safe activities when spent fuel is onsite. Moreover, it is impossible to evaluate the QA program without an understanding of the construction, operation, and decommissioning duties for each position or group and their interrelationships with other personnel.

Further, the QA Docket 71-0829 states that "[m]anagement of other organizations participating in the Quality Assurance program shall regularly review the status and adequacy of that part of the program which they are executing." *Id.* Allowing responsible individual organization management to determine the adequacy of the QA over their own programs does not allow independent oversight nor objectivity in establishing QA procedures. QA Docket 71-0829 at 4. Thus, contrary to the requirements of 10 CFR § 72.142, the QAPD fails to demonstrate the independence of the QA organization.

H. Inadequate Thermal Design.

CONTENTION: The design of the proposed ISFSI is inadequate to protect against overheating of storage casks and of the concrete cylinders in which they are to be stored.<sup>13</sup>

BASIS: Pursuant to 10 CFR 72.122(b), structures, systems and components of an ISFSI must be designed to accommodate the effects of, and be compatible with, site characteristics and environmental conditions associated with normal operation. Section 72.128(a) also requires that spent fuel storage systems such as the proposed ISFSI must be designed to "ensure adequate safety under normal and accident conditions." Among other things, these systems must be designed to include "[s]uitable shielding for radioactive protection under normal and accident conditions," and "[a] heat-removal capability having testability and reliability consistent with its importance to safety." 10 §§ CFR 72.128(a)(2) and (4).

PFS has failed to demonstrate that the design of the proposed ISFSI is adequate to accommodate the high temperatures that may be expected at the site. In particular, PFS has failed to demonstrate adequate design temperatures for storage casks and for the concrete cylinders in which the casks are to be stored. Nor does PFS propose design features to assure that the casks and concrete will not be overheated. Both the cladding in the storage casks and the concrete cylinders constitute shielding for

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<sup>13</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.

radioactive protection which could be degraded under high temperatures, thus posing an undue safety risk. Therefore, PFS does not meet the requirements of 10 CFR §§ 72.122(b) or 71.128(a).

1. Temperature specifications for storage casks

According to the SAR, the record high temperatures in Skull Valley range from 105 °F to 109 °F. SAR at 2.3-5. PFS has established a site design ambient temperature of 110 °F. SAR at 4.2-15. However, PFS is planning to use HI-STORM and TranStor storage casks, which are designed for lower ambient temperatures. The TranStor cask is designed for ambient temperatures of 75°F, and off-normal temperatures of negative 40°F and 100°F. TranStor SAR, Rev. B at 4.4. The Holtec cask is designed for a daily average ambient air temperature of 80°F, and off-normal conditions of negative 40°F and 100°F. HI-STORM TSAR Rev 2 at 2.2-17.

PFS recognizes that the off-normal design temperature of 100°F is below PFS's design ambient temperature of 110°F. SAR at 4.2-15. However, PFS argues 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 at 4.2-15. PFS contends that, while daily ambient temperatures could exceed 100°F, the average daily temperature would not exceed 100°F, averaging day and night temperatures. SAR at 4.2-15. In support of this assertion, PFS cites the maximum

average daily ambient temperature of 93.2°F for cities in Utah nearest the site. SAR at 4.2-15.

PFS's analysis is faulty, for several reasons. First, temperatures in unnamed cities somewhere in Utah do not necessarily correspond to the conditions in Skull Valley. PFS 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.

Second, PFS'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. These massive concrete structures will serve as reservoirs that trap and radiate heat throughout the day and night, thus having a potentially significant effect on average ambient temperatures.

Third, in projecting ambient temperatures, PFS fails to take into consideration the heat generated by the casks themselves. The TranStor casks are placed at a center-to-center distance of 15 feet. Since the diameter of each TranStor cask is 11.3 feet, the spacing between casks on the pad is only 3.7 feet. TranStor SAR, Rev. B at 1-17. The Holtec cask is 11 feet in diameter and the spacing between Holtec casks is therefore 4 feet. Holtec HI-STORM 100 TSAR Rev. 2 at 1.2-1. 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 the maximum cladding temperature.

Finally, PFS has not taken into account 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. Because of the heat-retaining nature of the concrete pad, the air temperature near the ground will be higher than the temperature 15 feet above. This will have an impact on the ventilation system for the casks, which relies on convection, in which cool air is drawn into the cask inlets and is heated by the inner canister, causing the air to rise. 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 buoyancy and velocity of air through the ducts is reduced. Air moving more slowly through the ducts, and at a higher temperature, will cool the canisters more slowly than cooler air. Thus, the design temperature for the casks (and the cladding inside them) may be exceeded due to the reduced effectiveness of convection cooling.

PFS's design of the ISFSI is inadequate because it fails to take into account 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. PFS should be required to perform the requisite calculations and re-evaluate the temperature-related design limits of the facility.

## 2. Temperature limits for concrete storage cylinders

In a "Request for Additional Information" from Lawrence E. Kokajko, NRC, to William J. McConaghy, Sierra Nuclear Corporation, December 17, 1996, (hereafter called RAI), the NRC states its policy on temperature limits for the concrete structures in which storage casks are housed. The Staff 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, 350°F and for accident or other short-term periods. The purpose of these limits is to assure that the concrete structures housing the casks, which serve as radiation shields, do not degrade and crack due to unacceptably high heat levels. RAI at 9, 10.

Information submitted by Sierra Nuclear Corporation (SNC) 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. In fact, 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.

TranStor. For example, at page 4-1 of the TranStor SAR, SNC presents concrete temperature calculations, based on a worst-case temperature of 125° with



maximum solar load, lasting for 12 hours. The resultant temperatures in degrees Fahrenheit are shown in the Table below:

TranStor Cask (°F)

Case	Ambient Conditions	Solar Load	Outer Concrete	Inner Concrete	Max Cladding
Base	75	No	85	188	664
Off-Normal	100	Yes	141	222	688
12 Hour Max Thermal Load	125	Yes	190	257	712

The Table shows that under off-normal conditions, the inner concrete temperature of 222°F exceeds the 200°F limit recommended by the NRC. Moreover, the off-normal temperature of 141°F for outer concrete is close to the NRC's recommended limit of 150°F. The NRC staff expressed concern about these temperatures in the RAI. It is stated that the staff would allow use of TranStor provided PFS uses a different concrete mix, as specified in an American Concrete Institute publication, ACI-349, Appendix A. RAI at 10. However, to Petitioner's knowledge, this issue remains unresolved.

Moreover, SNC's calculations only take into account the contribution of solar heat, and do not appear to take into account the heat contributed by the casks themselves. As discussed above, the heat input of the casks themselves is likely to be significant. It may raise the heat level of the concrete above acceptable levels, even using the concrete mix specified by the staff. Finally, SNC does not discuss the

problem of heat build-up in the concrete structures, a likely result of the reduced effectiveness of convection cooling.

HI-STORM. Holtec presents the following results at pages 4.4-32, 11.1-8, and 11.1-9 of the TSAR for the HI-STORM 100 cask:

Hi-Storm Cask (°F)

Case	Ambient Conditions	Solar Load	Outer Concrete	Inner Concrete	Max Cladding
Base	80	Yes	146	264	632
Off-Normal	100	Yes	166	287	652
12 Hour Max Thermal Load	80	Yes	150	288	656

These temperatures are clearly above the NRC recommended values. At the very least, they would require a different concrete formulation, as discussed in the NRC Staff's December 17, 1996 letter to SNC. Moreover, like SNC's calculations, Holtec's calculations are nonconservative, thus suggesting that even a different concrete formulation may be an insufficient design measure. Although Holtec does consider an array of casks in evaluating concrete temperatures, its equations only account for reduced air flow in the array, and do not consider the heat generated by the casks themselves. Nor does Holtec discuss the reduced effectiveness of convection cooling caused by relatively high air temperatures near the concrete pad.

Accordingly, PFS has not demonstrated that concrete structures for storage of spent fuel are design to withstand the temperatures that can be expected at the

proposed ISFSI, or that it has taken measures to ensure protection of the concrete from excessive temperatures.

I. Lack of a Procedure for Verifying the Presence of Helium in Canisters.

CONTENTION: The design of the proposed ISFSI fails to satisfy 10 CFR §§ 72.122(f) and 10 CFR § 72.128(a), and poses undue risk to the public health and safety, because it lacks a procedure, or any evidence of a procedure, for verifying the presence of helium inside spent fuel canisters.<sup>14</sup>

BASIS: The general design criteria for ISFSIs require that "[s]ystems and components important to safety must be designed to permit inspection, maintenance, and testing." 10 CFR § 72.122(f). NRC regulations at 10 CFR § 72.128(a)(1) also require that spent fuel storage systems must be designed with a capability to test and monitor components important to safety. *See also*, Reg. Guide 3.48, § 4.7, which states that:

Spent fuel or high-level radioactive waste handling facilities will be needed at the facility site for some of all of the following functions: receiving and inspection of loaded shipping casks, cask unloading, spent fuel or high-level radioactive waste transfer and examination, fuel assembly-disassembly, placement of spent fuel in a container, container sealing and testing, spent fuel or high-level radioactive waste container short-term storage, shipping cask decontamination, SSSC and drywell loading and preparation for storage, SSSC transfer to storage, fuel or high-level

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<sup>14</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.

radioactive waste container removal from storage site to shipping cask, and damaged fuel element containerization.

In dry cask transportation and storage, helium is injected into the canister and the cask as a coolant. The presence of helium is important to protect the contents of the canister from overheating, corrosion, and oxidation of uranium.

PFS's SAR indicates that during cask transfers, PFS intends to sample the inside of the casks for "gas," presumably including helium. SAR Table 5.1-1, item 6 (HI-STORM), Table 5.1-2, item 6 (TranStor). However, PFS appears to have no measures for testing the helium content inside the canisters. Because the helium will be expected to play a critical role in protecting the fuel from degradation over a 20-plus year storage period and during transportation to a final repository, it is important that PFS have and implement some means for verifying the presence of helium in the canister.

Moreover, the nature of the materials and operations involved in packaging fuel for shipment to the ISFSI create significant opportunities for human error in filling the casks with helium, thus making such a procedure all the more important. Under the "Operating Procedures" for the TranStor cask, (see TranStor SAR at 7-11), the canister is first evacuated and then backfilled with "99.9%" pure helium. Since this filling is being done while the canister is exposed to our normal atmosphere, it is possible that some air (containing oxygen) could leak in with the helium, perhaps due to carelessness or a slightly leaky helium hose connection. In this connection, it is important to recall

that there is a vacuum in the canister that may have the effect of sucking gases other than helium into the canister. Because of the potential for error in the filling operation, and because PFS lacks control over the filling operation, it is all the more important that PFS have the capability to open the cask and check for the presence of helium.

Another reason to require inspection of canisters for helium arises from the fact that the spent fuel will be shipped, perhaps thousands of miles, from reactors to the ISFSI. This stands in contrast to ISFSIs located on or near the sites of the reactors. During transportation, the welding on canister lids may loosen, thus allowing helium to escape.

J. Inspection and Maintenance of Safety Components, Including Canisters and Cladding.

CONTENTION: The design of the proposed ISFSI fails to satisfy 10 CFR §§ 72.122(f) and 72.128(a), and poses undue risk to the public health and safety, because it lacks a hot cell or other facility for opening casks and inspecting the condition of spent fuel.<sup>15</sup>

BASIS: Most dry cask storage facilities are located on the sites of nuclear reactors, where there is a spent fuel pool that can be used for inspection and repairs to the contents of dry storage casks. In the case of the proposed ISFSI, which would constitute a brand new facility, there is no existing spent fuel pool or hot cell that can be relied upon. Moreover, PFS has no plan to include one in the design. The SAR simply states that all casks are expected to be properly packed, and that any defective or contaminated casks will be returned to the originating shipper. Technical Specifications at TS-9. PFS's failure to provide a spent fuel pool where canisters and fuel cladding can be inspected and repaired violates NRC regulations. Moreover, a hot cell is needed to protect workers and the public against the undue risks caused by the handling and storage of spent fuel.

1. Regulatory violation. The general design criteria for ISFSI's require that "[s]ystems and components important to safety must be designed to permit inspection,

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<sup>15</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.

maintenance, and testing." 10 CFR § 72.122(f). NRC regulations at 10 CFR § 72.128(a)(1) also require that spent fuel storage systems must be designed with a capability to test and monitor components important to safety. *See also* Reg. Guide 3.48, § 4.7, which states that:

Spent fuel or high-level radioactive waste handling facilities will be needed at the facility site for some of all of the following functions: receiving and inspection of loaded shipping casks, cask unloading, spent fuel or high-level radioactive water transfer and examination, fuel assembly-disassembly, placement of spent fuel in a container, container sealing and testing, spent fuel or high-level radioactive waste container short-term storage, shipping cask decontamination, SSSC and drywell loading and reparation for storage, SSSC transfer to storage, fuel or high-level radioactive waste container removal from storage site to shipping cask, and damaged fuel element containerization.

The Commission emphasized the importance of providing measures for inspection and maintenance of critical safety components in the course of proposing them in 1978:

The large inventory of radionuclides in an ISFSI represents a potential hazard to public health and safety. Storage conditions must provide an environment which will insure the long-term integrity on [sic] the fuel cladding as the primary containment for the radioactive materials contained in spent fuel. . . .

To assure the long-term integrity of the stored spent fuel, the storage racks and other important components of an ISFSI, there must be provisions for periodic inspection and surveillance of critical components.

Proposed Rule, Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI), 43 Fed. Reg. 46,309, 46,310 (October 6, 1978) (emphasis added). Clearly, the



canister and cladding which hold the spent fuel, and protect against the release of radiation, constitute such critical safety components.

Moreover, the NRC's conclusion regarding the safety of dry cask storage for extended periods of time is based on the presumed ability to inspect the condition of spent fuel during storage. In 1988, in amending Part 72 to add standards for the design of Monitored Retrievable Storage ("MRS") facilities, the Commission prepared an Environmental Assessment which concluded that dry cask storage is safe for extended periods of time. NUREG-1092, Environmental Assessment for 10 CFR Part 72, Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste at II-7 (1984). In discussing the impacts of monitored retrievable storage, the Commission found that:

The principle [sic] operations to take place in the MRS are to provide spent nuclear fuel and HLW handling, transfer, and storage. Installations would have to be designed to ensure confinement of radioactive materials as well as provide for monitoring HLW and spent fuel storage containers. An MRS will have to be designed to permit spent nuclear fuel and high-level wastes to be retrieved and shipped to reprocessing facilities or geologic repositories. Verification of material integrity during the design lifetime of the MRS is necessary to ensure structural integrity of HLW and spent fuel storage containers for the protection of the public from releases of radioactive material into the environment.

Id. at II-3 (*emphasis added*).

The EA's Finding of No Significant Impact was based in part on "[k]nowledge of material degradation mechanisms under dry storage conditions and the ability to institute repairs in a reasonable manner without endangering the health of the public."

Id. At III-2. *See also* Final Rule, Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste, 53 Fed. Reg. 31,651, 31,658 (August 19, 1988).

The DOE concurred, in DOE/RW-0402, Monitored Retrievable Storage System Requirements Document, Revision 1 (1994). DOE states that:

The MRS facility should have the capability to provide for inspection and verification of the description and characteristics of the SNF or the content of the loaded MPCs received. If the SNF or loaded MPC is improperly described, Waste Acceptance will be notified for resolution of the waste description.

Id. at 56. DOE also requires that: "[t]he MRS facility shall have the capability to open, remove SNF, load SNF, and seal the MPC, without damaging the SNF." Id. at 61.

PFS's failure to provide a hot cell or other facility for the inspection and repair of the contents of spent fuel canisters and the spent fuel canisters themselves violates the NRC's regulatory requirement that safety components must be capable of inspection, testing and maintenance. As one of the key barriers to the escape of radioactivity from the casks, the cladding inside the cask, and the canister which holds it, constitute vital safety components which must be subject to inspection and maintenance.

2. Hot cell needed to protect against undue risk. By failing to include a hot cell in the design for the proposed ISFSI, PFS poses undue risk to public health and safety. PFS's failure to include a design for a hot cell appears to be based on three assumptions, none of which is valid.

a. Verification of fuel condition. First, PFS assumes that the fuel shipped to it will be in good condition. This assumption is unreasonable, on several grounds. First, as discussed in Contention G regarding Quality Assurance, the Applicant will have no control over the packing of canisters and transportation casks at nuclear power plants. This operation will be performed by employees of the nuclear power plant licensees. Important safety operations such as the welding of cask and canister covers will not be under the control of PFS, and may be carried out without proper controls or inspections.

Moreover, the potential for errors in packing methods is multiplied by the fact that the fuel will be shipped by eight or more separate nuclear power plant licensees around the country, comprising at least 19 power reactors. This is compounded by the fact that SNC, the manufacturer of the TranStor cask, has had serious problems with the quality of its materials. See NRC Demand for Information, EA No. 97-441 (October 6, 1997), ACN # 9710100120.

Second, the process of preparing casks at a nuclear plant for shipment to an ISFSI involves numerous complex steps that present the potential for error. The lid

must be seal welded, the canister evacuated and filled with helium and the vent and drain ports welded shut. Leak testing must also be performed. Accidents or near-accidents in the recent past demonstrate that the packing of transportation and/or storage casks is subject to human error, and that it is essential to provide some means for inspecting and repairing the damaged fuel and canister. For instance, in 1994, NRC inspectors discovered that irradiated fuel had been loaded into a defective cask at the Palisades nuclear plant. NRC Inspection Report No. 71-1007/92-01 (May 6, 1992). The defect in the cask was not noticed by the licensee when the fuel was packed into the cask. The faulty welds were only discovered when NRC inspectors reviewed operations at the cask manufacturers after the time the cask had been loaded. That cask has still not been unloaded despite the fact that unloading procedures were to have been in place and are part of the Certificate of Compliance.

Another example of cask loading problems occurred at Duke Power in 1981. An NLI-1/2 cask, holding one PWR fuel assembly, was to have been shipped dry, but a worker incorrectly filled the cask with water. Letter from William Parker, Duke Power, to John Davis, NRC (December 1, 1981), ACN # 8112140019. The technician mixed up drain and vent ports while attempting to fill the cask with helium. Id. Fortunately no highway accident involving a fire occurred in the shipment. This error is also possible with the TranStor cask, because the drain and vent ports look alike.

Another example of defective fuel loading occurred in 1980, when the fuel inside an NLI-1/2 truck shipping cask self-heated, causing the uranium fuel pellets to oxidize into a fine powder.<sup>16</sup> The fuel was too hot to be transported within the shipping cask. The error occurred due to the use of an outdated heat generation formula. Even under routine conditions, the spent fuel temperature is quite high in the canister/basket. As past experience has shown, if helium is not present in the cask, any air near the fuel could oxidize the fuel pellets in leaking rods.

Finally, accidents may occur at the PFS facility. The transfer cask can be dropped, or the canister can be too rapidly pulled into the transfer cask. No stresses are likely to open the welds, as the TSAR's show. See, e.g., TranStor TSAR at 8.1-13. But it is quite possible to warp the canister with a drop, or otherwise damage the canister so that it no longer fits within a storage or transport cask. In this case, PFS has no means for inspecting or repairing a damaged canister, or of transferring its contents to another canister. The only effective means of performing these operations is to use a spent fuel pool or hot cell.

The only feasible way to verify the condition of the contents of the casks, including cladding degradation, is through the use of a spent fuel pool or hot cell.

b. Detection and control of contamination. PFS's second invalid assumption is that it is capable of detecting unacceptable levels of contamination.

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<sup>16</sup> "Airborne contamination Released During Unloading of a Failed PWR Spent Fuel Assembly," PATRAM 80, p. 646.

According to PFS, "[i]n the event contamination above acceptance levels is discovered, the canister will be shipped back to the originating nuclear power plant for canister decontamination and/or spent fuel repackaging." SAR at 10.2-14. PFS states that it will take smear samples in accessible regions of the casks (although there is nothing in the Tech Specs which commits PFS to do this). Id. The accessible regions consist of the canister cover, which is shielded. However, without a hot cell, it is impossible to take smear samples of the other parts of the canister which may be contaminated, because they are too radioactive for workers to approach. These other parts of the canisters may be contaminated in the spent fuel pool at the reactor, during the initial packaging of spent fuel. Moreover, even assuming the canister is "clean," it is likely vibrations on the rail or highway will shake loose radioactive contamination from metal pores. That is, even if the canister is clean when leaving the reactor, the levels of smearable contamination could rise after transit. This has happened often and is called, "weeping."

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 ISFSI. However, PFS has no effective means of determining whether the canisters are contaminated, or removing the contamination.

The principle, "Start clean. Stay clean," should really be "Start clean. Get Dirty." PFS argues (SAR at 7.2-11) that if smearable contamination exceeds regulatory

limits, the cask will be returned to the utility. It would be highly improper to send a cask with smearable contamination above regulatory limits back on the rails and highway. Rather, a hot cell is needed to decontaminate the canister.

c. Returning defective casks is unsafe. PFS's third invalid assumption is that if casks are found to be degraded or contaminated, they can be safely shipped back to the originating licensee. SAR at 7.2-11. Putting degraded or contaminated spent fuel containers back on the road should be the last option considered, not the licensee's official protocol. The risk of accidents during return transportation and handling may be significantly increased if the condition of fuel is degraded or the casks contaminated. Moreover, even if transportation and handling are incident-free, vibrations during transportation may shake loose any contamination on the canisters, thus posing a risk to workers handling the returned casks.

Accordingly, the license application fails to comply with NRC regulations or provide adequate to public health and safety because it does not provide for a hot cell for inspection and handling of spent fuel canisters.

K. Inadequate consideration of credible accidents.

CONTENTION: The Applicant has inadequately considered credible accidents caused by external events and facilities affecting the ISFSI, intermodal transfer site, and transportation corridor along Skull Valley Road, including the cumulative effects of the nearby hazardous waste and military testing facilities in the vicinity.<sup>17</sup>

BASIS: 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. While the Applicant mentioned land uses within a five mile radius of the proposed ISFSI (ER § 2.2.2, and SAR §§ 2.1.4 and 2.2), it failed to adequately address the provisions of NUREG-1567, which states:

The locations of nearby nuclear, industrial, transportation, and military installations should be indicated on a map which clearly shows their distance and relationship to the ISFSI. All facilities within an 8-km (5-mi) radius should be included, as well as facilities at greater distances, as appropriate to their significance. For each facility, a description of the products or materials produced, stored or transported should be provided, along with a discussion of potential hazards to the ISFSI from activities or materials at the facilities.

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<sup>17</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.



NUREG-1567, Standard Review Plan for Spent Fuel Dry Storage Facilities (Draft),

§ 2.4.2, U.S. NRC, October 1996 (*emphasis added*).

Skull Valley is surrounded by industrial and military facilities incompatible with the proposed ISFSI and potentially a source of incidents, including a catastrophic accident, threatening the facility, the Applicant's intermodal transfer facility, and the transportation corridor along Skull Valley Road. The application's land use discussion generally refers to these nearby facilities but the Applicant has failed to adequately analyze the potential risks posed by these activities. SAR § 2.2. The Applicant examined several of the nearby facilities in a cursory manner, and concluded that an accidental explosion of conventional Army weapons being transported along Skull Valley Road en route to or from Dugway Proving Ground was the only credible explosion event that could potentially occur. SAR at 2.2-1 to -2, and 8.2-21 to -22.

The Applicant dismissed any threat of a credible accident from the Tekoi Rocket Engine Test facility (Tekoi) just 2.5 miles from the proposed ISFSI facility. (SAR at 8.2-21). The Tekoi facility is used to static fire rocket motors, conduct hazard testing of explosives, and to store rocket motors for aging tests. Alliant Techsystems Bacchus Works, Baseline Risk Assessment for Tekoi High Hazard Test Area at 2, Global Environmental Solutions (March 1996), excerpts attached hereto as Exhibit 7. The Tekoi facility static fires Titan rocket motors with approximately 210,000 pounds of propellant and has the ability to test rocket motors up to the size used for the Space

Shuttle. In addition, hazard explosive testing typically requires between 10 and 100 pounds of explosives per test. Id. The Tekoi facility also has a number of test bays to concurrently store and test a number of rocket motors and has a number of activities with varying hazard ranges that may impact the proposed ISFSI. For example, the Applicant has failed to consider possibilities, such as the potential for a static fired rocket motor to escape from the test harness, or the impact of an explosion to reach the ISFSI facility or to impact casks or cask-hauling trucks (or railcars) traveling along the access road, including the type of damage that could result from such rocket motors.

Dugway Proving Ground (Dugway), the 806,139.61 acre U.S. military reservation located approximately eight miles southwest of the proposed ISFSI, is used for combat training using live munitions and testing of conventional weapons. Dugway also tests chemical agents, chemical agent decontaminants, personal protective equipment, smokes, illuminates, and chemical and biological defense monitoring equipment. Additionally, the National Guard and Air Force use Dugway to train with live munitions, and Air Force bombers must occasionally land at Dugway with "hanging bombs," i.e., live ordnance that fails to drop from the plane and is stuck in the bombing bay during air-to-ground combat training. See Affidavit of David C. Larsen, attached hereto as Exhibit 8, ¶ 8. While the Applicant calculates the probability of an aircraft impacting the proposed facility (*see* SAR at 2.2-3), there is no

indication that it included data involving such emergency incidents as hanging bombs, nor is there any mention that it considered the potential for sabotage relating to air flights, although the Applicant admits the possibility of sabotage against the ISFSI itself (EP at 2-16, ¶ 8).

The Applicant does not specify the in-flight crash rate per mile used in the air crash probability calculation. The Applicant indicates it utilized methods obtained from the U.S. Nuclear Commission's Standard Review Plan, NUREG-0800. SAR at 2.2-3. NUREG-0800 incorporates data from the Department of Energy Air Crash Risk Analysis Methodology (ACRAM). See, Vol. 1 Tooele Chemical Agent Disposal Facility Quantitative Risk Assessment at 5-97, U.S. Army (December 1996) (hereinafter TOCDF Risk Assessment),<sup>18</sup> excerpts attached hereto as Exhibit 9. ACRAM calculates the in-flight crash rate per mile for commercial and military aircraft based on actual crash data for each aircraft type. TOCDF Risk Assessment at 5-97. In addition, for general aviation and helicopters, the ACRAM study generated a computer program that accepts a site latitude and longitude as input and provides the frequency per unit per year. *Id.* at 5-97, -98. The ACRAM computer program represents a fit to actual crash locations for the continental United States. *Id.* Thus, the source and accuracy of the in-flight crash rate used is critical in determining the

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<sup>18</sup> This portion of the TOCDF risk assessment discusses the site-specific aircraft crash frequency estimates based on ACRAM for TODCF, a facility located approximately 20 nautical miles from the proposed ISFSI site.

probability of an aircraft crash into the ISFSI site. Moreover, if the in-flight crash rate is not a worse case rate for all types of aircraft, then the Applicant should calculate the aircraft frequency per aircraft type.

The Applicant must collectively consider the probability of commercial and military aircraft crashing into the ISFSI site. The Salt Lake City International Airport may direct approximately 15% of its commercial aircraft through Rush Valley, flight pattern V257. *Id.* at 5-100, 102. Flight pattern V257 runs north and south on the east side of the Onaqui and Stansbury Mountains. *Id.* at 5-100. Because of the close proximity of flight pattern V257 to the ISFSI site, the Applicant should evaluate the probability of a commercial aircraft crash into the site.

The mid to southern portion of Skull Valley is located within restricted military air space under the Sevier B & D Memorandum of Agreement. *Id.* at 5-101. The Applicant has failed to take into account in its accident analysis that military aircraft from Dugway Proving Grounds or from Hill Air Force Base may occupy the restricted military air space over the proposed ISFSI site during training or security missions. Moreover, the Applicant has failed to analyze potential risks from the North or South Utah Test and Training Range (UTTR). UTTR is used by the U. S. Air Force as a training range for air-to-air and air-to-ground live munitions training, propagation testing of military ordnance, and is located just 18.3 miles from the proposed ISFSI. *See*, Exhibit 8, Larsen affidavit at ¶ 12. The Applicant has also failed

to take into account that Dugway is the proposed landing site of the X-33 hydrogen-powered space plane. See, Vol. 1, Final Environmental Impact Statement, X-33 Advanced Technology Demonstrator Vehicle Program at 2-25, National Aeronautics and Space Administration (September 1997), excerpts attached hereto as Exhibit 10. In addition, the Applicant should consider whether military training missions have a higher in-flight crash rate per mile than a military aircraft flying a routine mission, e.g., transferring from one air base to another.

Further, the Applicant has completely failed to apply any aircraft accident scenarios to the intermodal transfer point 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. For example, flight pattern J154 flies directly over the intermodal transfer facility. See, TOCDF Risk Assessment, Exh. 7 at 5-100. PFS 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." See, SAR at 2.2-3, and EP at 2-15. Given the high level of military aircraft activity in the area, and the fact that this activity includes transport of live munitions, PFS should not be granted a license unless it evaluates the risks posed by aircraft accident scenarios to the intermodal transfer facility and the casks themselves as they travel on trucks or railcars to the ISFSI.

Additionally, the Applicant has failed to identify, examine, and evaluate the potential cumulative effects of the many land uses presently existing in the proposed ISFSI region. In addition to Dugway transporting conventional munitions along Skull Valley Road, as the Applicant discusses (SAR at 2.2-2), Dugway also transports various chemical agents used for testing. See Exhibit 8, Larsen affidavit at ¶ 4. The Applicant should evaluate the potential impacts of an accident involving chemical agent, including an accident caused by increased heavy haul truck traffic on Skull Valley Road.

Additionally, the Applicant fails to identify, examine or evaluate the potential cumulative effects of the concurrent transport of spent fuel and other hazardous materials in the region. Hazardous munitions and other materials are routinely shipped in and out of the surrounding military facilities. In addition, the commercial facilities - the Laidlaw APTUS hazardous waste incinerator, the Envirocare low level radioactive and mixed waste landfill, the Laidlaw Clive Hazardous Waste Facility, and Laidlaw's Grassy Mountain hazardous waste landfill - located 25-35 miles northwest of the proposed ISFSI receive thousands of tons of waste yearly. Most of these shipments pass through Rowley Junction. See, Exhibit 8, Larsen affidavit at ¶ 12. 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 Applicant has made no attempt to identify, examine and evaluate the "occurrence and severity" of "important potential man-induced events" that may affect the ISFSI design, as required by 10 CFR § 72.94, from activities involving other industrial and military facilities. The Applicant must address the impacts from accidental releases from a facility that may cause the evacuation of the ISFSI or intermodal transfer station and abandonment of spent fuel casks. In addition, the Applicant should address the impact of hazardous chemical products, hazardous waste, low level radiological waste, and industrial waste being shipped along the same rail or highway routes as spent nuclear fuel casks. The Applicant should also address the potential safety and security impacts from spent fuel or other hazardous materials remaining in rail yards while awaiting shipment to a final destination, as well as the impact of such an occurrence.

L. Geotechnical

CONTENTION: The Applicant has not demonstrated the suitability of the proposed ISFSI site because the License Application and SAR do not adequately address site and subsurface investigations necessary to determine geologic conditions, potential seismicity, ground motion, soil stability and foundation loading.<sup>19</sup>

BASIS:

1. Surface faulting. NRC regulations recognize that areas west of the Rocky Mountains may potentially be seismically active. 10 CFR § 72.102(b). These areas, including the proposed ISFSI site, must be evaluated by the techniques of 10 CFR Part 100, Appendix A. Specifically, Appendix A, IV(b)(2) requires the "[e]valuation 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 purpose of the evaluation is to define capable faults which exhibit "[m]ovement 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." 10 CFR Part 100, Appendix A, III(g)(1).

Although the Applicant concludes that there is "[n]o evidence of fault offset of the surficial soils" (SAR at 2.6-35), the SAR does not provide sufficient supporting evidence of the presence or absence of buried capable faults that have moved at least

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<sup>19</sup> This contention is supported by the Affidavit of Barry J. Solomon and the Declaration of Lawrence A. White, attached hereto as Exhibits 11, and 1, respectively.



once within the past 35,000 years or repeatedly within the past 500,000 years. Surficial material at the site was deposited by Lake Bonneville sometime between 10,000 and 25,000 years ago; however, additional material beneath the lake deposits may range in age from 500,000 to 25,000 years old. Dorothy Sack, Quaternary Geologic Map of Skull Valley, Tooele County, Utah, Utah Geological Survey Map 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 Applicant detected buried faults in Paleozoic bedrock beneath the site in a seismic reflection survey (SAR Appendix 2B), but concluded that the faults "do not appear to extend into the overlying unconsolidated sediments." SAR at 2.6-36. However, 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 extend upwards into the overlying unconsolidated sediments. 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.

Of particular concern are faults in the western half of seismic line 2 (SAR Appendix 2B, figure 4.6) which directly underlie the proposed ISFSI area; other faults which may offset unconsolidated sediments are found in seismic line 3 crossing the

proposed easement area. The faults in both areas, if capable, may produce greater vibratory ground motion than that for which the facility is designed. Moreover, the faults beneath the storage area may also pose a threat of surface fault rupture which must be accommodated in facility siting and design.

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 (within the last 10,000 years) movement. DePolo, C.M., and Slemmons, D.B., 130,000 Year 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, at 28. Many of the earthquakes were on faults that had not experienced prior large earthquakes for up to 130,000 years. The Hickman Knolls Horst block, where the Skull Valley Reservation is located, may include similar faults which may be buried. Thus, the Applicant should extend its evaluation to determine the potential for seismic activity from earthquakes on faults in the site vicinity.

2. Ground motion. The site may also be subject to ground motions greater than those anticipated by the Applicant due to spatial variations in ground motion amplitude and duration because of near surface traces of potentially capable faults (the

Stansbury and Cedar Mountain faults). 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). 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).

3. Characterization of subsurface soils. 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.

a. Subsurface investigations. The location plans for completed subsurface investigations, cross-sections, and profiles showing subsurface soil and rock layering at the site contained in the license application is deficient in that these data could not be compared with the Applicant's boring logs. Structure specific cross sections and profiles were not prepared utilizing the boring log records. Only a generalization of the boring logs were used to establish the site geologic characterization. It is not possible to ascertain whether or not all the data collected, particularly data on zones of soft/loose conditions encountered in the explorations,

have been used to characterize subsurface conditions and to establish design values and that the uncertainties normally associated with the estimation of the thickness and extent of various materials occurring at the site have been conservatively considered in developing the soil and rock layering.

Additionally, SAR section 2.6 defining 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 an unambiguous representation of the site geology. The maps do not provide the requisite detail to evaluate the assumed geologic conditions stated in the text. For example, 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 is presented. SAR figure 2.6-5. The geologic profile cannot be correlated with surface topography, geologic deposition soil characteristics, or seismic profiling completed for the site. Details missing include the interrelationship of the subsurface conditions with geologic history of the site.

Further, the application does 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 ISFSI site, particularly if there is potential for geochemical weathering and leaching of soils and rocks at the storage site. Correlations should be

made with previous groundwater conditions which led to the calcareous deposition and probable cementation of the subsoils.

b. Sampling and analysis. Site specific investigations and laboratory analyses must show that soil conditions are adequate for the proposed foundation loading. 10 CFR 72.102(d). However, PFS's sampling program is not adequate in quantity (number of samples) and quality (suitable recovery of disturbed and undisturbed samples)<sup>20</sup> to ensure that all materials that are critical for geotechnical evaluation of the site have been adequately sampled. For example, only five undisturbed samples were collected, and only five consolidation tests with accompanying physical properties analyses, and two unconsolidated undrained strength tests were made. Unless subsurface conditions are predictably uniform across the site, the number of tests and analyses are inadequate to accurately model the expected behavior of the soil foundation under static and dynamic loading. The prediction of soil foundation performance cannot be predicted adequately with limited data.

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<sup>20</sup> Soil samples from each predominant soil type within the site stratigraphy should comply with the following criteria: they should contain no visible distortion of strata, or opening or softening of materials; specific recovery ratio (length of sample recovered divided by length of sampler extension) should exceed 95 percent; and they should be taken with a sampler with an area ratio (annular cross-sectional area of sampling tube divided by full area of the outside diameter of samples) less than 15 percent. Naval Facilities Engineering Command Soil Mechanics Volume Design Manual 7.1 at 7.1-73, Dept. of the Navy (May 1982).

The investigations (sampling and analysis) to determine the properties of various materials underlying the site are not sufficient. The scope of investigations should match the design requirements of the facility and complexities of the site. For example, the analysis of soil is not based on the results of dynamic testing of insitu samples either in a stress or strain controlled manner. These data are essential in order to correlate with the field seismic profiling (shear wave determination) for use in the analysis of the seismic response of the buildings and their contents, and to determine the potential for soil collapse.

There are insufficient soil test data presented in the application to determine that strength tests have been performed on undisturbed samples and that there are sufficient relevant test data to support the selection of design parameters. See e.g., SAR App. 2A, Attach. 2, at 2 and tables immediately following. For example, the soil test data did not include samples taken from each of the soil strata, did not include each foundation of buildings or structures, did not include the PMF diversion dike foundation, and did not evaluate compacted soils. There is also insufficient data to conclude whether or not soil and rock characteristics derived from the investigations have been completely and conservatively interpreted to develop design parameters. If site building foundations and soil structures have not been investigated and laboratory tests to measure and quantify the soil performance not documented, a decision regarding suitability or applicability cannot be made.

The collected field data must be compared with the soil information found in the literature, and correlated with other data for similar soils when comparing the shear modulus values. The Applicant must obtain representative undisturbed samples of each of the site soils and determine their dynamic properties. The apparent differences in Poisson's ratio as cited in SWECO calculations should be evaluated, not assumed to be an appropriate value, and then used for safety related calculations. See e.g., PFS calculation package, Vol. I, Subdivision 7 at 17A and B (calculation number 01-1).

The license application does not provide a detailed and quantitative discussion of the criteria used to determine if samples were taken in accordance with acceptable test methods and tested in sufficient number to define all the soil and rock parameters needed for characterizing the site and borrow areas in accordance with the general guidance of ASTM Standards. The basis for the selection of samples and the type of test to be made is a function of the structure, anticipated loading, duration of loading (seismic) and the need to modify the soil's physical characteristics. The boring location plan appears to be merely a grid across the site and not structure specific. See, SAR, figure 2.6-2.

The descriptions of the test results for field and laboratory tests are generally insufficient to allow detailed analysis. While the conditions of the testing were explained to be in accordance with accepted testing procedure, any deviations from the

normal procedure recommended in the standard test should be documented. For example, throughout calculation number 04-3, the criteria for the assignment of unit weight of soil, typically used in most all soil analysis (strength, consolidation, and dynamic response) are assumed values without justification of the effects of percent clay or calcareous materials. See PFS calculation package Vol. II, Subdivision 10 (calculation number 04-3). The justification of the values should be provided before their use is permitted in static and dynamic analysis, particularly when determining the dynamic strain response of soils under triaxial testing. Calculation number 04-3 involving bearing capacity reports the foundation soil to consist of compacted structural fill with a unit weight of 125 pounds per cubic foot, while laboratory data calculation 05996.01-G(B)-01 in the Geomatrix (1997B) For Bases For Dynamic Soil Properties (*referred to in* PFS calculation package Vol.II Subdivision 11 at 4 (calculation number 05)), reports a value almost 50% lower (unit weight of 80 pounds per cubic foot).

A major failing in the application is the lack of a detailed discussion of field and laboratory sample preparation for testing, the omission of which prevents independent review and assessment of the quality of data collected. How samples are prepared and tests performed can significantly impact test results and their interpretation, potentially making the test results and interpretations meaningless. Additionally, the tests results may not reflect those conditions to be modeled in the field and therefore either



underestimate or overestimate the response of the foundation system to actual field loading conditions. For strength tests conducted in the laboratory, full details must be given; for example, how saturation of the sample was determined and maintained during testing and how the pore pressures changed. For sites that are underlain by cohesionless soils and sensitive clays that are or may become saturated, particularly at depths greater than 30 feet, the Applicant should show that all zones that could become unstable because of liquefaction or strain-softening phenomena have been sampled and tested to evaluate their ground-failure potential. The Applicant must also show that the static and dynamic engineering properties of the soils, such as unconfined compressive strength, shear strength parameters for strength parameters from cyclic triaxial tests, were properly determined and that reasonable and conservative values were used in the design. This demonstration should explain how the developed data were used in design analyses, how the test data were enveloped for design, and why the design envelope is conservative. A table indicating the values of the parameter used in design should be provided and should be supported by field and laboratory test records.

c. Physical property testing for engineering analysis. The static and dynamic properties of materials needed for geotechnical analyses and design should be determined by performing appropriate laboratory and field tests which are conservative and accepted in practice by the geotechnical engineering profession. This

is especially a complex site from the standpoint of assessing potential earthquakes and resulting ground motion that may affect plant operation. However, it is not possible to ascertain if the Applicant's field and laboratory test data have been conservatively interpreted to determine the design parameters recommended for the various materials at the site. The SAR relies heavily on the published values for static and dynamic strength and the performance of compacted materials, not the physical characteristics of specific site soils. PFS calculation package, Vol. I, Subdivision 7 at 35 (calculation number 01-1). Because of the limited number of tests and generalizations made with respect to the soil profile and use of general uncorroborated published soil data, a reasonable judgment cannot be made regarding the applicability of the averaging conditions as assumptions used in the design calculations. There is too much uncertainty regarding the applicability of published data to the site. For example, The dynamic analyses presented instead use published information from 1970<sup>21</sup> which is extrapolated to the site without any basis for such extrapolation. The variation of shear modulus determined from testing cited in this reference is based upon a very small strain derived for laboratory compacted loose to medium dense sand materials. This data is not applicable for characterizing dynamic properties of slightly cemented

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<sup>21</sup> Seed and Idress (1970) is referred to in the PFS Calculation Package, Vol. 1, Subdivision 1 at 41 (calculation 05996.01-G(P05)-1 entitled "Development of soil and foundation parameters in support of dynamic soil structure interaction analysis" (Rev O, 3/13/97)).

silts found at the site based on SW-AJA (1972) at 39 of SWEEO calculation. Please note the variation in shear modulus is reported on the graph "Range for Sands" while the recommended range of values defined by the curve for use for layer 1 curve is for silts, clays, and clayey silt. The Applicant should explain why the data extrapolated from this curve is appropriate considering the various shear strain levels. In addition, strain controlled dynamic triaxial tests should be conducted to reference one or more strain intervals to support the basis of the curves. See e.g., PFS calculation package, Vol. II Subdivision 9 at 33 (calculation number 03-1).

Also some of the data do not fit together, and it appears data presented from different sources have been combined without assessing their applicability to the site. For example, the void ratio for soils indicate very loose soil conditions yet blow counts from standard penetration test are indicative of dense soils. The void ratio equation which represents the volume of soil voids divided by the volume of solids in the soil is in excess of two. See laboratory data results, PFS calculation package, Vol. II Subdivision 11 at 4 (calculation number 05). This soil structure may be typical of cemented sands, but no data are available to confirm that this is the case. Consolidation tests indicate the value  $e_0$  varies between 1.615 and 2.285. Id.

$$\text{The equation } e_0 = \frac{\text{Volume Voids}}{\text{Volume Solids}} = 2 +$$

based on these consolidation test values indicates that the volume of voids in the soil is more than twice the volume of the solid materials in the soil. The Applicant should verify if this abnormally high void ratio is typical of cemented soils.

Further, the Applicant performed only limited soil engineering tests (*see*, SAR App. 2A, Attachment 2), omitting a number of additional widely accepted index and engineering properties tests, such as unit weights, porosity, compaction, etc., which should be performed for layer 1 and 2 soils. *See*, 4 Annual Book of ASTM Standards § 04.08 (Soil and Rock Dimension Stone), American Society for Testing and Materials Annual Publication (1997). Such additional tests will allow a reviewer to make a reasonable judgment about how the soil will perform under the anticipated static and dynamic loading of the short and long term conditions.

4. Soil stability and foundation loading. Based on its investigations, the SAR apparently did not consider the potential for the presence of collapsible soils beneath the site to be significant. Although collapsible soils have considerable strength when dry, they are subject to hydro-compaction and settle dramatically when wetted. Thus, settlement associated with wetting may result in significant foundation damage.

Collapsible soils typically exhibit a loose, honeycomb structure associated with a low unit weight. Rollins, K.M., and Williams, Tonya, Collapsible Soil Hazard Mapping for Cedar City, Utah, in Proceedings of the 1991 Annual Symposium on Engineering Geology & Geotechnical Engineering, No. 27: Pocatello, Idaho State

University 31-1 (1991). These characteristics are exhibited by three of the five soil samples subjected to consolidation tests by the Applicant; samples C-1/U-3C, C-1/U-3D, and C-2/U-2E. The three samples have void ratios ranging from 1.952 to 2.285, compared to void ratios of 1.615 and 1.625 in the other two samples, and unit weights ranging from 51.7 to 57.5 pounds/cubic foot (pcf), compared to unit weights of 64.7 and 64.9 pcf in the other two samples. SAR Appendix 2A.

Collapsible soils also have intergranular bonds composed of silt, clay, evaporites, or other cementing agents that separate larger grains, forming the loose structure and imparting a high dry strength. The tested samples were alkaline, suggesting a possible evaporitic cement component, and reacted immediately with a dilute solution of hydrochloric acid, probably indicating carbonate cement. SAR Appendix 2A, attachment 2 at 2.

When saturated, the cement in collapsible soils weakens or dissolves and the larger grains collapse into a denser, grain-to-grain soil structure. Therefore, test samples must be saturated during consolidation testing to determine their collapse potential, but only two of the three samples, C-1/U-3D and C-2/U2E, were saturated. The Applicant states that after inundation with distilled water and the application of incremental loads over time, the test data for these two samples "appeared to indicate primary consolidation was not complete" after a considerable test interval. SAR Appendix 2A, attachment 2 at 2.

The low unit weight, high void ratios, alkalinity, reactivity with hydrochloric acid, and incomplete consolidation after a substantial test interval indicate a significant potential for the presence of collapsible soils beneath the site. The Applicant's data do not support its conclusion that "there is no potential for . . . collapse . . . or excessive settlement" of foundation soils. SAR at 2.7-2.

The SAR also concludes "there is no evidence of soluble mineral deposits in unconsolidated materials beneath the site to at least a depth of 100 feet." SAR at 2.6-37; ER at 2.6-19. However, the Applicant presents data that show evidence of alkaline shallow soil samples that reacted immediately with a dilute solution of hydrochloric acid. SAR Appendix 2A, attachment 2 at 2. These data argue for the presence of soluble minerals (evaporites and carbonates) in shallow unconsolidated materials.

Outcrops of white marl, a calcareous, laminated, open-water deposit of Lake Bonneville, were mapped throughout Skull Valley. Dorothy Sack, Quaternary Geologic Map of Skull Valley, Tooele County, Utah, Utah Geological Survey Map 150 (1993). The white marl is typically exposed in ephemeral stream cuts, underlying lake deposits similar to those at the surface of the site. Surficial samples of the marl analyzed by Sack have calcium-carbonate contents ranging from 23.2 to 52.5 percent and are texturally similar (silt) to unconsolidated materials encountered in boreholes drilled by the Applicant. Id. Thus, the Applicant did not consider the presence of

such soluble minerals during the evaluation of adequate soil conditions for the proposed foundation loading as required under 10 CFR § 72.102(d).

M. Probable Maximum Flood

CONTENTION: The application fails to accurately estimate the Probable Maximum Flood (PMF) as required by 10 CFR § 72.98, and subsequently, design structures important to safety are inadequate to address the PMF; thus, the application fails to satisfy 10 CFR § 72.24(d)(2).

BASIS: The Applicant inaccurately determined a drainage area of 26 square miles in its estimate of PMF. ER at 2.5.1, and SAR at 2.4.1.2. The facility is proposed to be located in Section 6, Township 5 South, Range 8 West. The topography of Section 6 is fairly flat from east to west with a large drainage area of over 240 square miles, producing runoff that will cross the depression in the northeast part of the section. The Applicant's 26 square mile estimate is inaccurate because the Applicant failed to account for all the drainage sources that will impact the ISFSI site during extraordinary storm events. 10 CFR § 72.98(a)-(c). See Affidavit of David B. Cole, attached herein as Exhibit 12. For example, the Applicant's drainage area does not take into account high canyons south of and including Deadman Canyon on the western slope of the Stansbury Mountains that produce significant runoff in wet years. Id. at ¶ 6. Consequently, the Applicant's figures for the 100-year flood and the PMF are undervalued by at least half.

Failure to adequately estimate the PMF results in the diversion berm being under-designed and does not comply with 10 CFR § 72.24(d)(2). Due to this inaccurate



assessment, the need to implement emergency plans may be underestimated. The Applicant's assertion that the facility area is "flood dry" (see ER at 2.5-6) may not hold true when calculations are recomputed to include the larger, more realistic drainage area. Moreover, a facility not accurately protected from flooding will impact the operation, maintenance and ultimate safety of the ISFSI. Furthermore, there is no justification to show that flood water will not curl around the berm, which will only be placed at the south end and portions of the southwest end of the ISFSI.

A number of consequences important to safety 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. Hence 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 ISFSI would also transport onsite chemical and radiological contaminants to offsite soils and ground and surface waters, thus violating 10 CFR § 72.24(l).

N. Flooding

**CONTENTION:** Contrary to the requirements of 10 CFR § 72.92, the Applicant has completely failed to collect and evaluate records relating to flooding in the area of the intermodal transfer site, which is located less than three miles from the Great Salt Lake shoreline.

**BASIS:** Most spent fuel will be shipped to Rowley Junction on rail lines paralleling the Great Salt Lake. This is an area that has been impacted by extensive flooding events in the recent past due to the rise in elevation of the lake. The elevation of rail tracks in the Rowley Junction area is just three to eight feet higher than the Great Salt Lake's historic high, 4211.85 feet, which occurred in 1986 following several wetter than average years. During this extensive flooding, rail tracks located on a causeway in the lake were lost, and on several occasions, the tracks along the southern shore of the lake were threatened with inundation. Further, the elevation at the intermodal transfer site is only seven feet higher than the lake's historic high. In very wet years, these critical areas may be vulnerable to the potential of flooding, or swamping by water waves generated by wind. See Exhibit 12, Cole affidavit at ¶¶ 8 and 9.

By failing to identify, document, and evaluate the significance of potential flooding events to the design of the intermodal transfer site and rail route paralleling the Great Salt Lake, PFS does not satisfy the requirements of 10 CFR § 72.92.

Further, the Applicant has 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), and 10 CFR § 72.92 and § 72.102(b).

O. Hydrology

**CONTENTION:** The Applicant has failed to adequately assess the health safety and environmental effects from the construction, operation, and decommissioning of the ISFSI and the potential impacts of transportation of spent fuel on groundwater, as required by 10 CFR §§ 72.24(d), 72.100(b) and 72.108.

**BASIS:** The Applicant must evaluate its proposed site for regional environmental effects resulting from the construction, operation and decommissioning of the ISFSI and also with respect to the potential impact on the environment from the transportation of spent fuel. 10 CFR §§ 72.100(b) and 72.108. The Applicant must also assess the impact on public health and safety resulting from the operation of the ISFSI. Id. § 72.24(d).

1. Pathways and Contaminants

The facility as designed, the intermodal transfer point, and transportation of spent fuel present the potential for a number of contaminant sources. Thus, in order to satisfy § 72.100(b), the Applicant must identify the actual contaminant sources, the potential for surface and groundwater contamination, and the impact of any contamination on downgradient resources.

The SAR is required to describe "the ability of the surface and ground water 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. NUREG 1567, Standard Review Plan for Spent Fuel Dry Storage Facilities (hereafter "NUREG 1567"), p.2-10 Furthermore, 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." Id. p. 2-19.

The Applicant has failed to identify all effluent sources and potential contaminants and contaminant pathways that may have subsequent impacts to surface water and groundwater in the following respects:

a. Sewer/Wastewater

The Applicant expects to meet sanitation needs for the facility with an underground sewage (septic) system with leach field. ER at 3.3-4, 5 and SAR 4.3-3. However, the Applicant does not describe the facility wastewater system. 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 will also 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 which drips from shipping casks in the canister transfer building will be discharged into the sanitary system. SAR at 7.5-4.

#### b. Retention Pond

The Applicant proposes to collect and drain storm-water to a retention pond at the north edge of the restricted area. ER at 4.2-4. The retention pond is "free-draining" and water collected in the pond will dissipate by evaporation and percolation into the subsoil. Id. Judging from this description, the pond will be unlined. 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 retention pond which will act as a direct pathway to groundwater. Furthermore, during heavy rains or flood events the retention pond may overflow and contaminate perennial and intermittent surface streams.

#### c. Operations

The Applicant's proposed operations will generate a number of radiological, chemical, or heavy metal contaminate sources that may be transferred to the groundwater. Routine maintenance of diesel generators, facility vehicles, and equipment, such as the tractor, overhead cranes, will generate various solvents and other organic contaminants. 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. Precipitation may wash off contaminants from vehicles or cask surfaces. Laboratory operations may generate a variety of radiological, heavy metal, or chemical contaminants.

#### d. Construction

Construction of the ISFSI, and the access road, and widening Skull Valley Road or building a rail spur will generate a number of radiological, chemical, or heavy metal contaminate sources from the heavy machinery, vehicles, construction materials and chemicals, including fuel, solvents, asphalt, etc. that will be used during construction. These activities presents the potential for these contaminants to be released to groundwater and surface water via drainage ditches, culverts and through seepage. For example, culverts will be located through the access road embankment "to carry the occasional runoff" and the Applicant's access road off Skull Valley Road. ER at 4.1-10.

#### 2. Groundwater and Surface Water

The Applicant maintains 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 finished grade." SAR at 2.5-5. To support its statement, the Applicant generically describes the strata at the site, the depth to groundwater at approximately 100 to 127 feet, and the low general permeability and groundwater velocity. However, the Applicant does not support its statements with any calculations based on specific factors, or the identification of the potential contaminants or direct pathways to groundwater. Moreover the Applicant has not assessed the potential for groundwater contamination at the intermodal transfer point at Rowley Junction or along the transportation route.

The Applicant estimates the groundwater depth at the ISFSI site at about 120 to 127 feet. ER 2.5-11. The Applicant then assumes groundwater along the proposed rail spur is also at a depth of over 100 feet and that "it is unlikely that the railroad spur will have any impact on hydrological resources." ER at 4.4-4. However, groundwater depths range from less than 10 feet to over 30 feet at various points along Skull Valley Road, the proposed location for the rail spur or expansion of Skull Valley Road. See Exhibit 13, Map: Shallow Groundwater and Related Hazards. In addition, the intermodal transfer point (Rowley Junction) is adjacent to a protected wetland area where groundwater is encountered at less than 10 feet. *Id.* Furthermore, while the Applicant describes the subterranean strata, the low permeability, and the low groundwater velocity at the site, ER § 2.5.5, the Applicant does not discuss these factors along the transportation route or the at intermodal transfer point.

The Applicant has failed to adequately identify surface waters that may be effected if NRC issues a Part 72 license. The Applicant generically states that there are "few perennial streams in Skull Valley and none in the vicinity of the [ISFSI;]" some dry washes that drain northward or northwestward in the vicinity of the ISFSI; and that no springs occur within 5 miles of the ISFSI but some spring channels are located near Timpie and Delle. ER at 2.5-2, 4.1-10. In addition, the Applicant mentions that "[s]prings 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 [ISFSI] other than a few stock ponds or small reservoirs built for irrigation purposes." ER at 4.3-6. 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 spent fuel. For example, there are at least fifty springs located within 15 miles of the proposed ISFSI. Exhibit 14, Springs Within the Skull Valley Watershed. Furthermore, there are perennial waters protected for agricultural uses located within 10 miles of the site. Id.

The Applicant states that earthen berms which serve to divert flooding will "have little effect on the natural surface hydrology." ER at 4.2-5. However, the Applicant fails to justify its conclusion that a concentration of flood water around the facility will not impact surface water or groundwater. See Contention M (Probable Maximum Flood) whose basis is adopted herein by reference.

### 3. Water Usage

The Applicant has failed to adequately discuss or evaluate the effect of its water usage on other well users and on the aquifer.

The Applicant estimates its water needs at 1,500 gallons per day. ER 4.2-4. However, the Applicant does not specify if the estimate is a daily average or a peak usage estimate. The Applicant also does not indicate if the 1,500 gallons per day is the estimate during construction, construction/operation, or decommissioning. Furthermore, the Applicant implies that it plans to draw water from onsite wells. Id.

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, p. 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. p. 2-13.

Well water is used as a source of potable water by users near the vicinity of the proposed ISFSI site. For example, the Petitioners, Castle Rock, et al, in their petition to intervene, p. 4, state that they owns nine separate homes located in Skull Valley north of the ISFSI along Skull Valley Road and each home is provided with culinary water through wells located adjacent to the homes. Also the affidavits attached to Ohngo Gaudadeh Deva (OGD) Petition to Intervene state that the affiants rely on well water for their culinary needs. See Affidavits of Lester Wash ¶ 7, Garth Bear ¶ 5, Abby Bullcreek ¶ 8; Margene Bullcreek ¶ 8 attached to OGD's Petition to Intervene. The Applicant states 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." SAR at 2.5-5. This statement is inadequate to comply with the regulations as implemented by NUREG 1567. The Applicant should provide an estimate based on an estimated pump rated and local hydrological data. Furthermore, the Applicant has failed to discuss water needs, the impact of water usage, and water rights at the intermodal transfer site.

#### 4. Downgradient Impacts

The Applicant has failed to discuss the impact of groundwater contamination on downgradient hydrological resources. As the Applicant generally indicates (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.

Groundwater generally flows from the recharge areas along both sides of the valley (base of the mountains) toward the middle axis of Skull Valley. Id.

The proposed ISFSI 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.

In generically discussing groundwater characteristics, the Applicant has failed to discuss the environmental effects and impact from groundwater contamination on more than thirty wells used for irrigation and stock watering located down gradient of the ISFSI. In addition, the Applicant has failed to discuss the impact on approximately fifty springs that located within 15 miles of the ISFSI. Exh. 14 Also, the Applicant has failed to discuss the impact of groundwater contamination on the downgradient

Timpie Springs Waterfowl Management Area (Timpie Springs) and the Great Salt Lake. These areas provide wetlands and habitat for aquatic wildlife and shorebirds. In fact the Great Salt Lake is a western hemisphere shorebird reserve and the world's largest staging area for Wilson's Phalaropes and has seventy-five percent of the western population of Tundra swans; it also provides habitat for bald eagles (threatened species) and peregrine falcons (endangered species). See e.g., ER Table 2.3.2 Timpie Springs and the Great Salt Lake, like all ground and surface water resources in the area, are critical to Utah's ecosystem. Potential accidents involving casks being transported along the rail route which parallels the Great Salt Lake and Timpie Springs into Rowley Junction would have serious effects on these areas as would contamination of ground of ground and water along the corridor route and from the ISFSI site.

P. Inadequate Control of Occupational and Public Exposure to Radiation

CONTENTION: The Applicant has not provided enough information to meet NRC requirements of controlling and limiting the occupational radiation exposures to as low as is reasonably achievable and analyzing the potential dose equivalent to an individual outside of the controlled area from accidents or natural phenomena events. BASIS: The Applicant has not complied with the Commission's radiation protection and monitoring regulations pursuant to 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 (Radiation Protection Evaluation) (hereinafter NUREG-1567); NRC Reg. Guide 3.62, *Standard Format and Content for the Safety Analysis Report for Onsite Storage of Spent Fuel Storage Casks*, Section 9, (Radiation Protection); 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), in the following respects:

1 The Applicant has not provided detailed technical information to show that the policy of minimizing exposure to workers as a result of handling the casks is adequate. Reg. Guide-3.62 § 7.1.1. If the design of the ISFSI has incorporated ALARA concepts then the casks chosen from vendors should have the lowest dose rates but PFS

has failed to provide the technical information describing why the two cask vendors were chosen and a description and comparison of the dose rates with other comparable casks for the OCA boundary array. PFS has not described the design features that provide ALARA conditions during transportation, storage and transfer of the waste. 10 CFR § 72.24(e).

2. The Applicant has failed to provide an analysis of alternative procedures to indicate whether the proposed procedures for workers handling the casks will result in the lowest individual radiation and collective doses. NUREG-1567, § 9 and Reg. Guide-3.62 § 7.1.2.

3. The Applicant has not adequately described why the OCA boundary was chosen and whether boundary dose rates will be the ultimate minimum values compared to other potential boundaries. Reg. Guide-3.62 § 7.1.2, Design Considerations.

4. The Applicant has failed to indicate whether rain water or melted snow from the ISFSI storage pads will be collected and analyzed prior to disposal and whether it will be handled as radioactive contaminated waste. Reg. Guide-3.62 § 7.1.3, Operational Considerations.

5. The Applicant does not provide design information for the ventilation systems in the unloading facility to show that contamination will be controlled and workers protected during unloading of the shipping casks, loading of the storage casks

and preparation of leaking canisters for offsite shipment to be compatible with the ALARA principle. Procedures to service, test, inspect, decontaminate, measuring filter efficiency and replace components of the ventilation system are not provided. Reg. Guide-3.62, § 7.3.1. Without an adequate ventilation system airborne contamination will spread within the facility and to the outside.

6. Reg. Guide 3.62 states that the Applicant should provide "information on methods for radiation protection and on estimated radiation exposures to operating personnel during normal operation and anticipated operational occurrences (including radioactive material handling, packaging, transfer, processing, storage and disposal; maintenance, routine operational surveillance and calibration." PFS has failed to provide adequate or complete methods for radiation protection. Information on how estimated radiation exposure values to operating personnel were derived is not provided to determine whether the dose rates are adequate.

7. The Application is deficient in many other respects related to ensuring that occupational exposures to radiation are ALARA including: (1) adequately describing the management policy and organizational structure related to ensuring ALARA exposures reflected in administrative procedures for personnel (Reg. Guide 3.62 § 7.1.1); (2) adequately describing a training program that insures all personnel working with radioactive materials, entering radiation areas or directing the activities of others who work with radioactive materials or enter radiation areas understand and

can evaluate the significance of radiation doses in terms of the potential risk, including outlines of the training classes (Reg. Guide 8.8 § 1.c); (3) providing specifics on personnel and area, portable and stationary radiation monitoring instruments and personnel protective equipment including specifications that include reliability, serviceability and limitations of internal accumulations of radioactive material, and a description of the program for routine calibration and checks for equipment operation and accuracy that reflect the ALARA program (Reg. Guide 8.8 § 1.d); (4) description of a program to effectively control access to radiation areas and control over the movement of sources of radiation within the facility (Reg. Guide 8.10 § 1.b); (5) adequately describing a program to maintain ALARA exposures of personnel servicing leaking casks for offsite shipment or onsite storage; (6) an adequate description of a program for monitoring clean areas to assure that they remain clean and monitoring dose rates in radiation zones to ensure they are kept ALARA; and (7) specific information on formal audits and reviews of the radiation protection program, including reviews of operating procedures and past exposure records. Reg. Guide 8.8 § 4. The Applicant does not describe a fully developed radiation protection program and thus the safety of workers due to potential radiation exposure cannot be assured.

8. 10 CFR § 72.126(d) requires that "[a]nalyses 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 § 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 § 72.106." The Applicant has completely failed to include an analysis of accident conditions including accidents due to natural phenomena.

9. Applicant's failure to adequately control airborne effluent, *see* Contention T, whose Basis 3(a) (Air Quality) is adopted and incorporated by reference herein, may cause unacceptable exposures to workers and the public.

**Q. Adequacy of ISFSI Design to Prevent Accidents**

**CONTENTION:** The Applicant has failed to adequately identify and assess potential accidents, and, therefore, the Applicant is unable to determine the adequacy the ISFSI design to prevent accidents and mitigate the consequences of accidents as required by 10 CFR 72.24(d)(2).

**BASIS:**

1. The Applicant states that "the most vulnerable fuel" can withstand 63g in the most adverse orientation. SAR at 8.2-32. However, the Applicant does not provide the basis for its statement. The Applicant does not specify whether this includes fuel with leaks and cladding failures which has been stored underwater for many years and dry for many more years. Furthermore the Applicant has not provided the g loading that would cause such fuel to fail.

2. The Applicant has failed to discuss canister end accidents involving improperly constructed casks. It is unclear whether the TranStor cask is subject to the same quality of fabrication as the VSC-24. SAR at 8.2-34. The NRC issued a Demand for Information to SNC 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. A canister with fabrication deficiencies could fail, and if it contained failed fuel, fission products could be released.

3. The cask maximum lift heights of 10 and 18 inches imply that vertical drops greater than these amounts would result in damage to the canister or interior contents. SAR at 10.2-9. The Applicant must not only address lifting accidents while onsite at the ISFSI, but at the intermodal transfer site or during transport on either rail or highway, where significant damage could occur during an accident with potential resulting release of nuclear material. Cladding of spent fuel elements is likely to be very brittle through extensive radiation embrittlement, so cladding failure is likely during such accidents.

R. Emergency Plan

CONTENTION: The Applicant has not provided reasonable assurance that the public health and safety will be adequately protected in the event of an emergency at the storage site, at the transfer facility, or offsite during transportation.<sup>22</sup>

BASIS: The Applicant has not complied with the Commission'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, U.S. Nuclear Regulatory Commission (September 1990) (hereinafter Reg. Guide 3.67); or NUREG-1567, Standard Review Plan for Spent Fuel Dry Storage Facilities (Draft), U.S. Nuclear Regulatory Commission (October 1966) Appendix C (Emergency Planning) (hereinafter NUREG-1567), in the following respects:

1. The Applicant has not adequately described the facility, the activities to be conducted at the facility, and the area near the facility in sufficient detail to evaluate the adequacy and appropriateness of the Emergency Plan. Reg. Guide 3.67 § C.1 provides applicable guidance to the Applicant for incorporating in the EP a description of "the type, form and quantities of radioactive and other hazardous materials," including a "list of all hazardous chemicals used at the site, typical quantities possessed,

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<sup>22</sup> This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.

locations of use and storage, and the hazardous characteristics;" an adequate description of the "primary routes for access of emergency equipment" which should include a description of an alternate route for use in adverse weather conditions; a "description of potential impediments to traffic flow;" a description of "the types of terrain and the land use patterns around the site;" and an adequate description of the intermodal transfer station and the liquid retention pond, including the "hazardous characteristics" of the storage pad runoff pond. The Applicant has 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. See e.g., EP at 2-7 and 5.1.

PFS has 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.

2. The Applicant has not identified "adequate emergency and medical facilities and equipment to respond to an onsite emergency" as provided by Reg. Guide 3.67 § 4.3. The Emergency Plan (EP at 1-4) identifies Tooele County/City as the primary off-site support for major emergency support, but has not provided a

description of Tooele County's capabilities and training in handling wounds and emergency conditions involving radioactive materials. The Applicant merely states that the "Tooele Valley Medical Center ....is equipped to provide decontamination and ambulance services..." but does not supply any details about Tooele Valley Medical Center's capabilities. EP at 1-4. Notably, in commenting on PFS's Emergency Plan, Kari Sagers, Tooele County's Emergency Management Director, pointed out: "Some of the items I find conspicuously absent include ... [o]n-site and off-site training, monitoring, and protective equipment requirements." See Sagers' June 3, 1997 letter at 2, included as an attachment to the EP. The Applicant should address whether the Tooele Valley Medical Center actually has the expertise to handle radiological medical emergencies. At the very least the Applicant should "[d]escribe the measures that will be taken to ensure that offsite agencies ... have the necessary periodic training, equipment, and supplies to carry out their emergency response functions," as provided by Reg. Guide 3.67 § 4.3.<sup>23</sup>

Furthermore, support from Tooele Valley Medical Center and Tooele City is at least two hours away from providing any real response. See e.g., Affidavit of Garth Bear ¶ 7 attached to Ohngo Gaudadeh Devia's Petition to Intervene and Request for Hearing dated September 12, 1997. The Applicant has not identified what extra

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<sup>23</sup> The expertise in the State for providing radiation training would come from Utah Division of Radiation Control. However, the State has no records showing it provided training in responding to radiologic incidents to the Tooele Valley Medical Center personnel.

preparedness the site has or will implement as a result of off-site support being so far away, especially in adverse weather conditions.

3. The Applicant has not adequately identified, notified nor coordinated with "the principal State agency and other government (local, county, State, and Federal) agencies or organizations having responsibility for radiological or other hazardous material emergencies at the facility." Reg. Guide 3.67 § 4.4. The Applicant has not included "the local emergency planning committee established under the Emergency Planning and Community Right-to-Know Act of 1986; State departments of health, environmental protection, and emergency and disaster control" as provided by Reg. Guide 3.67 § 4.4. The plan assumes that no assistance will be required from resources external to Tooele County/City because "[t]he PFSF will not have extremely hazardous substances present in an amount equal or greater than the threshold planning quantities of 10 CFR 355." EP at 2-6 But the plan does not provide a list of hazardous materials used at the PFSF, including quantities, locations, use and storage requirements as provided by Reg. Guide 3.67 § 1.2.

The application states that "the worst case accident involving an ISFSI has insignificant consequences to the public health and safety." EP at 2-7. But the application has completely failed to address response to transportation accidents and accidents at the Applicant's transfer station at Rowley Junction. From 100 to 200 shipments of loaded spent fuel canisters will be transported through the State annually.

SAR at 1.4-2. The most likely mode of transportation to the site from Rowley Junction is by heavy haul truck. The 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 application does not address response action for accidents and fatalities occurring either in the Applicant's intermodal transfer area or in the Applicant's transportation route along Skull Valley Road, a description of how emergency information will be disseminated to these areas, nor a description of the training program to respond to these emergencies as provided by Reg. Guide 3.67 §§ 4 and 5. For example, the Applicant merely repeats the provisions of Reg. Guide 3.67 § 7.2 regarding orientation tours for off-site emergency response personnel. EP at 6-2 to 6-3. Without identification of these fundamental components of an emergency plan, there is no assurance that PFS can or will take adequate protective actions in the event of an emergency.

4. The Applicant has not provided details to "describe the means and equipment provided for mitigating the consequences of each type of accident" as provided by Reg. Guide 3.67 § 5.3 and 10 CFR § 72.32(a)(5). For example, the means and equipment for restoring safe conditions to the site after a cask tip-over accident are not described. The Plan states that after a tip-over accident, the cask must be returned to its natural upright position within 48 hours and that PFS will procure a capable crane within the necessary timeframe. EP at 3-4. As the proposed ISFSI site is located



in a rural area, the Applicant must identify with specificity the location from which a capable crane can be procured and the time in which it will take to acquire such a crane. Furthermore, the Applicant must also address its ability to locate a crane on-site within the 48 hour critical time limit during adverse weather conditions, taking into account the secondary and mountain roads that provide access to the site.

The SAR at 2.3-2 describes the climate of Skull Valley as "semi-arid continental," with precipitation ranging from 7 to 12 inches/year (SAR 2.3-12). Thus, fire is a serious risk which must be taken into account. However, the Plan states that fire fighting capability is available on-site which includes a fire truck and fire fighting equipment but does not state whether sufficient water is available to fight a fire of any consequence and does not describe the program for maintaining any equipment. EP at 3-5. The Applicant expects to obtain water for fire fighting, as well as for potable water and 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." SAR at 2.5-5. However, whether the storage tanks could hold sufficient water for a serious fire must be further examined, especially since the Applicant has identified the use of a fire truck at the 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 widespread difficult fire situation. See e.g., Affidavit of Garth Bear ¶ 5.

5. The Emergency Plan does not contain sufficient detail to meet the provisions of Reg. Guide 3.67 § 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. See EP at 5-8 to 5-9. Without specific adequate information, emergency preparedness personnel may not be capable of providing a timely response to an emergency. For example, the Plan provides no description of the locations of emergency equipment and supplies, a means for distributing these items, nor even criteria for issuance of emergency equipment, pursuant to Reg. Guide 3.67 § 5.4.1.2.

S. Decommissioning.

**CONTENTION:** The decommissioning plan does not contain sufficient information to provide reasonable assurance that the decontamination or decommissioning of the ISFSI at the end of its useful life will provide adequate protection to the health and safety of the public as required by 10 CFR § 72.30(a), nor does the decommissioning funding plan contain sufficient information to provide reasonable assurance that the necessary funds will be available to decommission the facility, as required by 10 CFR § 70.3(b).

**BASIS:** The Applicant's decommission plan and funding of the plan are deficient in the following respects:

1. The Applicant has failed to provide reasonable assurance, as required by 10 CFR § 72.30(b), that funds will be available to decommission the ISFSI. The Applicant intends to obtain a letter of credit "in amount of \$1,631,000 to cover the estimated facility and site decommissioning costs, exclusive of the storage casks." LA at 5-2. As a newly formed entity and without any documentation included in the application as to PFS's capital structure or assets, the Applicant offers no reasonable assurance that it will be qualified to obtain such a letter of credit. Contention E (Financial Qualifications), which more fully discusses the financial assurance for newly formed entities, and whose basis is incorporated by reference into this contention.

2. The financial assurance regulations for decommissioning allow for use of an external sinking fund coupled with a surety method or insurance. 10 CFR § 72.30(c). The application specifies a surety will be in the form of a letter of credit, but does not provide the wording for the letter of credit or state that the letter of credit is irrevocable. LA at 10-2, LA App B, at 5-2, SAR at 9-6. This is contrary to Regulatory Guide 3.66, Standard Format and Content of Financial Assurance Mechanisms required for decommissioning under 10 CFR Parts 30, 40, 70 and 72 (hereafter "Reg. Guide 3.66"), p. 1-4, which states that the Decommissioning Funding Plan "should include the text of the financial assurance instrument(s) that a licensee has chosen to comply with the financial assurance requirements."

3. The application states that decommissioning will be preceded by off site shipment of the canisters containing the spent fuel. LA App. B, at. 1-1, 2-3; SAR at 9.6-1. However, the Applicant's own words belie this possibility. In its discussion of "Need for the Facility" (ER 1.2), the Applicant portrays existing reactor sites as running out of spent fuel storage options. The Applicant also states that its facility "would allow reactors that are permanently shutdown to remove all the spent fuel from the site, thus permitting the complete decommissioning of the site." ER at 1.2-2. Therefore, the shipment of the spent fuel back to the originating nuclear power plants will not be viable at the time of decommissioning of the ISFSI.

It is not unrealistic to expect that once the spent fuel casks are stored at the PFS ISFSI, they will remain there beyond the expected license term because there are no off site shipment options. Fuel shipments to Morris, Illinois and West Valley, New York, offer two excellent examples of the plausibility of a this occurrence.

The facility at Morris, Illinois, built by General Electric for reprocessing of spent fuel but never operated as such, included a wet storage pool in which spent fuel was staged for reprocessing. Although no spent fuel was reprocessed in that facility, the spent fuel has remained in storage for decades in the absence of disposal or alternative storage. Similar circumstances developed at the West Valley facility, which was originally built and operated by Nuclear Fuel Services. At that location, spent fuel was reprocessed and high-level waste was generated, and in the absence of disposal or alternative storage capacity, the high-level waste has also remained at that site for decades.

Furthermore, the federal government has not provided a disposal facility to which the spent fuel could be sent. Therefore, the major prerequisite for decommissioning (*i.e.*, a facility to which the spent fuel could be shipped so that decommissioning could begin) is simply assumed to be available. This points out another defect in the application: The Applicant has failed to identify contingent costs in the realistic event that the ISFSI cannot be decommissioned at the end of the license term.

4. The Applicant has failed to justify the basis for all decommissioning cost estimates. The application estimates the cost to decommission a storage cask is \$17,000 and estimates the decommissioning cost for the remainder of the ISFSI at \$1,631,000. LA pp. 1.7 3.2. There can be no meaningful review of these amount unless they are broken down with some specificity. Furthermore, the decommissioning cost estimates do not state the year's dollars used (e.g., 1997 dollars) as provided in NUREG-1567, Draft Standard and Review Plan for Spent Fuel Dry Storage Facilities. LA Appendix B, Chapter 4.

In addition, some of the estimates provided do not appear consistent. For example, the Applicant specifies that \$5 per square foot is adequate to decontaminate the Canister Transfer Building, whereas the Applicant estimated cost to decontaminate the cask surface is \$1 per square foot. LA, App B, pp. 4-2 & 3. The reader is unable to determine whether the Applicant erred in estimating the decommissioning costs or whether there is a reason for the discrepancy in costs.<sup>24</sup>

The application lacks the detailed and justified cost estimates are necessary to evaluate the adequacy of the Applicant's decommissioning costs. The Applicant tries to excuse this omission by stating that decontamination efforts are not currently capable of being quantified, LA, App. B, at 2-1. This excuse is invalid. An applicant

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<sup>24</sup> A adding the disposal costs of \$550 per cask, which is not included in the \$1 per square foot cask decontamination costs, only adds an additional \$1.50 per square foot to that cost per cask. LA App. B, at 4-2. The cost per square foot to decontaminate the Transfer Building is double this cost.

for a part 72 ISFSI license must submit a Decommissioning Funding Plan "at the time of the license application." Regulatory Guide 3.66, Standard Format and Content of Financial Assurance Mechanisms required for decommissioning under 10 CFR Parts 30, 40, 70 and 72 (hereafter "Reg. Guide 3.66"), at.1-3, 1-6. Moreover, the Decommissioning Plan must include "comprehensive consideration of both direct and all indirect decommissioning costs. The plan must compare the cost estimate with present funds, and if there is a deficit in present funding the plan must indicate the means for providing sufficient funds for completion of decommissioning." NUREG 1567, at 16-4. This information is missing from the application.

Furthermore, to ensure that sufficient decommissioning funds are available, the Applicant should take a conservative approach in estimating the following: maximum quantities of spent fuel, other radioactive waste, and solid and hazardous waste generated during the license term; size of decontamination surface areas; disposal needs for spent fuel, low level radioactive waste, solid waste, hazardous waste and other regulated materials; and demolition and removal of the structures and restoration of the site to its original state.

5. The decommissioning cost estimate totally ignores the potential for large accidents and associated release or contamination at the ISFSI. LA Appendix B, Chapter 4. The very large number of casks that are to be handled at the ISFSI and the large number of operations and movements that will be required argue strongly for

anticipating this potential and making arrangements for a multimillion dollar increase in decommissioning to "provide reasonable assurance that the planned decommissioning of the ISFSI will be carried out" as required by 10 CFR § 72.30.

6. The Applicant has failed to reasonably anticipate the extent of severity of contamination by optimistically presuming there will be no residual contamination on the casks or pads. For example, the Applicant indicates that the storage pads will not be contaminated and only includes funding to decontaminate 10% of the total surface area. LA, Appendix B. The basis for funding cleanup of only 10% of the storage pads is not justified. *See also* Contention J (Inspection and Monitoring of Safety components), Basis 2(b) (Detection and control of contamination). Therefore, the Preliminary Decommissioning Plan should provide procedures and cost estimates that reflect realistic consideration of the potential need for decommissioning of a facility that has experienced contamination from canister releases. LA App. B, at 2-1, 6-1.

7. The Applicant has failed to identify the types of waste it anticipated will be generated at the facility. Moreover, the Applicant has failed to propose decontamination and disposal practices except to state that "to the extent practicable ... conventional methods [will be used]." LA App. B, at 2-3. For instance, the Applicant assumes that the welded closure of canisters of spent fuel makes impossible or precludes leakage of canisters. As recently evidenced by the Sierra Nuclear VSC-24



cask design deficiencies, welding does not always result in a leak tight closure and demonstrated leak tight welded closures can subsequently fail. See e.g., NRC Demand for Information, EA 97-441 (October 6, 1997) ACN # 9710100120.

8. The application inadequately addresses decontamination of storage casks. The Applicant makes the following statement: "Storage casks with contamination or activation levels above the applicable NRC limits for unrestricted release will be dismantled, with the activated or contaminated portions segregated and disposed of as low level waste" (*emphasis added*). LA, App. B, at 2-3. Nowhere does the Applicant discuss the process by which dismantling will occur, where dismantling will occur, and whether the Applicant will have trained personnel, suitable equipment and appropriate safety procedures to undertake this operation. This information is necessary to provide effective detail on decommissioning plans and costs.

9. The Applicant has failed to adequately estimate the cost of decontaminating each storage cask liner. The estimated cost of decontamination of a typical storage cask liner is dependent upon the percentage of the liner assumed to exhibit contamination or activation. The analysis presented includes an unsupported assumption that only 20% of the typical liner will be contaminated. A larger percentage would increase the estimated decontamination cost beyond that provided for in cask decontamination prepayments to the decommissioning funding plan. Adequate funding for storage cask decommissioning cannot be assured because it

would then depend on successful assessment of participating customers to pay for the additional costs. LA App. B, at 4-2. This cost may also be increased as a result of Applicant's failure to provide a means for decontaminating all parts of the canisters. See Contention J, Inspection and Maintenance of Safety Components, Basis 2 (Hot cell needed to protect against undue risk).

10. The Applicant specifies that decommissioning costs include \$250,000 for a survey of the ISFSI site. LA, App B, pp. 4-2, 3. However, the Applicant does not describe the type of survey or the sampling protocol. Without such information, it is impossible to determine the adequacy of the plan or the decommissioning cost estimates. The Applicant's generic description of an intent to meet NRC limits for unrestricted release fails to meet the "sufficient information on proposed practices and procedures for the decommissioning of the site and facility" required by 10 CFR § 72.30(a). *Id.* at 2.3.

11. The Applicant has failed to provide decommissioning procedures and costs at an intermodal transfer facility (Rowley Junction). In fact the application has failed to provide any significant details concerning the planned structures and operations at the transfer facility.

**T. Inadequate Assessment of Required Permits and Other Entitlements**

**CONTENTION:** In derogation of 10 CFR § 51.45(d), the Environmental Report does not list all Federal permits, licenses, approvals and other entitlements which must be obtained in connection with the PFS ISFSI License Application, nor does the Environmental Report describe the status of compliance with these requirements.

**BASIS:** NEPA requires the NRC to fully assess any other permit, license, approval or other entitlement the Applicant is required to obtain in connection with this license application and also to address applicable environmental quality standards and requirements. Because the Applicant has not addressed all of these requirements, the NRC cannot timely and adequately assess these requirements nor can the petitioners or the general public assess the scope and effect of granting the license sought by this Applicant.

**1. Property Rights and Entitlements**

**a. Entitlement to use and control the proposed site**

The Applicant has failed to show that it is entitled to use the land for the ISFSI site and if it does have such a right whether there are any legal constraints imposed on the use and control of the land.

The Applicant and the Executive Committee of the Skull Valley Band of Goshute Indians have entered into a lease for the facility site. The lease between the

tribe and the Applicant must be approved by the Bureau of Indian Affairs (BIA). 25 USC § 415, 25 CFR Part 162. The BIA has waived certain regulatory requirements and has granted "conditional" approval of the lease, subject to completion of the NRC's Environmental Impact Statement. After several Freedom of Information Act requests, the BIA eventually sent the State a copy of the lease between the tribe and the Applicant. However, the BIA redacted significant portions of the lease, including lease termination provisions, frustration of purpose provisions, surety bonding arrangements, lease rent, and taxes and regulations. Amended and Restated Business Lease between Skull Valley Band of Goshute Indians and Private Fuel Storage, L.L.C., May 20, 1997 is attached hereto as Exhibit 15.

The State is concerned that it will be left in legal limbo because BIA is deferring to the NRC process for an evaluation of the environmental effects caused by the tribe entering into the lease and NRC may defer to the BIA the evaluation of the lease provisions. However, it is incumbent on NRC to require the Applicant to fully disclose all provisions of the lease in order that the NRC and 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 tribe's regulatory requirements.

b. Intermodal transfer point

Rail shipments of up to 200 casks of nuclear waste will be arriving at Rowley Junction annually. The Applicant completely ignores any discussion or proof of its legal entitlement to build a transfer facility at Rowley Junction.<sup>25</sup> In addition, the Applicant has not identified the number of casks expected on each shipment or explained the effects of rail congestion at Rowley Junction. Furthermore, the Applicant has not shown that Union Pacific Railroad is capable or willing to handle the shipments coming into Rowley Junction. Finally, the Applicant has not demonstrated that it has the right to use a terminal at Rowley Junction to handle each shipment or that Rowley Junction has the capacity of handling the expected number of casks. These entitlements must be addressed as part of this licensing action.

c. Right to construct a rail spur

The Applicant has shown absolutely no ability or authority to build a rail spur from the rail head at Rowley Junction to the proposed ISFSI site. 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 ISFSI site. See copy of photographs and construction drawing of the underpass at Exh. 2 to the State's July 21, 1997 2.206 petition. PFS has the audacity to claim that it may build a rail spur in the

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<sup>25</sup> All land, except for a 100 ft. right-of-way from the middle of the main line is privately owned. See plat map attached as Exh. 1 to the State's July 21, 1997 2.206 petition.

public right-of-way parallel to Skull Valley Road. ER at 3.2-5. If PFS cannot use the public right-of-way, it must acquire the right to use land from property owners along Skull Valley Road, namely the U.S. Bureau of Land Management and Intervenor, Castle Rock, et. al. It is highly unlikely that these landowners will grant a right-of-way to PFS that will permit rail transportation of high level nuclear waste across their land. Thus, it should be presumed that PFS will have to build an intermodal transfer facility at Rowley Junction and transport the nuclear waste to the proposed ISFSI by road.

d. Widening Skull Valley Road

If a rail spur from Rowley Junction to the facility is not feasible, the Applicant must use heavy haul trucks to move the casks from Rowley Junction to the facility. The trucks are anticipated to be twelve feet wide and weigh 142 tons when loaded, SAR at 4.5-4, while the existing Skull Valley Road is 22-24 feet wide with 0-3 feet aggregate shoulders. ER at 3.2-5. Apparently the Applicant intends to add a three feet paved surface to each side of Skull Valley Road to take the road 15 foot wide in each direction. The Applicant assumes that all road work (road widening, shoulder work, relocation of drainage culverts, etc.,) would take place within the existing road right-of-way. ER at 3.2-5. The Applicant also assumes that road improvements will be performed in cooperation with Tooele County.

The assumptions made by the Applicant are just that: assumptions. Under Utah Code Ann. § 27-12-133 a person is guilty of a misdemeanor if a 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. There is absolutely no indication that the Applicant may undertake widening a public road, moving drainage culverts, etc. solely with the cooperation of Tooele County. Also there is no indication that Tooele County is in any way in accord with the Applicant's scheme. Furthermore, the Applicant has not even 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 ISFSI.

Before the petitioners and 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 the road, that the proposed road work is within the scope of existing public rights-of-way, that the casks containing spent nuclear fuel can be safely moved from the railhead 24 miles along on a 15-foot wide roadway to the facility in all weather and traffic conditions. To date, the application contains little more than the Applicant's hope to widened the road without any right to do so and without any discussion of why a 15-foot roadway would satisfy health, safety and environment concerns.

## 2. NRC Requirements

### a. Part 75 Facility

The proposed PFS ISFSI is an installation subject to Part 75 and is eligible for IAEA safeguards under the US/IAEA Safeguards Agreement. 10 CFR §§ 75.2, 75.4.<sup>26</sup> The Commission must designate the PFS installation as subject to IAEA safeguards and require the Applicant to establish, maintain and follow written material accounting and control procedures. 10 CFR §§ 75.21, 75.41. The Applicant must comply with Part 75 requirements as part the Part 72 licensing proceeding, and provide information such as: identification of IAEA material balance areas and key measurement points; organizational responsibility for material accounting and control, including information with regard to separation of functions to provide internal checks and balances; devices designed to limit the mobility of nuclear material, the access of personnel, or the unauthorized operation of equipment and structural elements (including the design of building and the layout of equipment) which minimize and control access to nuclear materials. 10 CFR §§ 75.14, 75.4(e).

The requirements of Part 75 may implicate NRC's Part 72 review of the Applicant's management structure, access provisions and the certain safety and design features of the facility. Thus Part 75 must be addressed as part of the Part 72 license

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<sup>26</sup> The definition of "installation" includes an ISFSI as defined in § 72.3. See 10 CFR § 75.4(k)(4).



application and the Applicant must supplement its submittal with relevant Part 75 information.

### 3. Environmental Quality Standards and Requirements

#### a. Air Quality

The Applicant's air quality analysis does not satisfy the requirements of 10 CFR § 52.45. The Applicant has failed to adequately analyze whether it will be in compliance with the health-based National Air Quality Standards (NAAQS), whether it is subject to regulation under Section 111 of the Clean Air Act, and whether it is a major stationary source of air pollution requiring a Prevention of Significant Deterioration (PSD) permit. The Applicant's statement "[t]here are no air emission sources, including the emergency diesel generator, large enough to require a Clean Air Act, Title V permit, " falls far short of an adequate air quality analysis to satisfy the Clear Air or NEPA. See ER at 9.1-4

The Applicant's analysis of air quality impacts, ER 4.3.3, is totally inadequate. Although the Applicant fails to discuss modeling techniques, the Applicant references EPA "SCREEN3" at ER 4.8-2 so it is assumed that this is what the Applicant used to perform its air quality dispersion modeling analysis. The SCREEN3 model 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.<sup>27</sup> Also, 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 results in an under-prediction of the source's impact. The Applicant must 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.

The PFS facility is subject to regulation under § 111 of the Clean Air Act and may require a PSD permit. Construction will entail an onsite asphalt batch plant used for the construction of storage pads, cask shielding and concrete building(s). ER p, 3.2-2. The concrete batch plant is subject to § 111 of the Clean Air Act, and to 40 CFR Subpart I, New Source Performance Standards for Hot Mix Asphalt Facilities. As such, the PFS facility could be considered to be a major stationary source of air pollution required to obtain a PSD permit. See 40 CFR 52.21(b)(1)(i)(b), 52.21(c)(iii)(aa), and 60.90. If the PFS facility is required to obtain a PSD permit it will also be required to obtain a Title V permit. The Applicant must be required to

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<sup>27</sup> While construction activities will be continuous throughout the initial license term and beyond, those activities will not occur 24 hours a day. Also, construction activities will not occur during the winter months. See ER at 3.2-2.

complete a more rigorous analysis of the air quality impacts associated with its proposed facility. The Applicant must be required to complete a more rigorous analysis of the air quality impacts associated with its proposed facility.

Additionally, even if a PSD permit is not required, a state air quality approval order issued under Utah Code Ann. § 19-2-108 will most likely be required. The concrete batch plant, asphalt batch plant, and other air emission sources, even if located on the Skull Valley reservation, because of the limited size of the reservation, will have a significant impact on state air resources. Therefore a state approval order will be required.

b. Groundwater discharge permit

The Applicant has not addressed the requirement to obtain a Utah Groundwater Discharge Permit. The State of Utah, as trustee and in its capacity of *parens patriae*, has jurisdiction over all groundwater within the State. Utah Code Ann. § 73-1-1. An Indian tribe may have an implied reservation of water under the Winters doctrine,<sup>28</sup> 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. See 42 U.S.C. § 2021(k); Pacific Gas & Electric v. Energy Resources Commission, 461 U.S. 190 (1983); Kerr-McGee v. City of West Chicago, 914 F.2d 820 (7th Cir. 1990).

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<sup>28</sup> See Winters v. United States 207 U.S. 564 (1908).

Furthermore, off-reservation effects caused by the Applicant—a non-tribal member—lends added support to the State's jurisdiction and control of groundwater quality.

The Applicant has not addressed the requirement to obtain a Groundwater Discharge Permit in accordance with Utah Code Ann. § 19-5-107 and Utah Admin. Code R317-6.

c. Other Water Permits

The Applicant's analysis of other required water permits lack specificity and does not satisfy the requirements of 10 CFR § 52.45. In sections 9.1.3. and 9.2 of the ER, the Applicant merely states that it "might" need a Clear Water Act Section 404 dredge and fill permit for wetlands along the Skull Valley transportation corridor, that it will be required to consult with the State on the effects of the intermodal transfer site on the neighboring Timpie Springs Wildlife Management Area. The fact that an Indian tribe may be treated as a state under the Clear Water Act is irrelevant to the discussion of permits because the Skull Valley Band of Goshutes has not applied for delegation of any Clear Water Act programs. ER at 9.1-4. The Applicant must describe with specificity the wetlands affected by its operations, the point discharge sources and the activities that may require control under a storm water permit.

The Applicant merely assumes that it will be able to drill wells for its water needs, which are estimated at 1,500 gallons per day. ER at 4.2-4. 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 prior existing water rights.

Furthermore, the Applicant does not specify whether the 1,500 gallons per day is a daily average or a peak usage estimate or whether that quantity of water will be required throughout the life of the facility.

U. Impacts of Onsite Storage not Considered

CONTENTION: Contrary to the requirements of NEPA and 10 CFR 51.45(c), the Applicant fails to give adequate consideration to reasonably foreseeable potential adverse environmental impacts during storage of spent fuel on the ISFSI site.<sup>29</sup>

BASIS: In a number of respects, PFS's application gives inadequate consideration to the potential adverse impacts of onsite spent fuel storage.

1. The ER fails to consider the impacts of overheating of casks due to the facility's inadequate thermal design. See Contention H (Inadequate Thermal Design), whose basis is adopted and incorporated herein by reference.

2. The ER fails to consider the safety risks and costs raised by PFS's failure to provide adequate means for inspecting and repairing the contents of spent fuel canisters, or for detecting and removing contamination on the canisters. These include risks to workers posed by handling or inspecting casks with contaminated or defective contents, during receipt of casks, storage of casks, or in preparing them for shipment to a repository. They also include health risks and increased costs during the decommissioning process. See Contention J (Inadequate Inspection and Maintenance of Safety Components, Including Canisters and Cladding), whose basis is adopted and incorporated herein by reference.

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<sup>29</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.

3. The ER fails to consider the risks posed by a blockage of the cooling vents on the storage casks. The concrete storage casks utilize passive, natural convective air movement for cooling. SAR at 5.1-10, 5.4-1. Although the Applicant maintains that the ducts will be cleaned, this relies on human intervention, which is subject to error. It is reasonable to anticipate that the cleaning of ducts will be delayed or overlooked, or that an evacuation or fire will make it impossible to perform this function. Therefore, the Applicant must assess the consequences of an inadvertent blockage of the cooling ducts by animal or plant infestation, or by snow and ice during the winter.

4. The ER fails to consider the risks of a sabotage event in which one or more storage casks is or are breached. As discussed in Contention V (Inadequate Consideration of Transportation-Related Environmental Impacts), whose basis 3(b) (sabotage), is adopted and incorporated herein by reference, sabotage is a credible cause of a serious accident, and therefore should be considered in the Environmental Report and Environmental Impact Statement. This is true whether the spent fuel is onsite or in transit.

V. Inadequate Consideration of Transportation-Related Radiological Environmental Impacts.

CONTENTION: The Environmental Report ("ER") fails to give adequate consideration to the transportation-related environmental impacts of the proposed ISFSI.<sup>30</sup>

BASIS: NRC regulations at 10 CFR § 51.45(b)(1) require the Applicant's ER to address the impacts of the proposed action on the environment. Pursuant to 10 CFR § 72.108, the Applicant must also evaluate the impacts of spent fuel transportation within the "region" of the ISFSI. Petitioner submits that in order to comply with NEPA, PFS and the NRC Staff must evaluate all of the environmental impacts associated with transportation of spent fuel to and from the proposed ISFSI, including preparation of spent fuel for transportation to the ISFSI, transportation of spent fuel to the ISFSI, spent fuel transfers during transportation to the ISFSI, transferring and returning defective casks to the originating nuclear power plant, and transfers and transportation required for the ultimate disposal of the spent fuel.

The ER addresses the transportation-related impacts of the ISFSI in Sections 4.7 (radioactive material movement) and 5.2 (transportation accidents). According to PFS, the environmental impacts of spent fuel transportation are addressed in 10 CFR § 51.52 and the accompanying Summary Table S-4. ER at 4.7-1, 5.2-1. The ER uses the

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<sup>30</sup> This contention is supported by the Declaration of Marvin Resnikoff, attached hereto as Exhibit 2.



numerical values in Table S-4 for its evaluation of the transportation-related environmental impacts of the proposed ISFSI, claiming that these values are conservative with respect to the scope of activities of the PFSF. Id. PFS also calculates the radiation doses caused by intercask transfer at Rowley Junction, and concludes that they are insignificant. ER at 4.7.1 and 4.7.2.

PFS's reliance on Table S-4 is inappropriate and inadequate in several respects. First, it is not supported by the regulations. Second, it is not conservative. Third, PFS ignores or minimizes significant impacts related to the transportation of spent nuclear fuel to and from the ISFSI. In addition, PFS's additional calculation of the impacts of inter-cask transfer at Rowley Junction is inadequate.

1. PFS's reliance on Table S-4 is inappropriate and inadequate.

- a. Section § 51.52 applies only to construction permit applicants.

PFS invokes 10 CFR § 51.52 as a regulatory basis for applying Table S-4 to its ISFSI application. By its own terms, however, 10 CFR § 51.52 applies only to nuclear power plant construction permit applicants. Nothing in Section 51.52 permits an applicant for an ISFSI to invoke the numerical values in Table S-4. Moreover, while 10 CFR § 51.53(d) permits licensees to incorporate environmental data submitted at the construction permit stage into post-operating-license applications for onsite spent fuel storage, the regulation makes no such provision for the use of the data in applications for offsite ISFSI applications



b. Even if 10 CFR § 51.52 applied, PFS does not satisfy the conditions for using Table S-4.

Moreover, even if 10 CFR § 51.52 were applicable, PFS has failed to show that the threshold conditions specified in 10 CFR § 51.52(a)(1)-(6) are met. PFS fails entirely to identify the specific plants whose fuel will be stored at the ISFSI or to provide any evidence that they satisfy the conditions of 10 CFR § 51.52(a)(1)-(6). For instance, § 51.52(a)(2) requires that the reactor fuel must be in the form of sintered uranium dioxide pellets having a uranium-235 enrichment not exceeding 4% by weight, and the pellets must be encapsulated by zircaloy rods. Section 51.52(a)(3) requires, *inter alia*, that the average level of irradiation of the irradiated fuel from the reactor must not exceed 33,000 megawatt-days per metric ton. PFS does not specifically state whether these requirements are met by the reactors whose fuel will be stored at the ISFSI. Instead, PFS cites a finding in the EIS for license renewal of nuclear power plants, that a burn up level of up to 60,000 MWd/MTU will not result in environmental impacts that are greater than the values currently in Table S-4, and that experience in handling fuel with burn ups over 55,000 MWd/MTU and up to 5.5% U-235 enrichment "has not revealed any unresolved safety concerns." ER at 4.7-2, quoting NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants (May 1996). The statements in NUREG-1437 relied on by PFS were not incorporated into 10 CFR § 51.52(a), and thus they cannot be relied on absent an application for an exception to § 51.52(a). In any event, the conclusion in

NUREG-1437 is incorrect. Higher burn ups have the result that a longer cooling time, up to 18 years, is necessary before fuel can be transported in the TranStor or Holtec casks. The need to calculate an appropriate period of delay for shipment of spent fuel increases the chance for human error, by shipping fuel that is too thermally hot.

Section 51.52(a)(6) also incorporates the threshold conditions in Table S-4, including the condition that the weight of each shipping cask may not exceed 100 tons per cask per rail car, or 73,000 pounds per truck. As PFS acknowledges, the maximum weight of a loaded shipping cask is 142 tons, thus putting it outside the threshold limit for reliance on Table S-4. ER at 4.7-3. PFS's argument that the additional weight is insignificant must be rejected as an impermissible attack on the regulations. Moreover, the various arguments made by PFS as to why the additional weight is negligible are unsupported and unreasonable. For instance, PFS argues that an increase of 42 tons, or 42% per cask, is a negligible percentage of the overall weight of a typical train. This argument is not supported by any calculations or documentation. Moreover, it ignores the fact that heavier trains are more likely to lose braking on downgrades. Moreover, transportation casks, taken together with rail carriages, will weigh over 200 tons. Such heavy weights are not easily mixed with light loads in a mixed-use train. Conversation between Marvin Resnikoff, RWMA, and Robert Fronczak, American Association of Railroads (November 20, 1997).

PFS also appears to argue that the additional risk posed by a heavier cask is offset by the reduction in the number of shipments resulting from the use of larger casks. Again, this argument is not supported by any calculation or documentation. Moreover, although the argument may have some merit with respect to incident-free transportation, it is unreasonable with respect to transportation-related accidents. The heavier a cask is, the more difficult it will be to retrieve if it falls from a train, thus raising the risk of accidents. Moreover, once an accident occurs, the higher inventory of spent fuel inside the larger cask raises the consequences of a radiological release.

Additionally, the assumptions concerning traffic density in Table S-4 do not apply to the ISFSI. Table S-4 assumes no more than one truck shipment per day and no more than three rail shipments per month. In contrast, PFS projects 100-200 rail shipments per year. SAR at 1.4-2. This amounts to approximately 8-17 rail shipments per month, far in excess of the number of rail shipments assumed in Table S-4. The higher frequency of rail shipments significantly increases the potential for backup of trains and casks at Rowley Junction. If casks have to be stored at Rowley Junction awaiting transfer to trucks, both the radiation doses to workers and the public and the risk of accidents will increase. These impacts are not anticipated in Table S-4.

Thus, because it has not satisfied the conditions specified in 10 CFR § 51.52(a)(1)-(6), PFS must provide "a full description and detailed analysis of the

environmental effects of transportation of fuel and wastes to and from the reactor." 10

CFR § 51.52(b).

2. The SAR is inadequate to supplement Table S-4.

WASH-1238 includes the dose to the truck crew, garagemen and freight handlers for a standard spent fuel shipment. But PFS's proposal involves additional handling of the fuel canisters and casks. At the originating reactors, the fuel canister must be placed in a transfer cask for placement in a transportation overpack, transported to intermodal transfer point at Rowley Junction, Utah; then the transportation cask must be lifted onto a heavy haul truck, carted to the Canister Transfer Facility at the ISFSI in Skull Valley, and the fuel canister must then be transferred to a storage overpack.

In an apparent effort to supplement Table S-4, the SAR contains an analysis of the impacts of fuel transfer at Rowley Junction. Assuming that Table S-4 even applies, this analysis is inadequate in several respects. First, PFS assumes that there will be one cask on the Rowley Junction site every day. ER at 4.7-5. This assumption is unreasonable. As discussed in Contention B, given the high volume of rail shipments involved, it is likely that bottlenecks will form at Rowley Junction, and therefore it is likely that more than one cask will be stored onsite at any given time. PFS has failed to evaluate the potential for bottlenecks and their impacts with respect to incident-free

handling and accidents. PFS has also failed to take into account the additional doses that will be incurred by State and Federal radiation inspectors.

Second, PFS fails to make any calculation for the impacts caused by the return of substandard or degraded casks to the originating nuclear power plant licensees. As discussed in Contention J, the design for the ISFSI contains no provision for a hot cell. Instead, PFS plans to return any substandard or degraded casks to the originating licensee. This will entail additional radiation doses to workers and the public, which are not considered in Table S-4 or the SAR. In addition, the shipment of fuel with degraded cladding increases the risk of accidents, since cladding is one of the barriers relied on to contain the radioactivity in spent fuel. Finally, PFS does 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. If this occurs, PFS has no provision for repacking the spent fuel.

Finally, PFS does not evaluate the environmental impacts of shipping spent fuel to the proposed ISFSI from nuclear power plants not serviced by any rail lines. Although PFS states that all fuel will be shipped to the ISFSI by rail, some of the plants it serves have no rail access. Those with sufficient crane capability may transfer the casks to heavy haul trucks, and from thence to rail cars. The impacts of these transfers are not assessed in the SAR. Moreover, there are some plants, such as Indian Point, which do not have sufficient crane capability to handle heavy shipping casks. The

SAR does not state how these casks will be shipped to the ISFSI, or describe the impacts.

3. New information shows that Table S-4 grossly underestimates transportation impacts.

Table S-4 is based on WASH-1238, a 1972 report by the Atomic Energy Commission. The WASH-1238 study is poorly documented and outdated. Its conclusions regarding the probability and consequences of transportation accidents must be re-examined in light of the significant new information that is available.

Moreover, NRC regulations at 10 CFR § 51.45(c) require that, to the extent practicable, the costs and benefits of a proposal should be quantified. WASH-1238 makes no attempt to quantify the risks of spent fuel transportation, but merely asserts that they are low. Now that additional data have been collected on accident risks and transportation conditions, this rationale is no longer acceptable. The NRC must prepare a new EIS that takes into account current information, and quantifies the risks posed by spent fuel transportation.

a. Poor and outdated data. The data on which the WASH-1238 risk estimate is based are slim to none. For accident speeds, WASH-1238 refers to an unpublished DOT study, for which the data are unavailable. For major fires, no reports are cited. See WASH-1238 at 67. Clearly, highway and rail conditions have changed since 1972. There are more interstate highways, and cars use higher speeds. Freight traffic on the rails has also increased in recent years. However, WASH-1238



contains no data that can be compared with data for current conditions. Thus, it does not provide a reasonable basis for conclusions about highway or rail conditions.

b. New information and changed circumstances. WASH-1238's conclusion that the probability of a severe accident is very small is based on an overly narrow range of accidents. For instance, it does not include accidents caused by human error or sabotage. While there was very little information on these subjects in 1972, significant experience and technical studies have been collected since then.

Sabotage. Since the time when WASH-1238 was prepared, the threat of sabotage has become more real and the technology more sophisticated. The bombings at the World Trade Center and the Federal Courthouse in Oklahoma City have vividly demonstrated the credibility of sabotage as a very real threat. Moreover, expert studies have demonstrated the credibility of this threat with respect to nuclear waste transportation. See, e.g., Halstead and Ballard, Nuclear Waste Transportation Security and Safety Issues: The Risk of Terrorism and Sabotage Against Repository Shipments, for the Nevada Agency for Nuclear Projects (October 1997), Exhibit 3; Tuler, Kasperson and Ratick, The Effects of Human Reliability in the Transportation of Spent Nuclear Fuel (Clark University: June 1988), attached hereto as Exhibit 16. Irradiated fuel storage casks, while extremely sturdy, can be compromised by anti-tank weapons or commonly available explosive devices. For example, as discussed in Richard Barbour, Pyrotechnics in Industry at 47-48 (McGraw-Hill, New York: 1981),

attached hereto as Exhibit 17, a simple conical charge weighing 743 grams, 15 cm in length, can penetrate 356 mm of mild steel (lead would be simpler) with a hole diameter 45 mm. These devices should be readily available since they are used by the oceanographic industry for cable cutters, construction contractors for drilling aids and the steel industry for tapping open-hearth furnaces. To create greater mischief, the conical shaped charge can be combined with an incendiary pellet. After the explosive punches a hole through metal, the incendiary pellet is pulled through the blast hole and burns at 1649 °C. Id. at 53. This would serve to fragment fuel rods and pellets, vaporize semi-volatile radionuclides such as cesium, and release radioactivity from the cask due to overpressure. A modern shoulder-fired anti-tank weapon can penetrate over 16 inches of armor plate. The most common shoulder-held anti-tank weapons have effective ranges over 500 meters, with sights for night use. The VSC-24 is constructed of only 2 1/2 inches of steel plate (1 inch in the MSB and 1 1/2 inches forming the inside of the concrete silo) and could be easily punctured. The TranStor and Holtec casks are similar to the VSC-24. The TOW 2 anti-tank missile can penetrate greater than 27 inches of armor and has an effective range of 3.75 kilometers; the Milan anti-tank missile can penetrate more than 39 inches of armor and has an effective range up to 2 kilometers. Exhibit 3, Halstead and Ballard, Nuclear Waste Transportation Security and Safety Issues at 59 - 61. The threat of sabotage is a real







and foreseeable risk that should be evaluated in assessing the impacts of transportation of spent nuclear fuel.

Human error. WASH-1238 assumes a perfect container and perfect operation in an imperfect world. Casks are not necessarily built according to design. On October 6, 1997, for example, the NRC Staff issued a Demand for Information to Sierra Nuclear Corporation, manufacturer of the TranStor cask, citing numerous deficiencies in the construction of SNC's VSC-24 cask. Demand for Information, EA No. 97-441, PDR Document, ACN # 9710100120. These deficiencies are so severe that NRC has demanded that SNC demonstrate why it should not be forbidden from constructing the casks. *Id.* The following are additional examples:

In 1979, the NRC discovered NAC-1 shipping casks had not been constructed to design specifications. They were bowed out of shape, and additional copper plates had been welded on to increase radiation shielding, without permission by the NRC. See Resnikoff, M. and Audin, L., The Next Nuclear Gamble at 206-210 (Council on Economic Priorities: 1983), attached hereto as Exhibit 18.

An NLI-1/2 cask, holding one PWR fuel assembly, was to have been shipped dry, but a worker incorrectly filled the cask with water. Letter from William Parker, Duke Power, to John Davis, NRC (December 1, 1981), PDR Document, ACN # 8112140019.

In May of 1980, a fuel assembly exceeding heat output conditions in the Certificate of Compliance was shipped from Haddam Neck to Battelle Columbus, and contaminated the spent fuel pool. The  $\text{UO}_2$  had oxidized into  $\text{U}_3\text{O}_8$ . Memorandum to John Davis, NRC, from Robert Minogue, NRC (March 5, 1984), attached hereto as Exhibit 19. Yet human error is not factored into accident probabilities in WASH-1238.

Maximum credible accidents. WASH-1238 also does not include up-to-date analyses of maximum credible accidents. See Wilmot, Transportation Accident Scenarios for Commercial Spent Fuel, SAND80-2124 (1981), attached hereto as Exhibit 20. WASH-1238 does not consider the dynamics of a transportation accident, as done by Wilmot and later authors. In an impact followed by a fire, the fuel cladding may burst on heating, or shatter upon impact. The fuel may oxidize under heat and an air environment. Wilmot at 32 - 38. WASH-1238 also does not take into account more recent information regarding the risks of rail transportation. For instance a 1985 analysis by Rogers & Associates projected a maximum clean-up cost of \$620 million and a cleanup time of 460 days for a rail accident (14 PWR fuel assemblies/cask) in a rural area.<sup>31</sup> The population exposures ranged up to 63,000 person-rem in the most severe rural accident. PFS does not mention a study by Sandia National Laboratory of

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<sup>31</sup> Sandquist, GM et al, Exposures and Health Effects from Spent Fuel Transportation, prepared by Rogers & Associates for the DOE (November 1985), attached hereto as Exhibit 21.

irradiated fuel shipping accidents in urban areas, in which costs over a \$1 billion are calculated.<sup>32</sup> Other studies show that falls from high bridges are a significant contributor to the risk of severe rail accidents. The fall of a spent fuel cask from a railroad bridge into a muddy river bottom could pose a very severe risk to the public if the cask was buried by the mud and overheated. As shown in calculations for the TN-40 shipping cask, if a cask is buried in sediment, it can rapidly overheat. The cask, which has a maximum heat load of 27 kW, is predicted to double its temperature in just 120 hours.<sup>33</sup> Thus, a successful salvage operation must be rapid, which is not simple for a 142-ton object. This is a foreseeable and significant risk which should be, but has not been, taken into account in WASH-1238 and Table S-4. Another potentially catastrophic accident involves a severe impact or fall from a bridge into a rocky river bottom, in which water enters the cask and the nuclear fuel goes critical. Casks which hold 24 PWR fuel assemblies hold more than a critical mass of fissionable material. WASH-1238 argues that, "Although the consequences of a release could be very serious, the probability of occurrence is small, and therefore the risk or impact on the environment is very small." *Id.* at 74. As discussed above, the probability of a release is reasonably foreseeable, and therefore should be considered. In any event, it is

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<sup>32</sup> Finley, NC et al, "Transportation of Radionuclides in Urban Environs: Draft Environmental Assessment," prepared by Sandia National Laboratories for the NRC, NUREG/CR-0743 (July 1980), attached hereto as Exhibit 22.

<sup>33</sup> Northern States Power Company, "TN-40 Safety Analysis Report," Docket 50-282, September 1991, fig. 3.3-15.



important to note that risk is a product of probability and consequences, and that a low probability of occurrence does not in any way mitigate the impact if such an accident were to occur.

Degradation of fuel cladding. WASH-1238 assumed that irradiated fuel would be stored under water in pools for a short period, and then, individual fuel assemblies would be shipped by truck (1 PWR or 2 BWR fuel assemblies) or by train (7 PWR fuel assemblies) to a reprocessing plant. In contrast, PFS asserts that all spent fuel will be stored onsite for at least five years. ER at 4.7-2. Some of this fuel is likely to have been stored in dry casks prior to shipment. Additionally, 6,000 fuel assemblies are projected to be in dry storage by 1999,<sup>34</sup> out of over 100,000 discharged assemblies to date.<sup>35</sup> Long-term dry storage before fuel is shipped to Utah may degrade fuel cladding. Based on Pescatore, "Zircaloy Cladding Performance Under Spent Fuel Disposal Conditions," BNL-52235, April 1990, the maximum cladding temperature for dry storage within a VSC or NUHOMS concrete storage cask can reach the same temperature as while a power reactor is operating, about 360°C. But in dry storage these high temperatures can cause cladding degradation, because unlike an operating power reactor, the pressure from within the fuel rod is not balanced by pressure from

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<sup>34</sup> Energy Information Administration, "Spent Nuclear Fuel Discharges from U.S. Reactors 1994," SR/CNEAF/96-01, US DOE, at 46 (February 1996), attached hereto as Exhibit 23.

<sup>35</sup> *Id.*, at xiii.

outside the cladding. This net outward pressure is responsible for creep corrosion cracking of fuel cladding. During transportation, weakened cladding increases the likelihood of impact rupture and burst rupture of fuel cladding in a severe accident. Irradiated fuel that remains in a fuel pool until shipment to a reprocessing plant does not experience the potentially damaging environment of dry storage. Therefore WASH-1238 may not apply to fuel that is to be shipped to the PFS.

Accident consequences. Recent analyses suggest that during a severe accident, a greater fraction of cesium-137 may be released than estimated in WASH-1238. WASH-1238 assumes 650 Ci of fission products are released; for cesium-137, the estimated WASH-1238 release is approximately a fraction  $5 \times 10^{-3}$  of the cesium-137 cask inventory. More recent analyses assume a cesium-137 fraction of  $10^{-3}$  could be released, that is a fractional release 20 times greater.<sup>36</sup> Since the cesium-137 inventory of the TransStor is a factor of 3.4 greater than assumed in WASH-1238, the amount of cesium-137 that can be expected to be released from a TranStor in a severe accident is approximately 68 times the WASH-1238 results.

Regional Characteristics. WASH-1238 does not separately estimate the consequences of an accident in a specific location, or even limit the analysis to an urban or rural area. It is a generic calculation. (p.3) Thus, it is inadequate to satisfy the requirement of 10 CFR § 72.108, that the EIS must take regional characteristics into

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<sup>36</sup> Wilmot, EL, at 35, Exhibit 20.

account. For example, it fails to estimate the consequences of a severe rail accident in Salt Lake City, a high population area.

**Criticality.** The TranStor and HI-STAR 100 casks which PFS proposes to use hold more than a critical mass of fuel (17 PWR assemblies). 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. To insure that a cask cannot go critical under any circumstances, cask manufacturers would need to include neutron absorbing material between fuel assemblies or demonstrate that a cask could not go critical. The nuclear industry has been attempting to convince the NRC Staff to give "burn up credit" arguing that used fuel assemblies would have less fissionable material and therefore there is less need for neutron absorbing material. If the nuclear industry is successful in lobbying for burn up credit, then the decision as to when fuel is sufficiently used up to justify shipment becomes essentially a management decision. This is an additional source of human error, in which mistakes could lead to criticality accidents. A criticality event, in which fuel is re-arranged and water enters the cask, would be far outside the envelope of consequences assumed in Table S-4 and NUREG-170.

**RADTRAN.** WASH-1238 predates the RADTRAN computer code, which is significantly more accurate and generally shows much higher radiological doses to the general public. WASH-1238 assumes a member of the general public

would spend three minutes at an average distance of three feet from the truck or railcar and that ten persons would be so exposed during shipments. But railcars go through the center of cities and trucks would gather great attention at truck stops. RADTRAN allows the user to enter parameters for the number of persons at a rest stop, the stop time, the distance of onlookers from the cask, and the number of stops per mile. The standard default assumption by RADTRAN is 50 persons at a rest stop. In addition, the user can input the velocity in each population zone, the number of persons per vehicle, the fraction of urban travel during rush hour, the traffic density. Using RADTRAN default assumptions, the incident-free exposures under RADTRAN lead to much higher exposures than estimated under Table S-4. In light of the availability of the much more accurate dose modeling RADTRAN program, and the likelihood that it will show significantly higher dose than WASH-1238, the Applicant's reliance on WASH-1238 and Table S-4 is inadequate to demonstrate compliance with NEPA.

Transportation Distance. WASH-1238 is based on a transportation distance of approximately 1,000 miles. *Id.* at 38. But as PFS acknowledges, the distance may be more than twice that amount. ER at 4.7-3. Most spent fuel is located at reactors in the Eastern United States, which implies transportation distances much greater than 1000 miles.<sup>37</sup> For example the one way mileage from Boston

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<sup>37</sup> Spent Nuclear Fuel Discharges from U.S. Reactors 1994, U.S. Department of Energy, Energy Information Administration, SR/CNEAF/96-01 at xiv (February 1996), Exhibit 23.

Massachusetts to Salt Lake City is 2388 miles.<sup>38</sup> PFS cites NUREG-1437 for the proposition that this increase is inconsequential. However, in light of all the deficiencies in WASH-1238, this is not a valid assertion. Doses must be recalculated for the entire shipping distance from plants to the ISFSI, and from the ISFSI to the repository, for all 19 plants served by the proposed ISFSI.

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<sup>38</sup> Gousha New Deluxe Road Atlas, HM Gousha, New York, 1995.

**W. Other Impacts not Considered.**

**CONTENTION:** The Environmental Report does not adequately consider the adverse impacts of the proposed ISFSI and thus does not comply with NEPA or 10 CFR § 51.45(b).

**BASIS:** The Environment Report must contain a description of the "impact of the proposed action on the environment." 10 CFR § 51.45. The Applicant has failed to consider impacts with respect to the following:

1. **Cumulative Impacts.** The Applicant does not discuss the cumulative from hazardous and industrial activities located in the region of the ISFSI site and the Intermodal Transfer site. See Contention K (Inadequate consideration of credible accidents) whose basis is incorporated by reference herein.

An accident involving spent fuel casks may cause facilities such as the Army's chemical weapons incinerator (TOCDF) to be evacuated. Conversely, an accident at TOCDF may cause evacuation of the ISFSI or the intermodal transfer site. In any event, the cumulative impacts of this facility in relationship to other facilities has not been considered.

2. **Risk of Accidents along the Transportation Corridor.** Heavy haul trucks could make up to 400 trips per year along Skull Valley Road, a secondary two-way paved road. The potential for accidents from these vehicles has not been evaluated.

3.     Flooding. The Applicant has not considered the impact of flooding on its facility or the Intermodal Transfer Point. See Contention N (Flooding), whose basis is incorporated herein by reference.
4.     Pollution. Construction, operation and maintenance of the ISFSI will cause degradation of air quality and water resources. See Contention T (Inadequacy of Required Permits and other Entitlements) Basis 3 (Environmental Quality Standards and Requirements) which is incorporated by reference into this contention. Such impacts are inadequately discussed.
5.     Seismic. The site chosen by the Applicant is one with complex seismicity, capable faults and potentially unstable soils. See Contention L (Geotechnical) whose basis is incorporated herein by reference. The impact of placing 4,000 casks over such a site is not fully assessed.
6.     Visual. The Applicant has not adequately considered the cost of the visual impact the proposed ISFSI and the continual (up 200 shipments per year) transportation of spent fuel by heavy haul truck along Skull Valley Road and transportation of spent fuel will have on the public's use and enjoyment of the area. The Applicant states that the ISFSI "will not significantly interrupt views across the Skull Valley floor." ER at 4.1-19. The Applicant goes on to state that the "presence of the construction equipment in an otherwise barren landscape will naturally draw the viewer's attention as a temporary focal point." Id.

While the Applicant may considers the area a "barren landscape," the esthetic use and enjoyment of the area by the public, should nonetheless be analyzed. The application does not take into account how the visual impact of its facility and the transportation of casks along Skull Valley Road will have in detracting from visitors' enjoyment of Deseret Peak, the Deseret Wilderness Area and the Wasatch National Forest in the Stansbury Mountains. Furthermore, the Applicant has not addressed how its activities will impact the public's esthetic enjoyment of public lands and Horseshoe Springs, located directly off Skull Valley Road and 15 miles north of the ISFSI. Public access is allowed on the public lands located adjacent to the site and managed by the Bureau of Land Management. ER at 2.2-3. Typical activities enjoyed by the public include "off-highway vehicle use," camping, and hunting. *Id.* Horseshoe Springs is a protected recreational area with ponds and hiking trails where typical activities include fishing, hunting, and bird watching. ER at 2.2-3. *Id.* The Applicant must objectively consider and impact that its facility and transportation of casks will have on these activities.



X. Need for the Facility

CONTENTION: The Applicant fails to demonstrate there is a need for the facility as is required under NEPA.<sup>39</sup>

BASIS: As support for its need for the facility, the Applicant merely recites that reactor sites are physically or economically unable to meet their anticipated spent fuel storage requirements. ER 1.2. There is no substantiation of these statements. To the contrary, one of the PFS consortium members, Northern States Power, says that it has enough room at its existing on-site storage facility for all the storage containers the plant will need.<sup>40</sup> Even the Applicant acknowledges that most reactors have been able to add additional storage capacity by reracking and by constructing on site dry spent fuel storage. ER at 1.2-1.

The Applicant's underlying premise is that the owners of nuclear reactors will be in a substantially superior economic position if they can ship their spent nuclear fuel half way across the country to a centralized storage facility in Utah. The Applicant's own words in the Environmental Report, "Need for the Facility" (ER pp. 1.2-1,2), illustrate that economic advantage to a select group is the driving need for this facility:

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<sup>39</sup> This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.

<sup>40</sup> See Northern States Power home page "Prairie Island Spent Fuel Storage FAQ" at <http://www.nspco.com/nsp/spntful.htm#q13>.

[R]eactors that have reached the end of their operating life must also provide spent fuel storage until the spent fuel can be shipped off-site. Until such off-site shipment takes place, the reactor site cannot be completely decommissioned. Particularly in those situations where all reactors at a site have been permanently shut down, the absence of an off-site option for spent fuel storage will result in the added costs of maintaining a licensed site.... [The PFS facility] would also provide insurance for situations where increased on-site storage might be physically possible but economically disadvantageous.<sup>41</sup>

This limited benefit is insufficient to justify the need for the facility.

The application is for storage of spent nuclear fuel rods from domestic power reactors located throughout the United States. The application must, therefore, discuss the national need for storage at its proposed facility. Rather than unsupported and generalized statements about on-site storage capacity and storage costs, the Applicant should at least detail and substantiate for each reactor site, the present and projected quantity of spent nuclear fuel, the projected storage capacity, the cost of on-site storage, the specifics of state-imposed restrictions and whether those restrictions are preempted by federal law.

Furthermore, the Applicant also refers to premature plant shutdown because of the fear that utilities may not be able to obtain state approval for onsite storage. ER 8.1-2,3. However, the Applicant fails to give any basis for this fear and, thus, it must be rejected as mere speculation.

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<sup>41</sup> Under this approach, the Applicant is running afoul of NEPA. Rather than isolate the costs or benefits to a particular group as Applicant does, NEPA requires overall benefits to be weighed against overall costs. Detroit Edison Company (Enrico Fermi Atomic Power Plant, Unit 2), LBP-78-11, 7 NRC 381, 391 (1978).

Y. Connected Actions

**CONTENTION:** The Applicant fails to adequately discuss the link between this proposal and the national high level waste program, a connected action, as is required under NEPA.<sup>42</sup>

**BASIS:** Given that this proposal is for storage of spent nuclear fuel rods located throughout the United States, it is tightly linked to the previous and pending decisions of DOE's high level waste program. As connected actions, this proposal and other high level waste decisions need to be considered together to ensure that the cumulative effects of these actions are properly evaluated. 40 CFR § 1502.4.

The Applicant links the need for the facility to DOE's inability to accept spent fuel by January 1998, by stating that it will be at least a decade before utilities can make spent fuel deliveries to DOE. ER at 1.2-1. While the 1987 amendments to the Nuclear Waste Policy Act of 1982 authorize DOE to construct a monitored retrievable storage (MRS) facility, the siting and construction of the MRS was linked to the schedule for developing a high level waste repository. There are currently both House (HB 1270) and Senate versions of congressional bills to authorize construction of an MRS in Nevada near the Yucca Mountain repository site.

Implementation of the proposed action will commit the government to one of many alternative courses of action for dealing with high level waste disposal in general,

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<sup>42</sup> This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.

thus eliminating or discouraging other alternatives that may result in fewer or lower adverse environmental impacts. For instance, the proposed ISFSI project does nothing to advance the ultimate objective of safely disposing of radioactive waste. Instead, it adds significant cumulative impacts caused by transporting spent fuel across the country to Utah and then moving the fuel to wherever a final repository will be located. These impacts could be avoided by leaving the fuel onsite until a repository is ready. As another connected action, the Applicant needs to consider the implication that the Skull Valley site will become a de facto permanent repository for spent fuel casks. NRC will not fulfil its NEPA responsibilities if it does not address these issues.

Z. No Action Alternative

CONTENTION: The Environmental Report does not comply with NEPA because it does not adequately discuss the "no action" alternative.<sup>43</sup>

BASIS: NEPA requires a discussion of the no action alternative, 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 Environmental Report can not be used to meaningfully discuss the no build alternative, because the Applicant focuses solely on the perceived disadvantages of the no build alternative. See footnote 41

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 build alternative, the Applicant fails to provide the balanced comparison of environmental consequences among alternatives. For example, the application does not consider the advantages of not transporting 4,000 casks of spent fuel rods 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. An example of the Applicant's tunnel vision is the following statement: "The construction of additional onsite ISFSIs at plant sites will result in more sites disturbed and greater environmental impact than

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<sup>43</sup> This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.

constructing one site in a remote, desert environment." ER at 8.1-3. The "remote desert environment" referred to be the Applicant is thousands of miles from ANY domestic nuclear power reactor and twenty four miles from the nearest railhead. The Applicant fails to discuss the considerable safety advantages of storing spent fuel near the reactors, whose spent fuel pools will be available for transfers or inspections of degraded fuel. See Contention J (Inspection and Maintenance of Safety Components) . In contrast to expansion of onsite 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.

NRC cannot rely on the Applicant's inadequate and one-sided discussion of the no build alternative. Thus, NRC will not satisfy NEPA if it does not adequately address all sides of the no action alternative. City of Tenakee Springs v. Clough, 915 F.2d 1308, 1312 (9th Cir. 1990)(agency's failure to consider alternatives is contrary to law); Bob Marshall Alliance v. Hodel, 852 F.2d 1223, 1228 (9th Cir. 1988)(failure to discuss no-action alternative improper), *cert. denied*, 489 U.S. 1066 (1989); Van Abbema v. Fornell, 807 F.2d 633, 640-43 (7th Cir. 1986)(court remanded because agency did not discuss no-build alternative); Getty Oil Co. v. Clark, 614 F.Supp 904, 920 (D. Wyo. 1985) (upholding remand by appeals board because agency failed to discuss no-action alternative).



AA. Range of Alternatives

CONTENTION: The Environmental Report fails to comply with the National Environmental Policy Act because it does not adequately evaluate the range of reasonable alternatives to the proposed action.<sup>44</sup>

BASIS: 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).

The discussion of siting alternatives in Chapter 8 of the Environmental Report is woefully inadequate. The Applicant first developed a list of sites based on whether the site was included on the original list of applicants to the Nuclear Waste Negotiator's office or whether the entity directly expressed an interest to PFS. ER at 8.1-2. Out of this came a list of 38 separate sites. Table 8.1-1. At least 20 of these sites appear to be located on an Indian reservation. The Applicant's basis for coarse screening seems to be the following:

The key requirements of a candidate site in this phase included: a willing jurisdiction public acceptability reasonable distance to know 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 facility was used as an exclusion factor.

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<sup>44</sup> This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.



ER at 8.1-4.

The second screening phase apparently involved regulatory criteria, however, there is no discussion or tabulation of the results from phase two screening. The most confusing part of the Applicant's site section is the third phase.<sup>45</sup> Apparently, the Applicant used a questionnaire to determine site suitability. See Table 8.1-2. There is no mention of whether the Applicant sent the questionnaire to all 38 site owners or just to the Skull Valley Band of Goshutes. There is absolutely no discussion or tabulation of the responses to the questionnaire, if in fact the Applicant received any responses. The Applicant discusses "the remaining (3) candidate sites" (*see n.\* 2*) but the reader is absolutely baffled to understand what "three" sites the Applicant refers to because the only sites mentioned by name are the 38 initial sites and the two sites located on the Skull Valley reservation. The final screening final phase was to choice

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<sup>45</sup> The full text of Applicant's third phase, ER at 8.1-5, is as follows:

The third phase, Candidate Area Selection, was used to identify at least two candidate siting areas that would likely meet NRC licensing regulations, and would not be unreasonably expensive to develop. At least two sites were desired in order to have an alternate choice should problems with the primary site develop further into the process. The evaluation process used in this phase utilized two primary methods. First, a list of detailed questions (Table 8.1-2) intended to determine site suitability was sent to the owners/promoters of the remaining (3) [sic] candidate sites. Second, a major engineering firm familiar with nuclear construction issues was to be engaged to conduct a field evaluation visit to each of the remaining (3) [sic] candidate sites. A set of requirements, exclusion factors, avoidance factors and preference factors was developed for the phase three evaluation.

between two sites on the Skull Valley reservation that were almost contiguous to each other. See Fig. 8.1-2.

The Applicant's overarching criterion seems to be a willing jurisdiction. The Applicant's "screening" process jumped from 38 sites to two sites located almost next to each other on the Skull Valley reservation. How the Applicant arrived at the two sites is a mystery. The application of 10 CFR Subpart E, §§ 72.90-108, Site Evaluation Factors, to the candidate sites are not discussed at all in the Environmental Report. Major omissions include failure to consider the adequacy of transportation corridors as well as accident and risk analyses.

The NRC cannot rely on the Applicant's site selection criteria because it has not been applied at all levels of screening. Furthermore, information used in the screening process has not been described and tabulated. Thus, the siting criteria in the Environmental Report is fatally flawed, and fails to demonstrate that the Applicant fully and objectively considered the range of alternative sites available to it.

**BB. Site Selection and Discriminatory Effects**

**CONTENTION:** The Applicant's site selection process does not satisfy the demands of the President's Executive Order No. 12,898 or NEPA and the NRC staff must be directed to conduct a thorough and in-depth investigation of the Applicant's site selection process.

**BASIS:** The Agency's Responsibility under the President's Executive Order No. 12,898, is to make achieving environmental justice part of its mission.<sup>46</sup> The Presidential Order further directs agencies to conduct their activities without

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<sup>46</sup> In Executive Order 12898, Subsection 1-101, "Agency Responsibilities," the President directs that

[t]o the greatest extent practicable and permitted by law . . . each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.

discriminating against low income and minority populations.<sup>47</sup> The Commission has voluntarily agreed to implement the President's directive on environmental justice.

In addition, NEPA mandates that the NRC must evaluate the Applicant's siting process to ensure the site selection is free from discrimination. NEPA guarantees procedural protections to "all" persons and does not brook subjecting some people to environmental impacts not suffered by others. See 42 USC § 4221(c) ("each person should enjoy a healthful environment."). See also §§ 4331(b)(2), 4332. Furthermore, courts have made it clear that biased decisionmaking will not be tolerated. Clavery Cliffs Coordinating Comm. v. AEA, 449 F.2d 1109, 1115 (D.C. Cir. 1971). Thus, any discriminatory effects in the site selection process must be evaluated under both NEPA and the President's Executive Order.

The Atomic Safety and Licensing Board left no doubt in Louisiana Energy Services, L.P. (Claiborne Enrichment Center), LBP-97-9, 45 NRC 367 (1997) (hereafter "Claiborne") that the NRC is obligated to carry out, in good faith, the President's

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<sup>47</sup> In section 2.2 of the Executive Order, the President orders that

[e]ach Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

Id. at 861.

Executive Order on Environmental Justice in its activities that substantially affect human health and the environment. The Board found the President's Executive Order applicable to NRC licensing actions because those actions substantially affect human health and the environment.

As in the Claiborne case, where progression of the site selection process and narrowing of the search raised, dramatically, the level of minority representation in the population, the Applicant's search had been focused disproportionately on areas of high minority populations. As discussed above, 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 Skull Valley reservation. This raises an inference of discrimination in the site selection process. 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.

Claiborne, 45 NRC at 391.

**CC. One-Sided Costs-Benefit Analysis**

**CONTENTION:** Contrary to the requirements of 10 CFR. § 51.45(c), the Applicant fails to provide an adequate balancing of the costs and benefits of the proposed project, or to quantify factors that are amenable to quantification..

**BASIS:** The Applicant's Environmental Report makes no attempt to objectively discuss the costs of the project. Other than the financial costs incurred by the Applicant in constructing and operating the facility, the sum and substance of the Applicant's discussion of costs are as follows:

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.

ER at 7.3-1. This brief discussion is completely inadequate to satisfy the requirements of 10 CFR. 51.45(c). The Applicant fails to weigh the numerous adverse environmental impacts discussed, for example, in Contentions H through P above, against the alleged benefits of the facility.

Moreover, the Applicant fails to compare the environmental costs of the proposal with the significantly lower environmental costs of the no-action alternative. In addition, the Applicant fails 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 (Contention J).

Finally, the Applicant makes no attempt to quantify the costs associated with the impacts of the facility. Many such costs are amenable to quantification: for instance, 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.

Given the lack of an adequate cost-benefit analysis, the Applicant provides no meaningful basis for a comparison of alternatives. Therefore, the application must be rejected as insufficient to satisfy NEPA.

DD. Ecology and Species

CONTENTION:

The Applicant has failed to adequately assess the potential impacts and effects from the construction, operation and decommissioning of the ISFSI and the transportation of spent fuel on the ecology and species in the region as required by 10 CFR §§ 72.100(b) and 72.108 and NEPA.

BASIS: The Applicant has failed to adequately assess ecological impacts from proposed activities, impacts on species, and impacts on specific habitats. The underlying deficiency is the failure to perform surveys and studies to acquire the necessary information to make an adequate assessment.

1. Impacts from Proposed Activities:

a. Construction Activities. The Applicant indicates that construction activities will "temporarily disturb resident wildlife species." ER at 4.1-4. The Applicant does not discuss the long term impacts to the overall ecological system in Skull Valley. The impact from construction will not be temporary because the Applicant plans to have ongoing construction for over twenty years. ER at 4.1-4 to 5.

b. Retention pond and water management. The Applicant has failed to address the adverse impacts as a potential result of contaminated ground or surface waters, including contaminated puddles and ponds, on various species. See, Contention O, Hydrology. The Applicant has not indicated an intent to sample the



retention pond or prevent the retention pond from draining in the event contaminants are present. Thus, the Applicant cannot support the argument that "[s]urface runoff is uncontaminated and will not adversely affect vegetation or wildlife." ER at 4.2-2.

Moreover, the Applicant does not address any water born radioactive, chemical, or heavy metal contaminants that may be absorbed by wildlife, aquatic organisms, or vegetation.

c. **Prevention or Mitigation Measures.** The Applicant has failed to propose and develop various protective or mitigation plans in conjunction with the appropriate authorities. The Applicant's plans include a mitigation plan for Horseshoe Springs and protective plan for Salt Mountain Springs developed with the U.S. Bureau of Land Management, mitigation plans for Timpie Springs Waterfowl Management Area and protection of raptor nests developed with the Utah Division of Wildlife Resources. ER at 4.3-3 to 4. The protective or mitigative measures must be identified now so they can be evaluated and the feasibility of the proposed ISFSI site determined.

## **2. Impacts on Species**

The Applicant has not estimated potential impacts to ecosystems and "important species." A species is "important":

if a specific causal link can be identified between the nuclear power station [or in this case an ISFSI] and species and if one or more of the following criteria applies: (a) the species is commercially or recreationally valuable, (b) the species is threatened or endangered, (c) the species affects the well-being of some important species within criteria (a) or (b), or (d) the species is critical to the structure and

function of the ecological system or is a biological indicator of radionuclides in the environment.

NRC Regulatory Guide 4.2, Preparation of Environmental Reports for Nuclear Power Stations, Revision 2, July 1976, p. 2-4 (hereafter "Reg. Guide 4.2").

a. Ecological System. In the Environmental Report, the Applicant discusses, 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 ISFSI site, Skull Valley Road, or the intermodal transfer station. The Applicant does not discuss and acknowledge the importance of the variety of species found in the Skull Valley ecological system, including aquatic organisms. The Applicant does not discuss the interdependence of various species on one another. The Applicant does not discuss the collective impact of the proposed action on the ecological system as a whole.

The Applicant does not discuss the impact of additional traffic, fugitive dust, radiation, and other pollutants on various species. Impact on wetland species, aquatic organisms, plants, fish, and birds are vastly different. The Applicant has failed to assess the individual and collective impacts on each species.

b. Endangered, Threatened Species, and other high interest species. The Applicant indicates that "except for transient, infrequent occurrences, there are no state or federally-listed threatened or endangered wildlife species known to occur within the site boundary. ER at 4.1-6, *emphasis added*. However, the Applicant

identifies a federally endangered, peregrine falcon nest in the Timpie Springs Waterfowl Management Area. ER at 4.1-6, 7. The Applicant argues that the proposed action is unlikely to have any impact on peregrine falcons. Id. The Applicant ignores that the peregrine falcon nest on the Timpie Springs Waterfowl Management Area is adjacent to the proposed intermodal transfer station at Rowley Junction. The Applicant must address all possible impacts on federally endangered or threatened species, including all potential behavior. Reg. Guide 4.2, at 2-4, n. 2.

The Applicant indicates that the Skull Valley pocket gopher is identified as a "high interest" species in the State of Utah. ER at 4.1-7. The Applicant indicates it will conduct a survey of gopher mounds prior to construction to avoid surface disturbance within 100 feet of any burrow. The Applicant must conduct the survey now to determine the presence of Skull Valley pocket gophers and the overall impact.

c. Culturally or Medicinal Species. The Applicant has not identified any plant species that may be culturally or medicinally (scientific) significant to various individuals. For example, the Confederated Tribes of Goshute Reservation gather plants in the vicinity of the Skull Valley Reservation. See, Request for Hearing and Petition to Intervene of the Confederated Tribes of the Goshute Reservation and David Pete, Docket No. 72-22, p.2, 3, filed August 28, 1997. The Applicant must determine whether significant plant species may be impacted by the proposed action.

d. Related Ecosystem Species. The Applicant has not identified aquatic plants which may be adversely impacted by the proposed action and upset the fragile ecological system of wetlands. Also, the Applicant indicates that "[n]o federal or state-listed threatened or endangered plant species are known to occur within the site or access road." ER at 4.1-3, *emphasis added*. However, the Applicant acknowledges two high interest" plants, Pohl's milkvetch and small spring parsley, may occur in the area. ER at 4.1-4. The Applicant has not adequately assessed plant species and impact on those identified.

e. Domestic Species. The Applicant broadly describes and estimates the number of domestic livestock grazing on U.S. Bureau of Land Management property in the area. ER 2.2-2. However, the Applicant acknowledges, but does not identify the private domestic animal (livestock) or the domestic plant (farm produce) species in the area. Private property adjacent to the proposed site and Skull Valley Road is currently used for ranching and farming. See, 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. Approximately 4,000 mother cows and calves winter on the private property north of the proposed facility and U.S. Bureau of Land Management Land. Id at 2 to 4. In addition, the private property produces a variety of crops, including alfalfa, oats, barley, and wheat. Id at 3. Adverse impacts may include impacts on livestock and

plants from the radiological, chemical, heavy metal, noise, or visual pollution due to the proposed action.

### 3. Specific Habitats

a. Horseshoe Springs Wildlife Management Area. ("Horseshoe Springs") is located approximately 9.5 miles south of Timpie Junction (Rowley Junction) and approximately 1100 feet west of Skull Valley Road. ER 4.3-3. The U.S. Bureau of Land Management 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. Id. The Applicant must identify the potential impacts to Horseshoe Springs and its species.

b. Timpie Springs Waterfowl Management Area. The proposed intermodal transfer station is located within the Timpie Springs Waterfowl Management Area. ER at 4.3-4. The Applicant must assess the potential impacts to Timpie Springs Waterfowl Management Area.

c. Great Salt Lake. 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 intermodal transfer station. In addition, the Great Salt Lake is only 21.7 miles northeast of the proposed ISFSI site and the likely eastern transportation routes will closely follow the southern and eastern shorelines of the Great Salt Lake. The Great Salt Lake is a unique body of

water that has no outlet and is, therefore, a sensitive ecosystem. Utah Administrative Code R317-2-6.6. Seventy-five percent of Utah's vital wetlands are supported by the greater Great Salt Lake Wetland Ecosystem. In addition, the Great Salt Lake is a western hemisphere shorebird reserve.

d. Salt Mountain Springs is approximately 300 feet west of Skull Valley Road. ER at 4.3-4. The Applicant indicates that the speckled dace, a state protected indigenous fish is known to inhabit one of the springs in the area. Id. The Applicant plans to implement sediment and erosion control measures to prevent any impacts, but the Applicant does not discuss impacts from other sources, e.g., radiation or other pollution. The Applicant does not discuss the various species that depend on the fragile wetland.

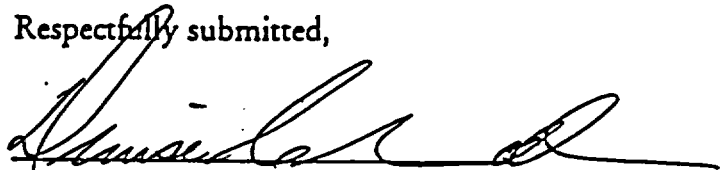
#### 4. Failure to Conduct Adequate Surveys

The Environmental Report addresses ecological impacts to the environment by generically describing the "known" species within the vicinity of the proposed ISFSI site. ER at 2.3-1 to 21. Additionally, to a very limited extent, the Applicant identifies some of the species near Skull Valley Road and the intermodal transfer station at Rowley Junction. However, the Applicant does acknowledge that various species either exist within a potential impact area or that some additional data must be gathered. Rather than conduct a detailed analysis now, the Applicant has proposed to conduct some species surveys or to develop mitigation plans or prevention plans prior

to initiating an action in that area. Unless the surveys are conducted and plans are prepared now, it is impossible to determine 1) if the ecological system is adversely effected by the proposed action as required by 10 CFR §§ 72.100(b) and 72.108, 2) if prevention or mitigation plans may be effectively implemented, or 3) whether the proposed transportation routes and ISFSI location are even feasible given various ecological impacts.

Dated this 23rd day of November, 1997

Respectfully submitted,



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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 72-22-ISFSI
PRIVATE FUEL STORAGE, LLC)	)	
	)	ASLBP No. 97-732-02-ISFSI
(Independent Spent Fuel Storage	)	
Installation)	)	November 23, 1997

CERTIFICATE OF SERVICE

I hereby certify that copies of STATE OF UTAH'S CONTENTIONS ON THE APPLICATION SUBMITTED BY PRIVATE FUEL STORAGE L.L.C. FOR 10 CFR PART 72 LICENSE TO CONSTRUCT AND OPERATE A SPENT FUEL STORAGE INSTALLATION, were served on the persons listed below by overnight hand delivery (unless otherwise noted) with conforming copies by United States First Class mail to those indicated, this 23rd day of November, 1997:

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Office of the Commission Appellate  
Adjudication  
Mail Stop: 16-G-15 OWFN  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555  
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Dated this 23<sup>rd</sup> day of November, 1997.

  
Denise Chancellor  
Assistant Attorney General  
State of Utah

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of:

PRIVATE FUEL STORAGE, LLC  
(Independent Spent Fuel  
Storage Installation)

)  
)  
)  
)  
)

Docket No. 72-22-ISFSI

ASLBP No. 97-732-02-ISFSI

November 23, 1997

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STATE OF UTAH'S RESPONSE TO SUPPLEMENTAL MEMORANDUM  
IN SUPPORT OF THE PETITION OF THE CONFEDERATED TRIBE  
OF THE GOSHUTE RESERVATION AND DAVID PETE  
TO INTERVENE AND FOR A HEARING

The State of Utah supports the Petition to Intervene, and Supplemental Memorandum, filed by the Confederated Band of Goshutes and David Pete. The Confederated Band has made a concrete and particularized showing of injury and fact in its Petition and, in particular, in its Supplemental Memorandum. Issues of concern articulated by the Confederated Band (e.g., ceremonial sites) may not be adequately presented by the other Petitioners.

DATED this 23rd day of November, 1997

Respectfully submitted,

---

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CERTIFICATE OF SERVICE.

I hereby certify that copies of STATE OF UTAH'S RESPONSE TO  
SUPPLEMENTAL MEMORANDUM IN SUPPORT OF THE PETITION OF  
THE CONFEDERATED TRIBE OF THE GOSHUTE RESERVATION AND  
DAVID PETE TO INTERVENE AND FOR A HEARING, were served on the  
persons listed below by electronic mail (unless otherwise noted) with conforming  
copies by United States First Class mail to those indicated, this 23rd day of  
November, 1997:

Attn: Docketing & Services Branch  
Secretary of the Commission  
U. S. Nuclear Regulatory  
Commission  
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(*Electronic mail; original and two  
conforming copies*)

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Commission  
Washington, DC 20555  
*(United States mail only, first class)*

Dated this 23<sup>rd</sup> day of November, 1997.

---

Denise Chancellor  
Assistant Attorney General  
State of Utah





UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of:	)	Docket No. 72-22-ISFSI
	)	
PRIVATE FUEL STORAGE, LLC	)	ASLBP No. 97-732-02-ISFSI
(Independent Spent Fuel	)	
Storage Installation)	)	January 16, 1998

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STATE OF UTAH'S REPLY TO THE NRC STAFF'S  
AND APPLICANT'S RESPONSE TO STATE OF UTAH'S  
CONTENTIONS A THROUGH DD

In accordance with the Licensing Board's Memorandum and Order of January 6, 1998, the State of Utah hereby replies to the Responses filed by the Staff and the Applicant on December 24, 1997, and the supplemental response filed by the Applicant on January 6, 1998, with respect to State of Utah Contentions A through DD. With respect to contentions regarding general NEPA issues, the intermodal transfer site, financial assurance, and ISFSI design, this Reply is supported by the Declaration of Lawrence A. White, PE, Executive Vice-President and Senior Project Manager of Versar, Inc., attached hereto as Exhibit 1. With respect to Contentions regarding failure to comply with NRC dose limits; inadequate facilitation of decommissioning; inadequate thermal design; inadequate inspection and maintenance safety components, such as canisters and cladding; inadequate training; inadequate quality assurance program; lack of a procedure for verifying presence of helium in canisters; and failure

to consider impacts of onsite storage and transportation of spent nuclear fuel, this Reply is supported by the Declaration of Dr. Marvin Resnikoff, Senior Associate of Radioactive Waste Management Associates, attached hereto as Exhibit 2. Time does not permit the State to address all of the issue raised in the Applicant's voluminous 700-page Answers to the State's contentions, or in the Staff's Response. Thus, perforce, the State has limited its reply to the key points of their responses. The State reserves the right to present additional arguments at the prehearing conference on the admissibility of all of its contentions.

## DISCUSSION

### I. The Standards for Admissibility of Contentions

To be admitted as an Intervenor, at least one contention that petitioner seeks to have litigated in the proceeding must satisfy the requirements of 10 CFR § 2.714(b)(2). 10 CFR § 2.714(b)(1). In addition to finding that contentions meet the requirements set forth in 10 CFR § 2.714(b)(2), a licensing board may "appropriately view Petitioners' support for its contention in a light that is favorable to the Petitioner." Arizona Public Service Co. (Palo Verde Nuclear Generating Station, Unit Nos. 1, 2 and 3), CLI-91-12, 34 NRC 149, 155 (1991).

The Commission amended the rules governing admissibility of contentions in 1989 by raising the threshold for the admission of contentions. However, "[i]n

adopting this higher threshold, the Commission was not requiring that an intervenor or petitioner prove its case prior to the admission of its contention." Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station), LBP-93-23, 38 NRC 200, 205 (1993). In commenting on the 1989 amendments to 10 CFR § 2.714(b)(2)(ii), the Commission stated, "[t]his requirement does not call upon the intervenor to make its case at this stage of the proceeding, but rather to indicate what facts or expert opinions, be it one fact or opinion or many, of which it is aware at that point in time which provide the basis for its contention." 54 Fed. Reg. 33,168, 33,170 (1989). The Commission commented further that a petitioner must "read the portions of the application (including the applicant's safety and environmental reports) that address the issues that are of concern to it and demonstrate that a dispute exists between it and the applicant on a material issue of fact or law." 54 Fed. Reg. 33,168, 33,171 (1989).

In a facial challenge to the revised contention requirement, Union of Concerned Scientists v. NRC, 920 F.2d 50 (D.C. Cir. 1990) held the revised rules to be valid on their face but the court observed that the NRC rules "of course could be applied so as to prevent all parties from raising a material issue." Id. at 56. The Licensing Board in Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-93-1, 37 NRC 5 (1993), cognizant of Union of Concerned Scientists, stated that in reviewing the petitioner's proposed contentions it "will keep

in mind both the upholding of the purpose of the rule [10 CFR § 2.714(b)(2)] and the need to interpret it as not foreclosing reasonable inquiries into the licensing action before us." Diablo Canyon, 37 NRC at 13. In Diablo Canyon, the applicant, for business reasons, filed for an early license amendment request. The applicant complained that certain contentions could become moot by future actions. The Board held that it will "take facts as they exist today" and added "the Applicant cannot have it both ways: with the early application comes the need to consider and rule based on facts that currently exist." Id. at 14.

In this licensing action, the Applicant, petitioners and Board should "take facts as they exist today." The State has combed the license submittal for relevant information on various issues and, in many cases, found either no information or limited information. The Commission states that the Rules of Practice do not permit "the filing of a vague, unparticularized contention, followed by an endeavor to flesh it out through discovery...." 54 Fed. Reg. at 33,170. Likewise, the Applicant should not be permitted to meet the substantive requirements of Part 72 by filing vague, unparticularized statements in its license submittal followed by the promise of submitting the information at some indefinite future date. The issue of lack of substantive detail is not a new issue raised by the State for the first time in its Contentions. Rather it is an issue that the State has endeavored to bring to the attention of the NRC for some time.

On June 25, 1997 the Applicant delivered its application to the NRC and also delivered a copy to the State of Utah. Since that time, the State has repeatedly pointed out that the application is lacking in substantive detail and that it would be fruitless to try to conduct a meaningful review of such an application. On June 27, 1997 the State filed a 10 CFR § 2.206 Petition<sup>1</sup> requesting NRC to reject PFS's application outright because PFS had not submitted its Emergency Plan to relevant authorities for comment 60 days prior to application submittal in accordance with 10 CFR § 72.32(a)(14). On July 27, 1997 the State filed another 2.206 Petition requesting NRC to find the application incomplete and to not accept the PFS application for docketing "until such time as PFS can craft an application that contains sufficient detail to meet the requirements of 10 CFR Part 72."<sup>2</sup> The NRC ignored the State's petitions<sup>3</sup> and announced on July 31, 1997 that it would docket the application. Notice, 62 Fed. Reg. 41,099 (1997).

The Applicant, and to a certain extent the NRC Staff, have the temerity to turn the lack of substantive detail contained in the application into a defense against the

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<sup>1</sup> See State of Utah's Motion to Suspend Licensing Proceedings Pending Establishment of a Local Public Document Room and Applicant's Submission of a Substantially Complete Application, and Request for Re-Notice of Construction Permit/Operating License Application, dated October 1, 1997, Exhibit 3.

<sup>2</sup> See State of Utah's Motion to Suspend Licensing Proceedings . . . dated October 1, 1997, Exhibit 4 at 1.

<sup>3</sup> The NRC did not respond to the two 2.206 Petitions until August 6, 1997. See *Id.*, Exhibit 5.

State's Contentions. The Applicant's frequent response to the State's Contentions is that the State has failed to provide sufficient basis to support its contentions. *See, e.g., Applicant's Answer* at 56, 77, and 79. In an application that contains limited or no information on a substantive requirement, the State is faced with the insuperable burden of not knowing how the Applicant intends to meet a substantive requirement of the Part 72 (e.g., financial assurance, decommissioning) while at the same time the State is expected to rebut with adequate documentation, etc. what is not contained in the application.

One example is the lack of detail in the Applicant's estimation of construction, operating, and decommissioning costs. The Applicant's generalized cost estimates are without a breakdown or supporting documentation so as to be incapable of evaluation. *See ER Table 7.3.-1, LA* at 1-5 to 1-8. For example, the Applicant's estimated construction costs of \$100 million include site preparation; construction of the storage pads, all buildings at the site, the access road, and transportation corridor; procurement of canister transfer and transport equipment; expenses relating to personnel, licensing and host benefits; and a contingency amount. *LA* at 1-5. One of the Applicant's defenses to the lack of detail in its cost estimates is that the State "must provide some factual basis for its claim that applicant's estimates are not reasonable other than the bald assertion that they are inadequate." *Applicant's Answer* at 79. This is an absurd defense. It is the Applicant's application which is "bald." It should be sufficient for

the State to show that there is a lack of adequate information in the application to determine the reasonableness of the cost estimate. Otherwise, the very lack of information in the application becomes, of itself, a shield against reasonable disclosure and accountability.

Another example is queuing of casks at Rowley Junction. Both the Applicant and Staff assert that the State has provided no basis for its assertion that casks may queue up at Rowley Junction. Applicant's Answer at 40; Staff's Response at 17. However, the current state of the application is that the Applicant has not disclosed any details about transshipment of casks from Rowley Junction except to say that it may be by road, or it may be by a yet-to-be-built rail spur, and up to 100 to 200 casks could be expected to arrive annually at Rowley Junction. From this scanty information the Applicant and Staff expect the State to provide a factual basis – other than what is contained in Contention B – for its queuing claim. This unfair burden the Staff and PFS are trying to impose on the State cannot reasonably be met until such time as the Applicant sees fit to elucidate specifics about the movement of casks at Rowley Junction.

The State has set forth discernible issues with reference to relevant documents and expert opinion "with sufficient clarity to require reasonable minds to inquire further." Rancho Seco, 38 NRC at 212. Many of the objections advanced by PFS and the Staff are merely disagreements as to the merits of the contention, which are not



grounds for dismissing proposed contentions. Id.

## II Redrafting of Contentions to Include Subcontentions.

The Board's January 6, 1998 Order requests the State in its reply to address the PFS suggestions for redrafting contentions, to include subcontentions. Generally, the Applicant has outlined the basis for the State's Contentions but often a specific issue raised by the State is merely illustrative of why the application is deficient in meeting a regulatory requirement. But without sufficient detail, it is impossible to list all possible examples that may result from such inadequacies in the application. If, for example, the Applicant were to correct only the deficiency illustrated, it may claim that it had satisfied that subcontention and move for summary dismissal. Then the State would be faced with meeting the burden of late-filed contentions if at some later date the Applicant files insufficient information to correct the regulatory requirement.

Notwithstanding the State concerns, and given the voluminous material that the State was required to review and respond to in a relatively short time period, the State has endeavored to address rephrasing contentions in the specific reply to each contention below. However, time did not permit the State to address the proposed rephrasing in every case. The State intends to fully address this issue at the pre-hearing conference during the week of January 26.

### III Reply to Applicant's and Staff's Response to State's Contentions

#### REPLY: CONTENTION A

The Applicant asserts that the State in Contention A is impermissibly challenging a Commission rule. Applicant's Answer at 23. This is incorrect. The State in Contention A is challenging the statutory authority of the NRC to license a centralized 4,000 cask away-from-reactor ISFSI. The NRC Staff initially made the same assertion as the Applicant in its December 24, 1997 Response at 7, n. 11, and at 14, but on December 31, 1997 the Staff filed substitutes for pages 7 and 14,<sup>4</sup> deleting any reference to an impermissible challenge to the Commission's regulations. Thus, the Staff does not consider Contention A to be a challenge to the Commission's regulations.

The Applicant, citing Siegel v. AEC, 400 F.2d 778, 783 (D.C. Cir. 1968), argues that the regulatory scheme authorized by the Atomic Energy Act is "virtually unique in the degree to which broad responsibility is reposed in the administering agency" [then the Atomic Energy Commission] to decide how to achieve statutory objectives. Applicant's Answer at 23-24. The Applicant is apparently implying that the NRC now has broad discretion to license any spent fuel storage facility it deems appropriate. That view glosses over the critical distinction between the great deference courts give

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<sup>4</sup> See Letter from NRC Staff attaching corrected pages 7 and 14 to its December 24, 1997 Response to Contentions . . . , filed December 31, 1997.

to NRC's "technical" decisions "at the frontiers of science" and "policy choice[s] made by Congress," such as those "embodied in the NWPA." Kelley v. Selin, 42 F.3d 1501, 1521 (6th Cir. 1995).

The language the Applicant cites from Siegel describes the authority of the Atomic Energy Commission (AEC), not that of the NRC. The Atomic Energy Commission had broader statutory authority than does the NRC. In the Energy Reorganization Act of 1974, Congress abolished the AEC, separated its functions, and transferred them to other agencies. 42 U.S.C. §§ 5801(c) and 5814(a)-(c). The AEC's functions were split between the newly created Energy Research & Development Administration (now the Department of Energy) and the newly created Nuclear Regulatory Commission. 42 U.S.C. §§ 5801(b), 5814(c) and 5841(f), respectively. The Applicant has used Siegel's description of AEC authority in 1968 to characterize NRC authority 30 years and major events later.

The "backdrop" for the unique degree of broad responsibility given to the Atomic Energy Commission, as described in Siegel, was that Congress allowed such flexibility under the Atomic Energy Act of 1954 in the hope of fostering the new civilian atomic energy industry. At that time, Congress agreed that "it would be unwise to try to anticipate by law all of the many problems that are certain to arise." Siegel, 400 F.2d at 783.

One unanticipated future problem involved the storage and disposal of spent

nuclear fuel, which was of minor, if any, concern to Congress in the 1960's. Pub. L. No. 97-425, Legislative History, Nuclear Waste Policy Act of 1982, House Report No. 97-491, 1982 U.S.C.C.A.N. (96 Stat. 2201) 3792. Back then, Congress recognized that it could not predict with certainty "the events of 1975 or 1980," and that "many unforeseeable developments may arise in this field [atomic energy] requiring changes in legislation from time to time." Pub. L. No. 88-489, Legislative History, Private Ownership of Special Nuclear Materials Act of 1964, Senate Report No. 1325, 1964 U.S.C.C.A.N. 3113, 3123 (emphasis added). For example, the general recognition that storage of spent nuclear fuel, prior to its ultimate disposal, would be a likely "additional new step in the nuclear fuel cycle" came about only after the deferral of reprocessing of spent fuel in 1977. 45 Fed. Reg. 74,693 (Comment No. 1) (1980). In other words, Congress was not concerned with interim storage of spent fuel when, in the 1950's and 1960's, it provided the Atomic Energy Commission with the broad general authority described in the Siegel case.

Siegel held that since the Atomic Energy Commission's expedited licensing of a nuclear reactor in the 1960's was not in conflict with the Congressional purposes underlying the [Atomic Energy] Act, it was within the AEC's broad authority to realize those purposes. Siegel, 400 F.2d at 783-784. Since then, Congress enacted the Nuclear Waste Policy Act of 1982, which declares the national policy regarding nuclear waste. The broad AEC authority to further the Congress' Atomic Energy Act (AEA)

objective of promoting the civilian commercial nuclear power industry in the 1960s, does not equate with NRC authority to thwart the current Congressional policy on interim storage of spent fuel as expressed in the NWPA, 42 U.S.C. §§ 10151-10157. Moreover, the NWPA does not delegate policy decisions to the NRC. Kelley v. Selin, 42 F.3d 1501, 1521 (6th Cir. 1995).

The Staff in its Response at 8-9, cites various sections of the AEA dealing with authority to license source and byproduct materials, in addition to special nuclear material, as support for authority to license spent fuel under Part 72. However, the NRC's notice of the final Part 72 rule, published at 45 Fed. Reg. 74,693 on Nov. 12, 1980, specifically states that Part 72 was developed to provide a more definitive regulation for spent fuel storage in lieu of the general regulation, Domestic Licensing of Special Nuclear Material, 10 CFR Part 70. The rationale for enacting Part 72 calls into question NRC's claim that its byproduct and source material authority also authorize it to license away-from-reactor ISFSIs. In addition, NRC's reliance on § 53(a) of the AEA, 42 U.S.C. § 2073(a),<sup>5</sup> for its authority to license private away-from-reactor ISFSIs does not comport with the legislative history of the enactment and amendment of § 53(a).

As enacted, § 53(a) of the AEA, 42 USC § 2073(a), authorized the AEC to license private persons to possess and use, but not own, special nuclear materials,

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<sup>5</sup> The Staff (Response at 7-8) incorrectly cites 42 U.S.C. § 2071 instead of § 2073 for authority to license special nuclear material.

which were then in short supply. By 1964 special nuclear material was no longer scarce and Congress believed that private ownership legislation would enable utilities to negotiate long term supply contracts and encourage long term planning for the development of civilian, commercial nuclear power. Pub. L. No. 88-489, Legislative History, Private Ownership of Special Nuclear Materials Act of 1964, Senate Report No. 1325, 1964 U.S.C.C.A.N. 3,111-13. Thus, in 1967, Congress amended § 53(a) of the AEA, 42 USC § 2073(a), to clarify the AEC's authority to license private ownership, possession and use of special nuclear material. *Id.* ("Section by Section Analysis"), 1964 U.S.C.C.A.N. at 3125. The NRC is inappropriately trying to use § 53(a) of the AEA to overcome the interim storage policy choices made by Congress in the NWPA.

In disputing Utah's contentions that the NWPA rejects NRC authority to license a private away-from-reactor ISFSI, the Applicant (Answer at 24) confuses the scheme established for a federal MRS, 42 U.S.C. § 10161-10168, with the interim storage program under the NWPA, 42 U.S.C. § 10151-10157. It is the interim storage program, not the MRS program, that reflects Congressional intent on the issue of at-reactor versus away-from-reactor private storage of spent fuel. The MRS program does not address these private storage issues.

Both the Staff (Response at 7) and the Applicant (Answer at 24) argue that the NWPA did not repeal, impinge or limit the NRC's existing authority which they both

presumed has existed under the Atomic Energy Act to license interim storage of spent nuclear fuel at away-from-reactor sites. The Applicant cites Morton v. Mancuri, 417 U.S. 536 (1974) for the proposition that "repeal of statutes by implication are strongly disfavored as a matter of law." Applicant's Answer at 24-25. But by the same token, courts should not presume the existence of rulemaking power (such as for licensing of spent fuel storage in privately owned, away-from-reactor ISFSIs) based solely on the fact that Congress has not expressly withheld such power. American Petroleum Institute v. EPA, 52 F.2d 1113, 1120 (D.C. Cir. 1995); National Mining Association v. Department of Interior, 104 F.3d 691, 695 (D.C. Cir. 1997).

If the NRC already had general licensing authority under the Atomic Energy Act to approve spent fuel storage in private facilities either at or away-from-reactor sites (Staff's Response at 7), then why did Congress in the NWPA's interim storage program bother to specifically authorize private storage of spent nuclear fuel only at reactors (42 U.S.C. § 10155(h))? The more sensible explanation is that § 10155(h) simply expresses a Congressional policy choice to preclude private storage of spent fuel at away-from-reactor facility sites.

Even if the NRC did issue a license for an ISFSI to GE (Morris, Ill.) under Part 72 before the NWPA was enacted (Applicant's Answer at 4), that would not justify continuing to do so after the NWPA was enacted. 42 U.S.C. § 10155 (h). And now that Congress in amending the NWPA has rejected a proposal which would have

expressly authorized the NRC to license away-from-reactor ISFSIs, the NRC's position is even more suspect. See Sec. 207, Private Storage Facilities, of H.R. 1270, Nuclear Waste Policy Act of 1997.

**Response to Applicant's Rephrasing of Contention A:**

The State objects to the Applicant's rephrasing of Contention A.

**REPLY: CONTENTION B (License Needed for Intermodal Transfer Facility)<sup>6</sup>**

Notwithstanding the Staff's opposition to Contention B, it is obvious that the Staff considers operations at the Intermodal Transfer Point to be significant. At the end of its response to State's Contention B, the Staff at page 19, note 29, states:

The Staff notes that it intends to review the Applicant's discussion of the equipment and transfer operations to be located at the Rowley Junction ITP, and may seek further information regarding those matters from the Applicant. The Staff will consider, in the course of its review, whether the planned transfer operations at that location present grounds to consider whether additional measures, beyond those specified in Commission and/or DOT regulations, should apply to operations conducted at that location. In the event the Staff concludes that additional requirements may need to be imposed on those operations, it will provide timely notice of that determination to the Licensing Board and parties to this proceeding via a Board Notification.

When convenient, both the Staff and the Applicant treat PFS's Part 72 ISFSI license request as a "facility" license instead of a materials license to possess spent fuel at an "installation." Notice of Hearing, 62 Fed. Reg. 41,099 (1997). Part 72 defines

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<sup>6</sup> This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.



"ISFSI" as "a complex designed and constructed for the interim storage of spent nuclear fuel." 10 CFR § 72.3 (*emphasis added*). The Staff's logic is that the term "site" in 10 CFR § 72.3 applies only to the ground on which the ISFSI is located and not to the private railroad property located 24 miles away at Rowley Junction. Thus, says the Staff, the intermodal transfer point need not be treated as part of the ISFSI installation. Staff's Response at 15. This is indeed curious. On the one hand the Staff says that the Intermodal Transfer Point is not part of the ISFSI installation but on the other hand it says that in the course of its review of the PFS application it may "consider whether additional measures, beyond those specified in Commission and/or DOT regulations, should apply to operations conducted at that location [*i.e.*, Rowley Junction ITP]." *Id.* at 19, n. 29.<sup>7</sup> It is apparent that the Staff is struggling with where the Rowley Junction Intermodal Transfer Point fits in the regulatory scheme. However, it is disingenuous of the Staff to assert that it may impose "additional measures" or "additional requirements" on the Applicant and then turn around and object to Utah's contentions that raise health and safety concerns at Rowley Junction, such as Contention N (Flooding), and portions of R (Emergency Response) and S (Decommissioning).

There is nothing in Part 72 or guidance that requires an ISFSI "complex" to be

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<sup>7</sup> The Staff's approach lends credence to the State's argument that the NRC does not have the statutory authority to license a national facility of this size and scope. See Reply, Contention A, *supra*.

located on contiguous property. Moreover, 10 CFR § 72.3 defines "structures, systems and components important to safety" to mean, in part, "features of the ISFSI or MRS whose function is ... [t]o provide reasonable assurance that spent fuel or high-level radioactive waste can be received, handled, packaged, stored, and retrieved without undue risk to the health and safety of the public. The Applicant, at 34, by emphasizing "specifically" argues that 10 CFR § 72.2(a) limits the scope of Part 72 to a complex "designed and constructed specifically for storage of spent fuel." However, § 72.2(a) can also be read to include the intermodal transfer point if the emphasis is placed on the words "to be stored," such that "licenses issued under this part are limited to the receipt, transfer, packaging, and possession of . . . spent fuel to be stored in a complex that is constructed specifically for storage of power reactor spent fuel ... in an ISFSI." 10 CFR § 72.2(a).

The Applicant, and to some extent NRC Staff, wish to have Rowley Junction considered like any other transfer station along the shipping route. Applicant's Answer at 28; Staff's Response at 15. But the overall scope of the operations at the transfer facility has been sidestepped in the Staff's and Applicant's responses. The Applicant relies on Shipments of Fuel From Long Island Power Authority's Shoreham Nuclear Power Station to Philadelphia Electric Company's Limerick Generating Station, DD-93-22, 38 NRC 365 (1993), for the proposition that approvals additional to 10 CFR Part 71 are not required for the transportation and intermodal transfer of

spent fuel. Applicant's Answer at 28. Shoreham to Limerick, a decision on a 10 CFR § 2.206 Petition, involved 33 shipments by barge and then by rail of slightly irradiated fuel from the decommissioned Shoreham plant in New York to the Limerick facility in Pennsylvania over an eight month period. Id. at 370-71. Unlike a concentrated flow of shipping casks from a national network of reactors to a single point in the PFS case, Shoreham to Limerick involved the same two facilities and the same route for all 33 shipments. Id. The fact that 33 shipments from Shoreham to Limerick occurred under Part 71 does not mean that NRC should not evaluate the 200 annual shipments into Rowley Junction as part of PFS's Part 72 license application. Moreover, Shoreham to Limerick is a decision by the NRC Staff, and therefore does not bind the Licensing Board in any respect.

The point at which NRC regulations apply instead of DOT regulations may be when the ISFSI licensee is in receipt and possession of the casks. See the definitions from Part 72 discussed above. PFS says it will accept delivery and perform receipt inspection at the Skull Valley site, not at Rowley Junction. Applicant's Answer at 34-35. But this begs the question of who has actual or constructive possession and receipt of the casks at Rowley Junction. As stated by the Applicant, either PFS or the licensed utilities will perform transportation under DOT regulations (see Applicant's Response at 32.) but the responsibility for operation at Rowley Junction has not been clearly addressed. As discussed in State's Contention B at 11-13, the number of casks and the

length of time casks will likely be at Rowley Junction before they are transferred to heavy haul truck stretches the concept of in transit to the point where the casks should be considered as being stored and in the possession of PFS as part of its ISFSI operation.

PFS and the Staff complain that the State has not justified its concern regarding the queuing of casks at Rowley Junction. Applicant's Answer at 40; Staff's Response at 17. Given the dearth of information in the application to determine whether queuing would occur, the State in Contention B at 11-14, has fully justified this assertion and has substantiated the contention with a supporting affidavit of expert opinion. Not only will there be queuing but shipments will continue throughout the 20 year license term (and renewal) of the ISFSI. The 4,000 casks will be shipped at a rate of 200 per year for 20 years or 100 per year for 40 years. Rowley Junction does not involve temporary storage incident to transportation but is an integral part of the PFS ISFSI complex.

Given the lack of information in the application, the uniqueness of the intermodal transfer issue, the Staff's footnote 29 response, and the potential health and safety implication of the intermodal operation, this issue is material and raises factual disputes that are appropriate for admission in the proceeding.

**Response to Applicant's Rephrasing of Contention B:**

The State does not object to the Applicant's rephrasing of Contention B.

**REPLY: CONTENTION C (Failure to Demonstrate Compliance With NRC Dose Limits)<sup>8</sup>**

The Staff does not oppose the admission of this contention, but only to the extent it is limited to the Applicant's dose analysis for the hypothetical loss of confinement barrier accident (*see* sub-basis (b)). In all other respects, the Staff opposes the contention. The Applicant opposes the contention in its entirety. Their arguments are without merit.

Sub-basis (a) asserts that the design basis accident for the ISFSI is based in part on the design of the Holtec HI-STORM and Sierra Nuclear Company (SNC) TranStor casks. Because these designs have not been fully reviewed or approved by the NRC, they provide an inadequate basis for licensing. State's Contentions at 17-18. The Staff argues that the assertion does not raise a litigable issue, because the adequacy of the HI-STORM and SNC casks will be reviewed in a separate rulemaking. Staff Response at 20-21. The Applicant argues that the contention impermissibly challenges the Staff's performance rather than the application itself. Applicant's Response at 44.

The Staff and Applicant misconstrue the State's argument. The State is not contesting the generic adequacy of the casks, which the Commission's regulations undisputedly relegate to a rulemaking. Nor is the State contesting the adequacy of the

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<sup>8</sup> The State's Reply regarding Contention C is supported by the Reply Declaration of Dr. Marvin Resnikoff (January 15, 1998), attached as Exhibit 2. The State also notes that Contention C itself is also supported by the Declaration of Dr. Marvin Resnikoff (November 20, 1997). *See* State's Contentions at 16, note 5. Thus, all factual assertions in Contention C and this reply are supported by Dr. Resnikoff's expert opinion.

Staff's generic review. Rather, the State contends that, because the design of the ISFSI proposed by PFS depends on the use of those particular casks, it cannot be licensed until the casks are approved by the agency. This is a cognizable legal issue.

The Staff and Applicant also oppose the State's assertion, in sub-basis (b), that the loss of confinement barrier accident is credible. They argue that the report on which the State relies is inapplicable because it relates to a transportation accident. Staff Response at 19, Applicant's Answer at 42. This argument is in error. The accident analyzed in the Halstead report, on which the State relies, concerned the penetration by a missile of a transportation cask. The effects of a missile on a storage cask would be the same or worse since storage casks have much less metal than transportation casks. The NRC has not done anti-tank missile tests on storage casks. The key characteristics of the accident analyzed by Halstead, therefore, are the nature and construction of the cask, i.e., the materials and thickness of the cask, and the penetrating power of the missile. Anti-tank missiles (MILAN and TOW-2), developed since the NRC cask tests in 1981, are accurate up to 1 km and can penetrate 39 inches of metal. Therefore, a storage cask is likely to be even more vulnerable to sabotage than a transportation cask.

In any event, as the Applicant recognizes, the loss of confinement accident is analyzed in the application, and therefore the Board needs to address the question of whether the accident is credible. Applicant's Response at 46.

The Applicant opposes admission of the sub-bases which contend that in evaluating an accident involving loss of confinement barrier, the Applicant has made selective and inappropriate use of data sources, has failed to consider significant dose contributors, and uses an outdated model. Applicant's Response at 45-58. None of these arguments has merit. Despite volumes of prose, the Applicant fails to demonstrate that it was justified in its inconsistent use of data for its dose calculations. As demonstrated in Contention C, PFS used NUREG-1536's data for storage casks in calculating releases from the fuel assemblies into the environment, and another set of data from a Sandia Report (SAND80-2124) on transportation accidents, for calculating the % release that is respirable. This mix of data yields a lower dose than if the Applicant had consistently used the Sandia data. NUREG-1536 states that "as a minimum, the nuclides ... in Table 7.1 must be analyzed." NUREG-1536 at 7-5. It does not further specify the percentage of release that is respirable. The Applicant does not counter the State's valid inquiry as to why it mixed the data sources for this calculation, other than to say that the NUREG-1536 data was "available." Oil and water are usually available, but that does not mean it is appropriate to mix them.

To give an overview of the Applicant's inappropriate mixing and matching of data sources, it is helpful to break the calculation down into its three steps: 1) calculating the percentage of the cask inventory released to the environment, 2) calculating the percentage of that release that is respirable (*i.e.*,  $< 10 \mu\text{m}$  in size), and 3)

calculating the contamination of food supplies and water. For step (1), the Applicant used NUREG-1536 data for the design basis accident. NUREG-1536 data yield a small release because only the vapors in the gap between the fuel pellet and cladding is considered to be released. The State contends that a sabotage event should be the design basis accident. As the State asserts in the Contention, these releases could be much larger if a sabotage event took place, because not just radionuclides within the gap, but a percentage of the fuel itself would be released. For step (2) PFS took the percentage of respirable particulates from the Sandia report. This is a small fraction of the released material because Sandia assumes a high velocity impact, with the breaking of the fuel into large chunks. If PFS had used the Sandia data for both steps (1) and (2), then the respirable release would be greater by a factor of 100. Finally, in conducting step (3) it is not just respirable material that is important. Non-respirable radionuclides can be deposited on the ground and lead to a direct gamma or food ingestion dose, pathways. However, PFS ignores this factor.

The Applicant also contests the aspect of Contention C which charges that PFS calculated the dose to an adult 500 m from the accident, due solely to inhalation of the passing cloud, and did not consider other relevant pathways, such as ground shine and ingestion. Applicant's Answer at 52. Applicant also claims that contrary to the State's assertion, it did not assume evacuation of local residents until contamination is removed. This dispute turns on the interpretation of 10 CFR § 72.24(m), which



requires that:

The calculation of individual dose equivalent or committed dose equivalent must be performed for direct exposure, inhalation, and ingestion occurring as a result of the postulated design basis event.

The Applicant interprets the phrase "occurring as a result of the postulated design basis event" to require consideration of only "instantaneous" exposures. Applicant's Answer at 53-54. The Applicant claims this interpretation is dictated by NUREG-1536 at 7-7. Id. at 54. The language of the regulation itself must be treated as dispositive here. It speaks in terms of doses occurring "as a result of" an accident, not in the immediate aftermath of an accident. Moreover, it is hard to see why a regulation would even mention ingestion doses if such doses would always be zero under the circumstances, as the Applicant alleges. Applicant's Answer at 54.

Both the Staff and the Applicant dispute the admissibility of the State's assertion that PFS should have considered the dose to children. Citing NRC dose standards, the Staff faults the State for failing to "indicate[]" that the Applicant does not meet these standards. Staff's Response at 22. It is not incumbent upon the State to prove that the Applicant does not meet the standards; rather, the State must show that the Applicant has not complied with the standards. This the State has done. In fact, the Applicant effectively concedes that it has made no attempt whatsoever to determine the dose to children, but has based its dose calculations on an adult male. This is contrary to the standards in 10 CFR Part 72 and 20, which place no such

limitation on dose calculations. These standards prescribe dose limits for "an individual outside the controlled area" (10 CFR § 72.24(m), and "individual members of the public" (10 CFR §§ 20.1301, 20.1302 . For purposes of the Part 20 dose standards, the regulations define "individual" as "*any* human being," and "member of the public" as *any* individual except when that individual is receiving an occupational dose." (Emphasis added). The concept of "any individual" clearly includes people other than adult men, *i.e.*, children. Nor does the Atomic Energy Act limit its protection against undue risk to adult males. In fact, NRC regulations already make special exception for the dose of a minor (10 CFR § 20.1207) and the dose to an embryo/fetus (10 CFR § 20.1208) within restricted areas.

As demonstrated in Contention E at pages children are more vulnerable to radiation than adults because of their higher surface-area-to-volume of organs ratio. State's Contentions at 21. Other contributing factors include the fact that children have higher soil ingestion rates. In the opinion of the State's expert, Dr. Marvin Resnikoff, because of these distinctions, the dose to children from the proposed ISFSI is likely to be significantly higher than the dose to an adult. Thus, in order to satisfy the regulation, it is necessary to determine whether the dose limits are satisfied for children.

In addition, the risk to children is greater. That is, 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). In addition, children have more rapidly growing cells.

The Applicant attempts to shield itself from this contention by arguing that it followed the Staff's guidance document, NUREG-1536, and EPA Guidance Report No. 11, both of which use an "adult breathing rate." As has been long-recognized by the Commission, however, compliance with Staff guidance documents does not conclusively establish compliance with the regulations. As the Board held in Louisiana Energy Services (Claiborne Enrichment Center), LBP-91-41, 34 NRC 332, 354 (1991), a regulatory guide "is not a regulation." It is "established law" that "intervenors are not 'precluded from demonstrating that [a] prescribed method is inadequate in the particular circumstances of the case.'" *Id.*, quoting Public Service Co. Of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-875, 26 NRC 251, 161 (1987); Gulf States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 772-73 (1977).

The Applicant and Staff also argue that the State has not supported its assertion that ICRP-30 is an outdated basis for dose calculations, and should be replaced by ICRP-60. Staff's Response at 22-23; Applicant's Response at 58. The State has presented the expert opinion of Dr. Marvin Resnikoff that ICRP-60 is more accurate for human radiation doses, particularly inhalation doses from a refined lung model, than ICRP-30 and correctly calculates the dose to children, which ICRP-30 does not do

at all. This constitutes sufficient basis for the contention. Moreover, the fact that the NRC Staff and the EPA rely on ICRP-30 does not bar a challenge to the appropriateness of the method. See Louisiana Energy Services, 34 NRC at 354. Finally, there is not support in the regulations for the Applicant's implicit argument that ICRP-30 is a part of Part 20 because its "philosophy and methodology" were "generally adopted" by the Commission in promulgating Part 20. Applicant's Response, citing 56 Fed. Reg. 23,360, 23,361 (May 21, 1991). The general language in the preamble to the rule contains no prescription of any particular methodology for calculating doses. Moreover, the regulations explicitly address doses to an "individual" or "member of the public," not limiting them to an adult male, as evaluated in ICRP-30. Therefore, the rulemaking provides no support for restricting dose calculations to adult males.

Finally, the Staff contests the State's position that, because offsite doses are likely to exceed the doses assumed in the NRC's emergency planning regulations, the need for offsite emergency planning must be reconsidered. Staff's Response at 22. The State responds that the Staff cannot have it both ways. If the Applicant evaluates only "instantaneous" exposures, this must be based on an assumption that the area is evacuated and supplies are interdicted. If so, the Applicant must take necessary measures to ensure that these protective measures are carried out, i.e., offsite emergency planning. Otherwise, the Applicant must correctly calculate the doses to

the public, both during and after an initial release.

**Response to Applicant's Rephrasing of Contention C:**

The State does not object to the Applicant's rephrasing of Contention C with the exception that the reference in (c) be changed from SAND80-2124 to NUREG-1536.

**REPLY: CONTENTION D (Facilitation of Decommissioning)<sup>9</sup>**

The Applicant and Staff both oppose this contention, which challenges the adequacy of the Applicant's measures for facilitating decommissioning under 10 CFR § 72.130 and Reg. Guide 3.48. Applicant's Answer at 58, Staff's Response at 23. Their arguments have no merit.

First, the Staff argues that Reg. Guide 3.48 is not binding on the Applicant, who may use an acceptable alternative for satisfying the regulations. Staff's Response at 24. However, the Staff has not identified any alternative used by the Applicant. Moreover, the Applicant's pleading demonstrates that the Applicant has elected to comply with the Reg. Guide, by claiming that the Applicant's spent fuel casks designs do address potential DOE spent fuel acceptance criteria to the extent they are available. Applicant's Answer at 60.

The Staff also argues that the contention is inadmissible because "the

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<sup>9</sup> This contention is supported by the Reply Declaration of Dr. Marvin Resnikoff, Exhibit 2.

availability of sufficient waste disposal capacity at Yucca Mountain is not required to be addressed by the Applicant." Staff's Response at 24. The State's contention does not seek to litigate the availability of waste disposal capacity at Yucca Mountain, however, but whether the Applicant has taken adequate measures to facilitate decommissioning, by planning for compatibility with DOE disposal requirements.

Citing decommissioning planning regulations at 10 CFR § 72.30, the NRC claims that the Applicant's decommissioning plan does not need to address disposal of spent fuel. This is inapposite. That regulation governs decommissioning itself. The regulation cited in Contention D, 10 CFR § 72.130, governs facilitation of decommissioning.

Finally, the Staff argues that the Commission has established specific design compatibility requirement for Certificates of Compliance under Subpart L (10 CFR § 72.236(m)), and that the lack of any comparable requirements for ISFSIs demonstrates that it is not necessary for ISFSI applicants to show compatibility of their designs with DOE requirements. Staff's Response at 25. However, the Commission did address the issue in 10 CFR § 72.130, requiring applicants for ISFSI licenses to demonstrate measures to ensure expeditious decommissioning.

The Applicant argues that to the extent DOE criteria are currently available, it has adequately addressed them. Applicant's Answer at 60-61. The discussions of compatibility cited by the Applicant, however, amount only to an assertion that multi-

purpose casks are generally compatible with DOE acceptance criteria. The Applicant has not addressed such issues as thermal design, size, weight, and capacity of the casks. See State's Contentions at 23-24. The Applicant and Staff also argue that because the DOE criteria have not yet been issued, the Applicant need provide no more information than it already has. Applicant's Answer at 62-63, Staff's Response at 26. Some criteria, such as the requirement that fuel with degraded cladding must be encapsulated are already available however. See DOE standard contract cited in Applicant's Answer at 63-64.

The Applicant challenges the State's contention that it should have some means (such as a hot cell) for inspecting fuel to ensure compliance with DOE acceptance criteria, on the ground that it seeks stricter requirements than imposed by NRC regulations, and impermissibly attacks the regulations. Applicant's Answer at 63. This is incorrect. NRC regulations explicitly require the retrievability of spent fuel at ISFSIs. NRC "overall" design criteria for ISFSIs and MRSs include the requirement that "[s]torage systems must be designed to allow ready retrieval of spent fuel or high-level radioactive waste for further processing or disposal." 10 CFR § 72.122(l). Other regulatory statements and documents also carry this requirement. For instance, the Statement of Considerations for Additions to List of Approved Spent Fuel Storage Casks, 59 Fed. Reg. 65,898, 65,901 (1994), states that:

According to 10 CFR § 72.122(l), storage systems must be designed to allow ready retrieval of the spent fuel in storage. *A general license using*

*an NRC-approved cask must maintain the capability to unload a cask. Typically, this will be done by maintaining the capability to unload a cask in the reactor fuel pool. Other options are under consideration that would permit unloading a cask outside the reactor pool.<sup>10</sup>*

With respect to canister equipment and design, the DSC or canister is designed to the ASME Boiler and Pressure Vessel Code (BPVC), Section III, Subsection NB. The DSC provides a containment boundary for the radioactive material and the cladding of the fuel rods provides confinement of fuel pellets. Only intact fuel assemblies (rods) with no known cladding defects greater than pin holes and hairline cracks are permitted to be stored. *This approach assures the structural integrity of the fuel to confine the fuel pellets and its retrievability. In the unlikely event of a breach that required the canister to be unloaded, the canister can be returned to the reactor spent fuel pool. Therefore, it is incorrect to assert there is no place to unload a canister.*

*Id.*, (emphasis added). See also Statement of Considerations for Proposed Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste, 51 Fed. Reg. 19,106, 19,108 (1986). Thus, the Certificate of Compliance for the Sierra Nuclear VSC-24 Storage Cask System (Effective Date: May 7, 1993) requires SNC to have a procedure for "cask unloading, assuming damaged fuel," either "at the end of service life" or "for inspection after an accident." VSC-24 Certificate of Compliance at A-2, relevant pages attached as Exhibit 3. Moreover,

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<sup>10</sup> The Applicant cites this Statement of Consideration for the proposition that the NRC deems it unnecessary to require means for the inspection of canisters, because the helium-filled, double-welded design of the canisters provide sufficient protection. Applicant's Answer at 64. The discussions referenced by the Applicant, at 59 Fed. Reg. 65,902, and 58 Fed. Reg. 17,948, 17,954 (1993), however, concern the Commission's determination that "continuous monitoring" of the canisters is not necessary. These discussions do not absolve licensees of the requirement to provide the capability to inspect and retrieve canisters, as required by 10 CFR § 72.122(l).



contrary to the Applicant's assertion, the DOE has not contracted to accept spent fuel in any condition. As clearly provided in the language of the standard DOE contract quoted by the Applicant, failed fuel must be "previously encapsulated." Applicant's Answer at 66. The Applicant does not explain how fuel determined to have failed will be encapsulated in the absence of a hot cell. As documented by the State, the applicant's mere assertion to the effect that "it can't happen here" is contradicted by previous experience (*see* State's Contentions at 67-69), and is inconsistent with the NRC's fundamental regulatory philosophy of providing backup for failed safety systems. The design of the proposed ISFSI simply has no such backup for failed fuel that does not comply with DOE acceptance criteria.

The Applicant also disputes the contention to the extent that it argues the fuel should be inspected and repackaged, if necessary, before being shipped to the DOE repository, because the DOE repository may not have such capability, and because the shipping of failed fuel creates significant safety hazards that could be avoided if the fuel were dealt with properly before shipping. According to the Applicant, this is a "transportation" issue not within the scope of this proceeding. Applicant's Answer at 67. To the contrary, the issue concerns preparation for transportation, not transportation itself, and is thus admissible. Moreover, the Applicant is incorrect in arguing that the Commission has determined that transportation of failed fuel poses no safety concern because the canister acts as a replacement barrier in lieu of the failed

cladding. Applicant's Answer at 68. The Federal Register notice cited by the Applicant, 51 Fed. Reg. at 19,108, does not make such a representation, but generally proposes that the use of a canister "could" prevent unnecessary occupational exposures during handling operations. The Applicant also claims that the Statement of Considerations for the NUHOMS spent fuel canister, 59 Fed. Reg. at 65,901, supports its argument. Applicant's Answer at 68. However, that Statement of Considerations assumes that fuel loaded into canisters will be "intact," with "no known cladding defects greater than pin holes and hairline cracks." As discussed above, the Commission also observed that in the "unlikely event of a breach," the canister could be unloaded in the spent fuel pool. *Id.* This statement simply does not support the premise that the Commission believes the canister is a completely adequate substitute for intact fuel.

The Applicant also claims that the State has provided no support for its assertion that shipment of failed fuel increases the risk of accidents, such that it is more reasonable, and would probably be preferable to DOE, for fuel to be inspected prior to shipment to a repository. Applicant's Answer at 68. To the contrary, the State has explained the basis for its view that the risks of shipping degraded fuel are higher, i.e., because it "diminishes or removes one of the key barriers to environmental release of radiation." State's Contentions at 26. Moreover, this assertion is supported by the expert opinion of Dr. Marvin Resnikoff. See State's Contentions at 22, n. 7.

## REPLY: CONTENTION E (Financial Assurance)

The NRC Staff does not oppose admission of this Contention. Staff Response at 26. The Applicant opposes the contention on the ground that it seeks the application of Part 50 and Appendix C, under a Licensing Board decision that has been reversed by the Commission. Applicant's Answer at 71, citing Louisiana Energy Services, L.P. (Claiborne Enrichment Center) ("LES"), CLI-97-15, (slip op., Dec. 18, 1997). In that case, however, although the Commission held that "the NRC is not required as a matter of law to apply the strict financial qualification provisions of Part 50 to all Part 70 license applications" (slip op. at 6), the Commission found that the agency is not "precluded from applying Part 50 standards to a Part 70 applicant if particular circumstances warrant this approach." *Id.* at 13. The Commission also applied the Part 50 guidance, by imposing license conditions that required the applicant to demonstrate full funding and long-term production contracts before construction commences. Slip op. at 26. Thus, as the Staff recognizes, the Part 50 and Appendix C financial qualification provisions may be used as guidance to evaluate the financial qualification of a Part 72 applicant. Staff's Response at 26-27.

The Applicant also argues that the reasoning underlying the Licensing Board's decision in Louisiana Energy Services is inapplicable here, because Part 72 has a different rulemaking history than does Part 70. Applicant's Answer at 71-72. This

argument ignores the discussion of State's Contention E at 29 that until 1980, ISFSIs were regulated under Part 70. Thus, there is no impediment to the Board applying Part 50 and Appendix C as guidance in evaluating the adequacy of the Applicant's financial qualifications. Moreover, the circumstances in this licensing proceeding warrant reference to Part 50 standards in evaluating the adequacy of PFS's financial qualifications.

The Applicant also criticizes Contention E on the ground that it does not show a link between the alleged errors in the financial plan and the health and safety impacts they invoke. Applicant's Answer at 75, citing Yankee Atomic Electric Company (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 258 (1996). Contention E is quite distinct from the decommissioning funding contention presented in Yankee Atomic. In that case, the Commissioners found that revising a decommissioning cost estimate would be an academic exercise, because the Intervenor had not provided sufficient cause to question whether the applicant would be able to come up with the money needed to finance decommissioning. *Id.* at 258-59; *see also* Yankee Atomic Electric Company (Yankee Nuclear Power Station), CLI-96-1, 43 NRC 1, 9 (1996). Here, the State has not identified just a few holes in the Applicant's demonstration of financial qualifications, but has demonstrated the gross inadequacy of the application to provide any factual basis for a finding of financial assurance – from the lack of a reasonably detailed cost estimate down to the failure to supply such basic information

as the identification of the participants in the project. See State's Contentions at 32-38. As the Board found in Wisconsin Electric Power Co. (Point Beach Nuclear Plant, Units 1 and 2), LBP-81-45, 14 NRC 853 (1981), the "reasonable specificity" requirement for contentions "should be interpreted in light of the 'full procedural context,'" such that when an application for a license amendment is itself incomplete, the standard for admission of contentions is lowered. 14 NRC at 856.<sup>11</sup> Moreover, contrary to the Applicant's assertion, the State has not filed a vague unparticularized Contention. See, e.g., Applicant's Answer at 77. State's Contention E at 32-38 recites from the relevant portions of the license submittal the vague and generalized statements relied on by the Applicant to substantiate its financial qualifications. Furthermore, it is self-evident that reasonable cost estimates, name and relationship among equity contributors, and allocation of financial responsibility are indispensable to evaluating the reasonableness of the applicant's financial qualifications.

The State submits that as in the LES case, circumstances warrant application of the Part 50 criteria in this case. First, both proposed facilities are large, first-of-a-kind, and potentially hazardous operations. The LES case constitutes the first time the NRC

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<sup>11</sup> While the Point Beach case was decided prior to the 1989 rules of practice changes, it nonetheless is still on point. In commenting on the rule change, the Commission stated that the former rule did not permit the filing of a vague, unparticularized contention; that the new rule does not require the intervenor to make its case when filing a contention; and that the new rule requires a contention and basis to contain sufficient information to show that a genuine dispute exists on a material issue of law or fact. 54 Fed. Reg. at 33,170 (1989).

has ever considered a construction permit and operating license application for a private uranium enrichment facility – all other enrichment facilities were built and operated exclusively by the Department of Energy. Slip op. at 2. Similarly, PFS is applying for a license to build and operate a privately owned and operated centralized away-from-reactor storage facility. The only other contemplated centralized interim storage of spent fuel was the Department of Energy's unsuccessful effort to establish a Monitored Retrievable Storage facility.

Second, like LES, this Applicant is not an established electric utility company but is a newly formed entity with limited liability protection. In the same context, both the LES and PFS projects are high-risk ventures. LES described its financial plan as a "venture project where the decision to go forward is constantly reassessed." Slip op. at 15. Also LES had no financial backing in the form of contractual commitments or funding from lending institutions. *Id.* at 16. Likewise, PFS can be described as a "venture" project without any financial backing. PFS describes its project as being "developed on a phased basis" with different funding mechanisms contemplated for each of four separate steps. LA at 1.5.

Third, the PFS application is different in kind and scope than an application from an established electric utility applying to store a limited number of casks at or near an existing reactor site. Accordingly, application of the Part 50 criteria for demonstration of financial qualifications is reasonable and necessary in this case.

For the reasons above and as set forth in the basis to contention E, the State has described with particularity the material deficiencies in the Applicant's purported demonstration that it is financially qualified to conduct Part 72 license activities. Moreover, this Board should be guided by the requirements of Part 50 and Appendix C in evaluating whether the Applicant has demonstrated reasonable assurance of its financial qualification to carry out the activities for which this application is sought. See 10 CFR §§ 72.22(e) and 72.40(a)(6). Even if the Board decides that Part 50 does not constitute applicable guidance, the information sought by the State in its contention regarding the identities of the participants in the project, the sources of funding for the project, and reasonably detailed cost estimates, are reasonable requirements for establishment of financial qualifications under 10 CFR part 72. See, e.g., cases cited in State's Contentions at 33-34, in which licensing boards historically have found that reasonably accurate cost estimates are important safety requirements under the financial qualifications regulations.

**Response to Applicant's Rephrasing of Contention E:**

The State does not agree with the Applicant's rephrasing of Contention E. The Contention is adequately worded to put the Applicant and other parties on notice of the nature of the State's concerns and the issues it wishes to litigate.

**REPLY: CONTENTION F (Inadequate Training and Certification of**

Personnel)<sup>12</sup>

The Staff does not object to this contention insofar as it asserts that the Applicant's training program, as described in the SAR § 9.3., does not comply with the training requirements established in 10 CFR § 72.192. Staff's Response at 28.

However, both the Staff and the Applicant object to basis (2), which faults the Applicant for failing to describe the physical condition of operators under 10 CFR § 72.124. Upon confirmation from the Applicant that the medical examination described in the License Application addresses both the mental and physical condition of the operators, the State will withdraw basis (2). If, however, the medical examination addresses only the physical condition of operators, then it clearly does not satisfy the requirements of 10 CFR § 72.194.

Applicant's objections to the other parts of the contention are unfounded. The Applicant mischaracterizes the contention as seeking procedures, or minutiae such as the questions on operator training exams. Applicant's Answer at 90-91. As set forth in the contention, what the State seeks is a basic description of the elements of the training program, sufficient to support a determination of the adequacy of the Applicant's program. At present, the Applicant has only provided enough information to determine the existence of such a program. The Applicant devotes more prose to opposing the contention than it does to describing the training for the

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<sup>12</sup> This contention is supported by the Reply Declaration of Dr. Marvin Resnikoff, Exhibit 2.



entire PFS organization. The contention is admissible.

REPLY: CONTENTION G (Quality Assurance)<sup>13</sup>

The Staff does not oppose admission of this contention, with two reservations. Staff's Response at 28-19. First, the Staff "opposes the admission of portions of this contention which suggest that an ISFSI applicant must establish a wholly self-contained program – without being able to rely in any manner upon the reactor licensee's program – for quality assurance and/or quality control in 'the procurement of materials and packaging of spent fuel by nuclear power plant licensees.'" Staff's Response at 29. *See also* Applicant's Answer at 96. The Staff and Applicant misunderstand this part of the State's contention. The State does not contend that the Applicant should place no reliance on reactor licensees. However, as explained in the contention, the State challenges the Applicant's unquestioning reliance on reactor licensees, and its failure to establish measures for verifying the uniformity and quality of materials procured and packaging performed by reactor licensees. As set forth in the contention, the licensing of this ISFSI raises unique quality assurance issues, in that (a) the Applicant apparently will own the materials (*i.e.*, the casks), but they will be procured and handled by other parties who are not under the Applicant's control, and (b) the safety of the ISFSI depends in large part on the quality of materials and

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<sup>13</sup> This contention is supported by the Reply Declaration of Dr. Marvin Resnikoff, Exhibit 2.

packaging performed by the licensees. The application should address this problem with measures designed to give the Applicant a degree of control over the procurement and packaging process, so as to ensure that the Applicant can comply with its own quality assurance responsibilities, as required by 10 CFR Part 72, Subpart G. Unquestioning reliance on the materials supplied by reactor licensees does not satisfy these obligations. Moreover, this is a significant issue of regulatory compliance that cannot be left to be addressed in the Applicant's procedures, which are not subject to licensing review. See Applicant's Answer at 95. Finally, the Applicant is incorrect in claiming that the State has not demonstrated any reason not to rely on the performance of reactor licensees. As discussed extensively in the State's Contentions at 68-69, there have been numerous instances in which casks have been improperly packaged; moreover, Sierra Nuclear recently has been the subject of an enforcement order due to the alleged production of substandard casks. *Id.* at 67.

The Staff also objects that the State's assertion regarding the need for independent means, such as a hot cell, to verify the adequacy of materials and packaging, on the ground that it constitutes a challenge to the regulations. As discussed above with respect to Contention C, the requirement for retrievability of spent fuel is contained in NRC regulations at 10 CFR § 72.122(l). Thus, the State has not challenged the regulations, but asserted another ground on which inclusion of a hot cell in the design of the facility is needed for protection of public health and safety.

The Applicant claims that the State has not provided enough detail or support for its claim that the QA program is inadequately described. This argument is simply contradicted by the contention itself, which provides examples of the type of information that is missing from the QA program. State's Contentions at 42-44 (list of "broad goals" is insufficient to describe the means by which quality assurance will be achieved; no information about the nature of the ISFSI or its unique operations, specific requirements of regulations not addressed, design control section fails to describe structure or content of QA organization, or who in the QA organization will fulfill functions, QAPD program fails to specify minimum review intervals or what will trigger earlier review). The State need not prove its case, but merely provide sufficient specificity and basis to support the contention, which it has done.

The Applicant disputes the State's claims regarding inconsistent representations in the QA program and the SAR, on the ground that the QA Program Description has been updated. Applicant's Answer at 97. However, the Applicant has not provided the document, or even a reference to it. Therefore, the contention remains valid and admissible. The Applicant also asserts that the error was merely administrative, and has no safety significance. However, as documented in Contention G, the entire Quality Assurance Program seems to have been treated as merely an administrative matter – PFS took a QA program for an entirely different operation, changed a few words, and submitted it to the NRC. The failure to accurately describe the

organization is symptomatic of a much deeper failure in the QA program, i.e., the failure to establish a QA program that even considers the particular characteristics of this operation.

Finally, the Applicant disputes Contention G's criticism of the lack of demonstrated independence of the QA organization. Contrary to the Applicant's assertion, the State does not seek complete independence of the QA organization, but independence that is sufficient to ensure that the QA organization can do its job effectively. Applicant's lengthy argument does not demonstrate that the State's concern is baseless, but rather shows that there is a material factual dispute between the Applicant and the State.

#### **Contention H: Inadequate Thermal Design<sup>14</sup>**

The Staff does not oppose the admission of this contention. Staff's Response at 30. The Applicant's various objections are without merit, and indeed further demonstrate the existence of a material dispute between the State and the Applicant.

The gist of Contention H is that PFS proposes to use casks with design temperatures that are lower than the site design ambient temperature of 100°F, without adequately justifying the inconsistency. The TranStor cask is designed for ambient

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<sup>14</sup> This reply is supported by the Reply Declaration of Dr. Marvin Resnikoff (January 15, 1998). The original contention H was also supported by Dr. Resnikoff's expert opinion. Declaration of Dr. Marvin Resnikoff (November 20, 1997).

temperatures of 75°F, and the Holtec cask is designed for a daily average ambient air temperature of 80°F. State's Contentions at 53. PFS claims that the off-normal design temperature of 100°F "represents a maximum daily average temperature over a period of several days and nights required for the system to reach thermal equilibrium." SAR at 4.2-15. The State sets forth four bases for disputing the accuracy of this statement. None of the Applicant's arguments controvert the State's assertions.

First, the Applicant argues that the State ignores the fact that the casks have been analyzed for maximum daily ambient temperatures of 125°F. Applicant's Answer at 103-4. To the contrary, the State has not ignored this information. This is a transient temperature condition. It is simply not relevant to the question of what is the maximum daily *average* temperature.

Second, the Applicant contends that the "assumption of a sustained 100° maximum daily average temperature for the PFS storage cask analysis envelopes any sustained daily average temperatures expected to be seen at the PFSF site." Applicant's Answer at 105. *See also* Applicant's Answer at 109, referring to a "conservative 5°F margin" between the License Application's maximum ambient daily average temperature of 100°F and the maximum average daily ambient temperature of 95°F. The Applicant provides no basis for this bald assertion, or for the notion that the 100°F design temperature is conservative. In fact, as demonstrated in State's Contention H, there are significant grounds for questioning such an assertion, *i.e.*, the Applicant has not

demonstrated that it has taken adequate measurements for predicting onsite temperatures, and has not taken into account the thermal effects of a large array of casks stored on a concrete pad.

Moreover, the Applicant fails to demonstrate that the State lacks a basis for challenging the adequacy of consideration of these factors. With respect to temperature measurements, the Applicant asserts that measurements taken at Salt Lake City, Dugway, and Iosepa, are adequate. Applicant's Answer at 106-107. The assertion does not controvert the State's claim, which is supported by the expert opinion of Dr. Marvin Resnikoff, that the Applicant should base its design on onsite measurements, taken at a distance from the ground that is comparable to the location of intake vents on the storage casks. State's Contentions at 53-54.

With respect to the Applicant's failure to take into consideration the heat given off by the casks and the pad, the Applicant asserts that the contention is not supported by any facts or references. To the contrary, the assertion is supported by the expert opinion of Dr. Resnikoff, whose reasoning is explained and factually documented in the body of the contention. See State's Contentions at 54-55. The Applicant's attempts to show that heat contribution from these sources is negligible are based on analyses of single casks in isolation, and therefore do not provide sufficient information to establish that the casks will not contribute a significant heat load to the immediate environment. The Applicant does not consider the fact that temperature at the ISFSI floor where the air intake port for

the HI-STORM is located may be higher than at the outlet port, thereby reducing cooling air flow. While the State agrees with the Applicant that the cask designers have conservatively assumed the cask is insulated at the ISFSI floor, this does not resolve the State's concern.

The Applicant also disputes the State's contention that projected temperatures for cask concrete either exceed or are very close to the NRC's recommended limits, thus compromising the integrity of the concrete. Applicant's Answer at 118. With respect to the HI-STORM cask, the Applicant states that this is not an issue, because the concrete is not relied on for structural integrity. *Id.* At 119. While this may be true, the State submits that the cracking, spalling, and deterioration of concrete in a storage cask could negatively affect the safety of the facility, by making removal of the casks difficult, by blocking aisles between casks, and by blocking ventilation shafts, but, most importantly, by raising the direct gamma and neutron exposure rates due to less shielding.

With respect to the TranStor cask, the Applicant's rambling response, while appearing to state that the issue has been resolved, fails to establish whether the Applicant or TranStor has actually committed, and incorporated into the technical specifications, a commitment to use an alternative concrete mix and aggregate that will meet the NRC's temperature specifications. In the absence of such a clear showing, there remains a valid controversy between the parties.

**Response to Applicant's Rephrasing of Contention H:**

In general, the State does not object to the rephrasing.

**REPLY: CONTENTION I (Lack of Procedure for Verifying Presence of Helium in Canisters)<sup>15</sup>**

The Applicant and Staff both oppose this contention, on the ground that ISFSI testing for helium is not required by Commission regulations. NRC Staff's Response at 30, Applicant's Response at 122. Applicant cites a Federal Register notice regarding generic storage cask approval decisions, for the proposition that the Commission has determined that while the canister is important to safety, "because the canister is filled with helium and double-seal welded shut, the risk of penetration of the canister from the inside is so low that there is no need to inspect the canister for leaks or corrosion or to ensure the helium remains inside." Applicant's Answer at 122-23, *quoting* 59 Fed. Reg. 65,898, 65,901-2 (1994). The Applicant also cites the Statement of Considerations for 1990 amendments to Part 72. 55 Fed. Reg. 29,181, 29,188 (1990). Both of these rulemaking decisions, however, assume that casks will be used only for storage. They do not take into account the stresses caused by multiple steps of transferring casks from nuclear plant to railroad cars and/or vehicles, and transfer again to a storage facility; or the stresses caused by transportation of casks thousands of

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<sup>15</sup> This reply is supported by the Reply Declaration of Dr. Marvin Resnikoff (January 15, 1998). The original contention was also supported by the Declaration of Dr. Marvin Resnikoff (November 20, 1997). See State's Contentions at 60.



miles. See State's Contentions at 62. During these operations, casks may be jostled, vibrated or dropped, thus causing welds to loosen. *Id.* This assertion, which is supported by the an explanation of the basis for the expert opinion of Dr. Marvin Resnikoff, meets the criteria for admissibility. Moreover, it is not controverted. The various guidance documents and studies cited by the Applicant for the purpose of demonstrating the adequacy of seals to protect the canister from helium releases, are related to storage, not combined storage and transportation. Applicant's Answer at 124. In *quoting* NUREG-1536, the Applicant declined to mention that "the SAR should discuss any routine testing of support systems (e.g., vacuum drying, helium backfill and leak testing equipment)." NUREG-1536 at 9-7. Further, an accident considered in the Environmental Assessment for dry cask storage, NUREG-1092 at II-12, is canister failure during storage.

Moreover, the Applicant's assertion that Reg. Guide 3.48 applies only to MRS facilities is belied by the title of the Reg. Guide itself: Standard Format and Content for the Safety Analysis Report for an Independent Spent Fuel Storage Installation or Monitored Retrievable Storage Installation (Dry Storage). Nor does the body of the Reg. Guide assert that it, or some part of it, is limited to MRS facilities. The guidance is relevant for ISFSIs as well as MRSs.

With respect to human error, the Applicant argues that the State has submitted no evidence. Applicant's Answer at 126-28. However, the State has submitted

substantial evidence of human error in the packing of casks. State's Contentions at 67-68. In addition, as discussed in the State's Contention G, regarding quality assurance, the Applicant's lack of direct control over the packaging of casks by many different licensees adds further to the potential for human error. *Id.* at 62. See discussion of Quality Assurance contention G, *supra*.

Finally, the quote from the Waste Confidence Rulemaking, cited by Applicant at 129 for the proposition that dry cask storage creates no significant hazards, is taken completely out of context. It ignores the fundamentally important fact that the Commission's low risk finding was based in part on the ability to verify material integrity by inspecting and repairing, if necessary, the contents of storage canisters during the lifetime of the facility. See State's Contentions at 65, discussing NUREG-1092, Environmental Assessment for 10 CFR Part 72, Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste (1984). Further, the statement quoted by PFS regarding "the absence of high temperature and pressure conditions," was in reference to extended spent fuel storage in reactor pools, where the temperature is indeed much lower than in a dry storage cask. NUREG-1092 at II-15.

**REPLY: CONTENTION J (Inspection and Maintenance of Safety Components, Including Canisters and Cladding)<sup>16</sup>**

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<sup>16</sup> This Reply is supported by the Reply Declaration of Dr. Marvin Resnikoff (January 15, 1998). The original Contention J was also supported by the Declaration

The Staff and Applicant both object to the admission of this contention. Staff's Response at 32, Applicant's Answer at 131.

The Staff contends that the State fails to provide any fact or expert opinion sufficient to demonstrate the existence of a genuine dispute with the Applicant, and notes that the Applicant has addressed the issue of retrievability in the SAR, in § 4.7. Staff's Response at 32. The Staff also notes that retrievability of the spent fuel is required by 10 CFR § 72.122(l), and that the Staff has not yet reviewed whether the Applicant's facilities and means for retrieval of spent fuel are adequate under the standard. The Applicant argues that the ability to inspect and inspect the canisters is not necessary for compliance with NRC inspection and maintenance requirements, and does not pose an undue risk to public health and safety. Applicant's Answer at 131-146.

As pointed out by the Staff, retrievability of spent fuel is unequivocally required by NRC regulations at 10 CFR § 72.122(l). As discussed in NUREG-1092, retrievability of fuel is necessary to permit verification of the condition of the fuel during the lifetime of the facility. See State's Contentions at 64. Although this statement was made with respect to MRS facilities, the Commission later amended its regulations to apply the requirement to both MRSs and ISFSIs. Statement of Considerations, Licensing Requirements for the Independent Storage of Spent Nuclear

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of Dr. Marvin Resnikoff (November 20, 1997).

Fuel and High-Level Radioactive Waste, 53 Fed. Reg. 31,651 (1988). See also discussion in Reply Contention D, *supra*. Thus, providing a means for inspection and maintenance of critical safety components is a key purpose of 10 CFR § 72.122(l). Because § 72.122(l) establishes a clear and overarching requirement for retrievability of spent fuel, which also encompasses the ability to inspect and maintain it, the State seeks leave to amend the contention to include noncompliance with § 72.122(l).<sup>17</sup>

The Staff argues that the State has failed to show that the Applicant's discussion of retrievability in § 4.7 of the SAR is inadequate. In Section 4.7, the Applicant states that:

Retrieval of individual spent fuel assemblies from the canister before offsite shipping is not anticipated. As described earlier in this chapter, the canister is designed to withstand all normal, off-normal, and accident-level events. Nevertheless, retrieval of the spent fuel from the canister can be achieved if necessary. In the event the spent fuel assemblies require unloading prior to being shipped offsite, the canister will be shipped back to the originating nuclear power plant via a shipping cask (if the originating plant is still available) or the individual spent fuel assemblies will be transferred into a different canister as described in Section 8.2.7.4.

SAR at 4.7-2. The State has pointed out, however, that reliance on spent fuel pools at the originating reactor site or other nuclear plant sites is unrealistic and unsafe. See State's Contentions at 71, 150. Moreover, the Applicant's proposed measures for

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<sup>17</sup> Amendment of the contention is justified and necessary in order to clarify all of the legal requirements relating to Contention J. Moreover, the amendment will not prejudice any party, because the proceeding is at a very early stage, and in fact the Staff has not even reviewed this issue.

shipping the fuel contradict other licensing documents. For instance, the Applicant states that the cask would constitute the "confinement boundary, with no reliance on the canister for fission product confinement." SAR at 8.2-40. This contradicts the TSAR for the HI-STORM cask (Report HI-941184), which contains the following damaged fuel specification:

To replace the radiological release boundary provided by the cladding, damaged fuel assemblies will be loaded into stainless steel damaged fuel containers.

Id. at 2.1-3. As discussed above with respect to Contention D, Facilitation of Decommissioning, the DOE will also require damaged fuel to be "encapsulated."

Moreover, none of the other vaguely described alternative measures for retrievability, as described in § 8.2.4.7 of the SAR, are a part of the proposed facility design. They are merely suggested as possible means of satisfying the regulations, rather than submitted in satisfaction of the regulations. Therefore, they need not be addressed. For example, § 8.2.47 vaguely refers to a "procedure" in the HI-STORM SAR for transfer of the damaged canister to a "HI-STAR" metal storage cask, but the procedure admittedly requires "a site specific seismic analysis, equipment to vacuum dry and backfill the HI-STAR cask with helium, and a pressure monitoring system to ensure the integrity of the mechanical seal." SAR at 8.2-41. The proposed design of the facility contains none of this information or equipment, and thus it constitutes pure speculation by the Applicant. Similarly, the SAR describes two TranStor

procedures involving equipment and systems not contained in the Applicant's proposed design, and in one case an amendment to the Certificate of Compliance for the cask. SAR at 8.2-42. As such, they remain only a possibility, and not a commitment. Finally, the Applicant vaguely suggests, as "[a]nother method of recovery," a "portable dry transfer system." SAR at 8.2-42. Concededly, this is not a part of the PSFS design. *Id.* Therefore, because these vaguely suggested alternatives have not been submitted as design features intended to satisfy the NRC's regulations, they need not be addressed in a contention.

Because the Commission itself has determined that it is necessary that spent fuel be retrievable in order to allow the verification of its condition, it is not necessary for the State to factually justify the need inspection and maintenance of spent fuel. Nevertheless, the State has adequately supported the factual basis for this contention, and it should be admitted.

#### **Response to Applicant's Proposed Rephrasing of Contention J:**

The State does not oppose the rewording of the contention, with the exception that it should be amended to note the failure to comply with 10 CFR § 72.122(l). Moreover, the contention is not limited to the assertion that a hot cell is needed. The State seeks a reasonable and safe means for inspecting, maintaining, and retrieving fuel, which may consist of a hot cell or other means.

REPLY: CONTENTION K (Inadequate consideration of credible accidents)

The Staff does not oppose the admission of this contention except insofar as it asserts that the Applicant is required to evaluate the risk of accidents occurring at the Rowley Junction intermodal transfer point or elsewhere during transportation. Staff's Response at 32. The Applicant opposes this contention because it claims, among other assertions, that the SAR § 2.2 covers potential risks posed by surrounding facilities, and that transportation or intermodal transfer point accidents are beyond the scope of this licensing action. See Applicant's Answer at 146-165.

The Applicant claims that, pursuant to the guidance provided by NUREG-1567, Standard Review Plan for Spent Fuel Dry Storage Facilities (Draft), § 2.4.2, U.S. NRC, October 1996, it has discussed potential hazards from "[a]ll facilities within an 8-km (5-mi) radius . . . , as well as facilities at greater distances, as appropriate to their significance." Applicant's Answer at 148. Furthermore, the Applicant argues, "PFS has thoroughly considered the potential risks posed by these facilities in section 2.2 of the SAR." See Id. But this later so called consideration is contained in barely three and a half pages of cursory overview. Moreover, the Applicant dismisses potential accidents without supporting its conclusion. The State has provided a number of facts that demonstrate a material dispute with the Applicant's analysis. For example, the State discussed various hazardous activities at the Tekoi Test Facility to refute the Applicant's unsubstantiated claims that any explosion from the facility would be

dispersed because the facility is 2.5 miles from the ISFSI and Hickman Knoll, located between the facility and ISFSI, is over 287 feet higher in elevation than the Tekoi Test facility. Utah Contention at 74; SAR at 2.2-1.

In discussing facilities at greater than a five mile radius from the ISFSI, the Applicant briefly mentions only the U.S. Army's Dugway Proving Ground, including Michael Army Air Field, and Tooele Army Depot (SAR at 2.3-2 to -4), not "a number of other facilities and military installations," as claimed in Applicant's Answer at 148. Moreover, the application provides no support for the conclusion that Dugway Proving Ground (Dugway) poses no credible hazard because of the relative distance and the intervening Cedar Mountains. SAR at 2.2-2. Without a detailed analysis, it is impossible to understand how the Applicant reached such a conclusion given Dugway's location at the mouth of Skull Valley, only 8 miles from the proposed ISFSI site, and the diversity of hazardous activities which may not simply be contained by the Cedar Mountains, as claimed by the Applicant. See State's Contention K at 74. In fact, on December 10, 1997, an advanced cruise missile launched from a B-52 bomber that had taken off from Minot Air Force Base in North Dakota veered off course and crashed two miles from its intended target, destroying two trailers at Dugway, only 20 miles from the residential area, English Village, and biological and chemical agent facilities.<sup>18</sup> See news reports, Salt Lake Tribune, attached hereto as Exhibit 4. A cruise

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<sup>18</sup> English Village and the chemical and biological facilities are located approximately 8 miles from the proposed ISFSI site. State's Contention K at 74.



missile, like other hazardous activities conducted at Dugway could easily escape past Dugway's boundaries, not only at the mouth of Skull Valley, but over the Cedar Mountains. Thus, the Applicant cannot discount all hazardous events in the area wholesale by simply concluding that the mountain range will contain any and all hazards.

The Applicant also asserts that the concerns outlined in the State's Contention regarding military aircrafts in the area "echoes that of the petitioner in Carolina Power & Light Company," where the Board rejected a contention that the safety analysis was deficient because it failed to consider "consequences of terrorist commandeering a very large airplane . . . and diving it into the containment." Applicant's Answer at 151. In addition, the Applicant cites 10 CFR § 50.13, in concluding that "military style attacks with heavier weapons are not a part of the design basis threat for commercial reactors." Id. In this contention, the State is not addressing the possibility of terrorist activity or "military style attacks." The State is not claiming that the branches of the U.S. military might attack the ISFSI, but that the proposed location for the ISFSI is in the near vicinity of ongoing hazardous military activities involving various military aircraft, firing of military weapons, explosives, and chemical and biological agents. Thus, because the Applicant proposed its location in an area which undergoes routine hazardous activities, the activities and their potential impact must be closely evaluated to ensure protection of public health and safety.

Furthermore, contrary to Applicant's complaint (*see* Applicant's Answer at 152) that the State has failed to "quantify what 'occasionally' means" in the State's concern about "hanging bombs" in the vicinity of the proposed ISFSI, the Affidavit of David C. Larsen, recites that "[a]pproximately five times per year a munition becomes stuck and does not drop from the bomber" which must then land at Dugway. State's Exhibit 8 to Contentions at ¶ 8.

The Applicant also argues that in determining an in-flight crash rate the State failed to provide any factual bases to show the need to include flights which do not originate or end at Michael Army Airfield, Dugway Proving Ground. Applicant's Answer at 154. First, distressed commercial aircraft in the process of crashing may not have the ability to refrain from restricted military airspace. As stated in the contention, commercial aircraft flight patterns run parallel to the Stansbury Mountains, (State's Contention at 76) and a distressed plane may crash on either side of the Stansbury Mountains, including near the ISFSI.

Next, with respect to the probability of aircraft crashes in the vicinity of the site that do not originate or end at Michael Army Airfield, two Air Force F-16C fighter jets collided in midair during a training exercise on January 7, 1998. One of these jets crashed in a "fireball" in the Utah Test and Training Range ("UTTR"), a facility located 18.3 miles from the proposed ISFSI (*see* State's Contentions at 76) and a facility completely ignored by the Applicant in its license submittal. The other

damaged jet managed to fly adjacent to the proposed ISFSI site and land at Michael Army Airfield. The very next day, January 8, 1998, an unlikely coincidence happened: another F-16C fighter jet crashed and exploded in the UTTR just north of Interstate 80 and west of the intermodal transfer point.<sup>19</sup> See news releases from the U.S. Air Force home page, attached hereto as Exhibit 6.

The recent nearby military accidents raise the possibility of explosive debris striking a cask at over 126 miles per hour. The Holtec HI-STORM cask is designed to only withstand a tornado missile strike of an 1,800 kilogram object, an 8 inch diameter rigid cylinder, or a 1 inch diameter steel sphere traveling at 126 miles per hour.

Topical Safety Analysis Report for the Holtec International Storage and Transfer Operation Reinforced Module Cask System (HI-STORM 100 Cask System), Holtec Report HI-941184. Thus, the recent events point to the credibility of a cask breach.

**Response to Applicant's Rephrasing of Contention K:**

The State objects to the Applicant's rephrasing of Contention K as it unacceptably narrows the Contention's scope.

**REPLY: CONTENTION L (Geotechnical)**

The Staff does not oppose this contention. Staff's Response at 33. The

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<sup>19</sup> Note, thirty-seven crashes of F-16's have originated out of Hill Air Force base in the last 19 years. See Salt Lake Tribune news article, attached hereto as Exhibit 5. Hill Air Force Base, Utah, conducts air-to-air and air-to-ground training missions at UTTR, adjacent to the proposed ISFSI site. See State Contention at 76.

Applicant does not oppose this contention as rephrased. Applicant's Answer at 168.

**Response to Applicant's Rephrasing of Contention L:**

The State will address the Applicant's rephrasing of Contention L at the prehearing conference.

**REPLY: CONTENTION M (Probable Maximum Flood)**

The Staff does not oppose this contention. Staff's Response at 34. The Applicant does not oppose this contention as rephrased. Applicant's Answer at 169.

**Response to Applicant's Rephrasing of Contention M:**

The State will address the Applicant's rephrasing of Contention M at the prehearing conference.

**REPLY: CONTENTION N (Flooding)**

Both the Staff and Applicant object to this contention because it deals with flooding at the Intermodal Transfer Point. Staff's Response at 34-35; Applicant's Answer at 171-172. As more particularly discussed in State's Reply, Contention B, *supra*, the activities and operations important to health and safety at Rowley Junction must be addressed as part of this licensing proceeding. The Applicant proposes and will be responsible for permanent structures, buildings, rail spurs, and highly specialized equipment. See SAR § 4.5. Potential flooding, inundating, or swamping of

PFS's operation at the ITP facility are important health and safety issues. Therefore, it raises an admissible issue.

**Response to Applicant's Rephrasing of Contention N:**

The State objects to Applicant's rephrasing of Contention N in that it attempts to unacceptably narrow the State's Contention.

**REPLY: CONTENTION O (Hydrology)**

The Staff does not object to this contention except as it imposes requirements at the Intermodal Transfer Point. Staff's Response at 35. See State's general discussion in Reply to Contention B, *supra*, on this issue.

The Applicant's main defense is that the State has failed to provide supporting facts or expert opinion. Once again, the Applicant is using the lack of detail in its application as a defense to issues the State is endeavoring to glean from the paucity of information contained in the application such as that relating to the retention pond, sewer/wastewater system, etc. The issues raised in Contention O relate primarily to water contamination which is a health and safety concern. Contention O raises material issues disputing the Applicant's assessment of the construction, operation, decommissioning and regional impact of the ISFSI on these health and safety concerns.

In any event, this contention is supported by adequate factual information. The State thoroughly identifies the factual information that is missing from the application,

and discusses the reasons that the information is necessary. The State has provided more than sufficient specificity and basis to warrant the admission of the contention.

**Response to Applicant's Rephrasing of Contention O:**

The State objects to the rephrasing of Contention O but would agree to the following:

The Applicant has failed to adequately assess the health, safety and environmental effects from the construction, operation and decommissioning of the ISFSI and the potential impacts of transportation of spent fuel on groundwater, as required by 10 CFR §§ 72.24(d), 72.100(b) and 72.108, with respect to the following contaminant sources, pathways, and impacts:

1. Contaminant pathways, including those from the applicant's sewer/wastewater system, the retention pond, facility operations and construction activities.
2. Potential for groundwater and surface water contamination.
3. The effects of applicant's water usage on other well users and on the aquifer.
4. Impact of groundwater contamination on downgradient hydrological resources.

**REPLY: CONTENTION P (Inadequate Control of Occupational and Public Exposure)**

The Applicant and Staff both oppose to this contention. Applicant's Answer at

187-206; Staff's Response at 37-39. The State replies to the Applicant's cask system selection and offsite dose estimates and reserves the right further defend this contention at the pre-hearing conference.

Contention P states that the Applicant has not provided enough information to meet NRC requirements for controlling and limiting the occupational radiation exposures to as low as is reasonably achievable and analyzing the potential dose equivalent to an individual outside of the controlled area from accidents or natural phenomena events. State's Contentions at 109. The Applicant cites the definition of ALARA<sup>20</sup> in its response to Contention P. Applicant's Answer at 191. The Applicant then concludes that "ALARA does not require the selection of only a spent fuel storage system with the 'lowest dose rates, as the State contends" and thus, the State's contention should be rejected. *Id.* However, the Applicant, neither in the application nor its answer, describes how its chosen cask system, rather than one with the lowest dose rate, meets the ALARA criteria specified in 10 CFR 72.3. The application merely states that the spent fuel storage system vendors "have incorporated a number of design features to provide ALARA conditions." SAR at 7.1-5. In addition, the application

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<sup>20</sup>ALARA means "as low as low as is reasonably achievable taking into account the state of technology, and the economics of improvement in relation to -

- (1) Benefits to the public health and safety,
- (2) Other societal and socioeconomical considerations, and
- (3) The utilization of atomic energy in the public interest."

10 CFR § 73.2.

refers to a number tables displaying various does rates. SAR Tables 7.3-1 to 7.3-8.

As delineated in the State's contention, at no place in the application, does the Applicant describe "why the two cask vendors were chosen" (State Contentions at 110) and in comparison to other casks how the two chosen cask systems meet ALARA considering "technology, and the economics of improvement in relation to benefits to the public health and safety, other societal and socioeconomical considerations, and the utilization of atomic energy in the public interest" as required by 10 CFR § 72.3.

The Staff relies on the Applicant's statement that "the release of radioactive material is controlled in compliance with 10 CFR §§ 72.106 and 72.126(d)" and maintains that the State's Contention should be rejected because the State failed to address the Applicant's analysis and conclusion. Staff's Response at 38. However, the Applicant bases its compliance on an analysis of design events, including "earthquake, extreme wind, flood, explosion, fire, hypothetical storage cask drip/tip-over," etc. *Id.*

The overall design event analysis is dependent upon control factors derived from the individual analysis of specific events. To a limited extent, the Applicant describes the individual analysis of those specific events in various part of the application, e.g., seismic analysis is described in Section 2 of the SAR. However, the State has detailed deficiencies in a number of the Applicant's individual event analyses, such as geotechnical analysis (State Contention L at 80-95), and the Probable Maximum Flood analysis (State Contention M at 96-99), neither of which contentions were



opposed by the Staff or the Applicant.

Because of the discrepancies identified in other contentions, the validity of the overall design event analysis, without more, is in question and places in doubt the Applicant's compliance with 10 CFR §§ 72.106 and 72.126(d). This contention should not be rejected.

#### Response to Applicant's Rephrasing of Contention P

The State generally objects to the Applicant's rephrasing of its Contention P (Applicant's Answer at 187-189), but would not object to the following:

The Applicant has not provided enough information to meet NRC requirements of controlling and limiting the occupational radiation exposures to as low as is reasonably achievable (ALARA) and analyzing the potential dose equivalent to an individual outside of the controlled area from accidents or natural phenomena events in that:

1. The Applicant has failed to provide detailed technical information demonstrating the adequacy of its policy of minimizing exposure to workers as a result of handling casks, nor does it describe the design features that provide ALARA conditions during transportation, storage and transfer of waste. Specifically, if the design has incorporated ALARA concepts, the storage casks used at the ISFSI should have the lowest dose rate.
2. The Applicant has failed to provide an analysis of alternative cask handling procedures to demonstrate that the procedures will result in the lowest individual and collective doses.
3. The Applicant has failed to adequately describe why the Owner Controlled Area boundaries were chosen and whether the boundary dose rates will be the ultimate minimum values compared to other potential boundaries.
4. The Applicant has failed to indicate whether rain water or melted snow

from the ISFSI storage pads will be collected, analyzed, and handled as radioactive waste.

5. The Applicant has failed to provide design information on the unloading facility ventilation system to show that contamination will be controlled and workers will be protected in a manner compatible with the ALARA principle. In addition, procedures to maintain and ensure filter efficiency and replace components are not provided.
6. The Applicant has failed to provide adequate or complete methods for radiation protection and failed to provide information on how estimated radiation exposures values to operating personnel were derived to determine if does rates are adequate.
7. The Applicant has failed to describe a fully developed radiation protection program that ensures ALARA occupational exposures to radiation by not adequately describing:
  - a. the management policy and organizational structure to ensure ALARA;
  - b. a training program that insures all personnel who direct activities or work directly with radioactive materials or areas are capable of evaluating the significance of radiation doses;
  - c. specifics on personnel and area, portable and stationary radiation monitoring instruments, and personnel protective equipment, including reliability, serviceability, equipment limitation specifications;
  - d. a program for routine equipment calibration and testing for operation and accuracy;
  - e. a program to effectively control access to radiation areas and movement of radiation sources;
  - f. a program to maintain ALARA exposures of personnel servicing leaking casks;
  - g. a program for monitoring and retaining clean areas and monitoring dose rates in radiation zones to ensure ALARA; and
  - h. specific information on conducting formal audits and review of the radiation protection program.
8. The Applicant has completely 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).

9. The Applicant has failed to control airborne effluent which may cause unacceptable exposure to workers and the public, Contention T, Basis 3(a) (Air Quality) is adopted and incorporated by reference.

**REPLY: CONTENTION Q (Analysis of ISFSI Design to Prevent Accidents)**

Both the Applicant and Staff oppose this Contention, generally on the grounds that the contention lacks adequate basis. Applicant's Answer at 207-15; Staff Response at 39. The State contends that the basis provided in Contention Q (pp. 114-15) is adequate and will further address this issue at the prehearing conference

**Response to Applicant's Rephrasing of Contention Q:**

The State opposes the Applicant's rephrasing of Contention. However, the State will address this issue more fully at the prehearing conference.

**REPLY: CONTENTION R (Emergency Response)**

The lack of specificity and detail in the Applicant's Emergency Plan forms the primary basis for the State's Contention R. The Applicant rejects what it terms as the State "laundry list" of concerns stating that those concerns are outside the scope of Part 72 or, otherwise, the information the State is after is contained in the application. See e.g., Applicant's Answer at 220. The Staff asserts that no regulatory basis exists for evaluation of the Applicant's off-site emergency response, the State has cited the incorrect regulation, and the State has not described the alleged failures in the plan

with specificity. Staff Response at 48-49.

The State acknowledges that it mistakenly cited to 10 CFR § 70.22, instead of 10 CFR § 72.32, when it introduced the basis for its contention. State Contention at 116. However, in the substantive discussion, the State cites the correct regulation. See State Contentions at 120. Furthermore, an inadvertent reference to an incorrect citation should not be the basis for rejecting a contention because "[p]leadings [] need not be technically perfect, even under the revised rules." Sacramento Municipal Utility District, (Rancho Seco Nuclear Generating Station), LBP-93-23, 38 NRC 200, 212 (1993). The NRC Staff is eager to oppose Contention R because, according to the Staff, the State inappropriately cites to Reg. Guide 3.67 instead of NUREG-1567. Staff Response at 41-42. However, NUREG-1567, Appendix C at C-1, states, "RG 3.67 'Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities,' constitutes the principle [sic] guidance on the preparation of emergency plans for ISFSI or MRS installations." (*emphasis added*). Moreover, the substantive basis for the State's contention, notwithstanding a mistaken introductory reference, is adequate to describe the deficiencies in the Applicant's Emergency Plan.

As stated in State's Contention R at 117, rather than specificity in the Emergency Plan, the Applicant defers to its "Emergency Plan implementing procedures." The Applicant's answer is that the mechanical details implementing the procedures are not suitable for litigation. Applicant's Answer at 220. But contention

R is concerned with the lack of sufficiency in the plan as it relates to the "implementability" and "adequacy of planning" – factors that are the hallmark of good emergency planning. See Applicant's Answer at 220, citing Carolina Power & Light Co. and North Carolina Municipal Power Eastern Agency (Shearon Harris Nuclear Power Plant, Units 1 and 2), LBP-84-29B, 20 NRC 389, 408 (1984).

In response to the State's argument that the Applicant must describe how it will procure a capable crane within 48 hours, the Staff claims that § 72.32(a)(5) does not require a description of "equipment" necessary to restore the site to a safe condition. Staff Response at 46. The State disagrees. It is not merely a description of the equipment that the State claims is necessary but the Applicant's ability to implement its Plan that is at issue. Section 72.32(a)(5) requires the Emergency Plan to include:

A brief description of the means of mitigating the consequences of each type of accident, including those provided to protect workers onsite, and a description of the program for maintaining the equipment.

The reason that the implementability and adequacy of planning to mitigate the consequence cask tip over in 48 hours is important is because the Applicant relies on a cask design that requires the storage cask to be uprighted within 48 hours "to restore natural convection cooling before temperatures exceed design criteria." EP at 3-4. The State in Contentions L (Geotechnical) and late filed contentions EE and GG (failure to demonstrate cask-pad stability during a seismic event) demonstrate the credibility of

cask tip over and an earthquake beyond design basis. Therefore, adequate planning on the part of the Applicant to employ a capable crane at the site is crucial to mitigating the consequence of cask tip over. Given the location of the ISFSI, the Applicant's mere statement that a capable crane "would be temporarily procured" is a grossly inadequate plan. EP at 3-4. The Applicant's answer that it may have the flexibility to rely on a reasonable *ad hoc* response does not mean that the Applicant can have no plan at all. Applicant's Answer at 233.

**Response to Applicant's Rephrasing of Contention R:**

The State does not object to the Applicant's rephrasing of Contention R.

**REPLY: CONTENTION S (Decommissioning)**

The NRC Staff does not oppose admission of Contention S as stated in basis 1, 2, 4, 5 and 10. Staff Response at 49.

The Applicant argues that the standards established in Yankee Atomic Electric Co. (Yankee Nuclear Power Station), CLI-96-1, 43 NRC 1 (1996) (hereinafter Yankee I), Yankee Atomic Electric Co. (Yankee Nuclear Power Station), LBP-96-2, 43 NRC 61 (1996) (hereinafter Yankee II), and Yankee Atomic Electric Co. (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235 (1996) (hereinafter Yankee III) are applicable to "many if not all of the State's eleven decommissioning subcontentions." Applicant's Answer at 238 - 39. Contention S challenges the Applicant's ability to provide

sufficient funding for decommissioning and questions the Applicant's cost estimates. The status of Yankee Nuclear Power Station (Yankee Rowe facility) is entirely different from that of this Applicant, which is a newly formed limited liability company with no track record. The Yankee Rowe facility had existing rate based contracts. These firm contractual agreements had been a matter of public record for many years. Yankee III, 43, NRC at 259. Thus, the ability to raise funds was not the issue in the Yankee cases. In Contention S the State has shown the comprehensive failure in the Applicant's decommissioning funding, both with respect to estimates and ability to raise funds. The Applicant has not shown the reasonable likelihood of having the money it needs for decommissioning, so the estimates are relevant. Clearly, health and safety are jeopardized when the Applicant does not have sufficient money set aside to meet the costs of decommissioning.

The Applicant's response to the State's assertion that the decommissioning plan must include contingency costs in the event that the ISFSI cannot be decommissioned at the end of the license term due to the unavailability of disposal or alternate storage, is that it is barred as a matter of law. Applicant's Answer at 224, *citing* 10 CFR § 51.23(a). The fact that fuel may be stored on site beyond the license term is a distinct possibility. According to a 1993 GAO report Yucca Mountain may not open until between 2015 and 2023. Yankee II, 43 NRC at 72. Assuming the license is issued to PFS in 2000 and Yucca Mountain begins to accept fuel in 2020, not all fuel would be

interred at Yucca Mountain even by the end of the initial license term plus a 20 year renewal (i.e., by 2040). DOE's prognosis for spent fuel acceptance for the first ten years is 8,200 MTU.<sup>21</sup> The Transportation of Spent Nuclear Fuel and High Level Waste, Nevada Nuclear Waste Project Office (September 10, 1996) at 15, attached to OGD's Contentions as Exhibit 4. After acceptance year ten, the rate would be 3,000 MTU annually. *Id.* Thus, by 2040 DOE would have accepted a total of 38,200 MTU. However, unlike other interim storage facilities authorized under the Nuclear Waste Policy Act, which by statute must have spent fuel removed no later than three years following fuel acceptance at a permanent repository or MRS, the PFS ISFSI is de-linked from Yucca Mountain. 42 USC § 10,155(e). It is probable that fuel from the PFS ISFSI will not have priority of receipt at Yucca Mountain. Therefore, it is reasonable to require this yet to be constructed facility to include contingent costs in the realistic event the ISFSI cannot be decommissioned at the end of the license term.

The Applicant also argues that an admissible contention "must allege more than mere uncertainty" and that "[i]t is unreasonable to require as much precision of an applicant's proposed decommissioning procedures at the time of licensing as will be required of its final procedures at the time of decommissioning." Applicant's Answer at 239, citing Yankee I, 43 NRC at 8. Another argument by the Applicant is that "[c]hallenges to the reasonableness of an applicant's decommissioning cost estimates are

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<sup>21</sup> The 8,200 MTU is computed as follows: In acceptance year one, 400 MTU; in acceptance year two, 600 MTU; then 900 MTU in years three through ten.



not admissible unless the petitioner shows that 'there is no reasonable assurance that the amount will be paid,' and "[w]ithout such a showing, the only relief available would be the 'formalistic redraft of the plan with a new estimate.'" Applicant's Answer at 239-240, *quoting Yankee I* at 9.

Contrary to the Applicant's argument, the State has made this showing. First, as more fully discussed in State's Reply, Contention E, (Financial Assurance), *supra*, the Applicant is not an established electric utility company but a newly formed limited liability company. Clearly, the Applicant, devoid of any financial history or assets, cannot rely on its own unsubstantiated statements of promised funding, whether through a letter of credit or other means, to demonstrate reasonable assurance of providing funding. The Applicant further argues that assurance of obtaining funds need not be an "ironclad" one. Applicant's Answer at 240, *citing Yankee III* at 260. The State is not asserting that the Applicant provide "ironclad" assurance; it is asserting, however, that the Applicant be required reasonably to demonstrate its ability to secure the selected financial mechanism – in this case, a letter of credit, as required by the regulations. This it has not done.

Second, the Applicant argues that "[s]hort of an allegation of 'gross discrepancy' in the decommissioning cost estimate" the contention is inadmissible. Applicant's Answer at 240. The State's contention describes apparent contradictions and discrepancies in cost estimates, as well as unsubstantiated figures to the extent that

there is anything of substance to analyze in the application. See State Contentions at 126. The accumulation of potential discrepancies hidden in unsubstantiated statements and cost estimates could result in gross discrepancies, but without additional information it is an unreasonable burden to require specific claims beyond the examples that State has already cited in Contention S. For example, in Contention S, the State points to a \$4 per square foot discrepancy in the Applicant's cost to decontaminate cask surfaces. This gross disparity could result in underestimating costs by 500% in 1997 dollars. *Id.*

Finally, unlike the Yankee cases, redrafting of a plan is not the only relief available to the State. Also, the Commission's policy that it considers decommissioning of an existing nuclear power plant to be a foregone conclusion is not applicable here.<sup>22</sup> As stated in Yankee II "[i]n contrast to the construction permit and operating licensing actions that brought Yankee Rowe into existence, there is not a 'no action' alternative in connection with facility decommissioning." Yankee II, 43 NRC at 82, n 6. In this case the proposed ISFSI is still seeking a license and decommissioning is not a foregone conclusion. Alternative relief may be granted by denying the license for failure to accurately estimate and provide reasonable assurance that the amount necessary for decommissioning will be available as required by 10 CFR § 72.30(b).

Response to Applicant's Rephrasing of Contention S:

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<sup>22</sup> "It clearly is Commission policy that all commercial nuclear facilities will be decommissioned." *Id.*, citing 10 CFR § 50.82(f).

The State objects to the rephrasing of Contention S.

**REPLY: CONTENTION T (Inadequate Assessment of Required Permits and Other Entitlements)<sup>23</sup>**

The NRC Staff does not oppose the admission of this contention, with two exceptions. Staff's Response at 52.

The Applicant's response to State's Contention T addresses the issue of state jurisdiction over activities on the Skull Valley Reservation and the state role in water administration and applicability of state permits.

**A. State Jurisdiction on Skull Valley Reservation.**

The Applicant challenges (at 271-279) the State's authority to enforce otherwise applicable air quality and ground water regulations because the proposed storage project will be located on the reservation of the Skull Valley Band of Goshute Indians, and asserts (at 274) that State law has no application to activities in "Indian Country." This is a simplistic and 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.

State civil-regulatory authority over tribes and tribal members has been recognized in a variety of circumstances, including record keeping and collection

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<sup>23</sup> This contention is supported by the Declaration of Lawrence A. White, Exhibit 1.

responsibilities for state cigarette sales taxes (Washington v. Confederation Tribes of Colville Indian Reservation, 447 U.S. 134, 159-60, 65 L.Ed.2d 10, 100 S.Ct. 2069 (1980) and Moe v. Confederated Salish and Kootenai Tribes, 425 U.S. 463, 482-83, 48 L.Ed.2d 96, 96 S.Ct. 1634 (1976)), state regulation of on-reservation liquor sales by tribal members for off-premises consumption (Rice v. Rehner, 463 U.S. 713, 732-33, 77 L.Ed.2d 961, 103 S.Ct. 3291 (1983)), and tribal member fishing practices (Puyallup Tribe, Inc. v. Department of Game, 433 U.S. 165, 53 L.Ed.2d 667, 97 S.Ct. 2616 (1977)).

Under the Supremacy Clause of the United States Constitution (article VI, cl.2), state laws clearly in conflict with federal law or policy are preempted. However, federal preemption of state law will not be lightly inferred.<sup>24</sup> Preemption will only be found where there is express statutory language signaling an intent to preempt and the courts

infer such intent where 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[.]<sup>25</sup>

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<sup>24</sup> International Paper Co. v. Ouellette, 479 U.S. 481, 491, 93 L.Ed.2d 883, 107 S.Ct. 805 (1987) and Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230, 91 L.Ed. 1447, 67 S.Ct. 1146 (1947).

<sup>25</sup> Northwest Central Pipeline Corp. v. State Corporation Comm'n, 489 U.S. 493, 509, 103 L.Ed.2d 509, 109 S.Ct. 1262 (1989); accord English v. General Electric Co.,

Where, as here, 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,"<sup>26</sup> 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."<sup>27</sup> In connection with such a preemption analysis, "any applicable regulatory interest of the state must be given weight."<sup>28</sup>

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. 3291 (1983).

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496 U.S. 72, 79, 110 L.Ed.2d 65, 110 S.Ct. 2270 (1990); California Fed. Savings & Loan Ass'n v. Guerra, 479 U.S. 272, 280-81, 93 L.Ed.2d 613, 107 S.Ct. 683 (1987); Cotten Petroleum Co. v. New Mexico, 490 U.S. 163 (1989).

<sup>26</sup> White Mountain Apache Tribe v. Bracker, 448 U.S. 136, 142, 65 L.Ed.2d 665, 100 S.Ct. 2578 (1980).

<sup>27</sup> Id. at 145.

<sup>28</sup> Id. at 144.

State interest may also be greater where a third party locates a pollution source on tribal trust lands primarily to avoid State regulation. In the case of State of Washington v. Confederated Tribes of the Colville Indian Reservation, 447 U.S. 134, 65 L.Ed.2d 10, 100 S.Ct. 2069 (1980), the Court held that the state could tax on-reservation sales of cigarettes at tribal smokeshops to nonmembers who traveled to the shops to purchase cigarettes sold at a lower cost because state taxes were not being paid. The Court's reasoning was as follows:

We do not believe that principles of federal Indian law whether stated in terms of preemption, tribal self-government, or otherwise, authorize Indian tribes thus to market an exemption from state taxation to persons who would normally do their business elsewhere.

Id. at 155 (*emphasis added*). In the case of California v. Cabazon Band of Mission Indians, 480 U.S. 202, 219-220, 94 L.Ed.2d 244, 107 S.Ct. 1083 (1987), the court recognized that state claims to jurisdiction are stronger where the tribe is primarily marketing an exemption from state laws.

In making the preemption analysis required in the instant case, several things are important to consider:

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. Specifically, Section 510 of the Federal Water Pollution Control Act recognizes the right of Utah to adopt and enforce water quality protections. 33 U.S.C. §1370. Similarly, the federal Clean Air Act, Section 116, retains Utah's authority over air pollution sources. 42 U.S.C. §7416.

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 induced to locate within Indian reservations as a way of evading State regulations.

As has been amply demonstrated, the statement (at 274) in the Applicant's response to the State's contentions that pertinent State air quality and ground water regulations have no application because the proposed project is located on an Indian

reservation is incorrect. In fact, the required preemption analysis leads inevitably to the conclusion that State law dealing with the vital matters of air and ground water has not been preempted and that it is enforceable.

#### B. Reserved Water Rights and State Control

The Applicant reaches incorrect conclusions in its discussion of the issue of the Goshute's reserved water rights. Applicant's Answer at 279-280. The water law of Utah embodies the appropriation doctrine. Priority and quantity of a water right are established by the date and in the amount the water was first put to beneficial use. Congress has recognized this state system in determining reserved water rights for federal lands. United States v. City and County of Denver, 656 P.2d 1, 4-8 (Colo. 1982). The Courts developed a reserved water rights doctrine which was formally identified in Winters v. United States, 207 U.S. 564 (1908). Under Winters, tribes hold implicitly reserved water rights. Congress has attempted to integrate reserved water rights into state water appropriations systems by authorizing states to adjudicate such rights in general adjudication proceedings and to administer those rights.

In 1952, the Congress passed the McCarran Amendment, waiving the sovereign immunity of the United States and allowing it to be named as a defendant in state water rights general adjudication and administration proceedings. In Colorado River Water Conservation District v. United States, 424 U.S. 800 (1976), the Supreme Court held that the McCarran Amendment allowed Indian water rights to be adjudicated in



state court by suing the United States in its role as trustee for the tribes. The Court has stated that the intent of Congress in enacting the McCarran Amendment was to subject all federal water rights of whatever nature to comprehensive state proceedings. Arizona v. San Carlos Apache Tribe, 463 U.S. 545 (1983).

The reserved rights of the Goshute Skull Valley Reservation have not as yet been determined either in quantity or priority through a State general adjudication proceeding. It is clear that all water, both surface and ground water, on and within the reservation are held in trust by the State of Utah. Utah Code Ann. § 73-1-1. The Goshutes may have reserved rights to an as yet undetermined quantity of water. The exact quantity must be determined by assessing the "practicably irrigable acreage." That quantification standard was established by the Supreme Court in Arizona v. California (Arizona I), 373 U.S. 546 (1963) and (Arizona II) 460 U.S. at 605 (1983). See also In Re Big Horn River System, 835 P.2d 273 (Wyo. 1992).

The appropriation, adjudication, and supervision of diversion and distribution of recognized water rights for both surface water and ground water are functions of each state water law system. The Goshute Tribe's reserved rights are subject to that Utah State system. In United States v. Anderson, 736 F.2d 1358 (9th Cir. 1984), the court upheld the State of Washington's permitting authority with respect to unappropriated waters on the Spokane Indian Reservation. Appropriators are entitled to the maintenance of the conditions substantially as they existed on the date they first

exercised their rights. Orr v. Arapahoe Water and Sanitation Dist., 753 P.2d. 1217 (Colo. 1988). The State of Utah and water rights holders have direct interests in the surface water and ground water on the Goshute Skull Valley Reservation, and specifically so where the proposed PFS facility affects quality and quantity of water use beyond the reservation boundary.

PFS argues that even assuming the State has jurisdiction over discharges to ground water from the reservation, PFS is not required to obtain a ground water discharge permit from the State. Applicant's Answer at 276. Even if the proposed facilities do come within the category of facilities that are permitted by rule, PFS is required to obtain a ground water discharge permit under the provisions of Utah Admin. Code R317.6.6.2C. The Executive Secretary of the Utah Water Quality Board has determined that the proposed facilities may interfere with probable future beneficial uses of the ground water, and has determined a permit is necessary. See letter from Don Ostler, Executive Secretary, Utah Water Quality Board, to John D. Parkyn, Chairman of the Board, Private Fuel Storage, L.L.C., dated July 8, 1997, attached hereto as Exhibit 7.

PFS argues that the State has failed to point to any existing water rights which the Applicant's activities are likely to impair or interfere with. The State is the trustee for all surface and ground water in the State and is so recognized by federal law, as discussed above. That direct interest must be protected and forms the basis for the

water portions of this Contention.

The State has recently assumed responsibility and control over the Skull Valley Road. See Minutes of Utah Transportation Commission, dated December 4, 1997, attached hereto as Exhibit 8. Any road improvements must be performed in cooperation with the State and meet State requirements. These issues should be addressed under the requirements of 10 CFR § 51.45(d).

NRC Staff, incredibly, opposes the State assertion that the entire lease with the Skull Valley Band of Goshutes must be produced. Staff's Response at 52. At issue are liability provisions and financial arrangements. That information is critical to evaluation of the license application, because it is necessary to determine the extent to which liability for safety problems may be shifted to the Goshutes as a result of their landlord status, and to assess and evaluate financial arrangements. The Staff gives no reasons for objecting to production of the entire lease agreement, nor is there any apparent basis for withholding it from disclosure.

The State agrees with the Applicant that NEPA requires analysis of likely impacts. There is no question that in the areas of air quality and water quality the proposed ISFSI will likely have impacts, as is described in the State's Contention T.

The Applicant argues that the State has failed to identify any wetlands that may be affected. Applicant's Answer at 277-278. PFS has failed to adequately describe its proposed project, most specifically at the intermodal transfer station and

transportation corridor, making it impossible for the State to identify a specific location. The State has pointed out in Contention T areas where there is significant likelihood of wetlands disturbance, and the application must identify the requirements for Clean Water Act § 404 permits in those areas.

For the reasons stated above and in the State's original filing, the State's contentions in this area have merit and should be retained for further factual development and support.

**Response to Applicant's Rephrasing of Contention T:**

The State does not object to PFS rephrasing of Contention T with two exceptions:

1. Subparagraph d) should be amended to read:

d) The Applicant has shown no basis that it is entitled to widen Skull Valley Road or that the proposed 15-foot roadway would satisfy health, safety and environmental concerns nor does the application describe and identify State and local permits or approvals that are required.

2. Subparagraph i) should be amended to read:

i) The applicant must show legal authority to drill wells on the proposed ISFSI site and that its water appropriations will not interfere with or impair existing water rights and identify and describe state approvals that are required.

**REPLY: CONTENTION U (NEPA: Impacts of Onsite Storage not Considered)**

The Staff considers Contention U as inappropriate for litigation. Staff Response at 54.

The Applicant for various reasons opposes this Contention. Applicant's Answer at 282-92. The State contends that the basis provided in Contention U (pp. 142-43) is adequate and appropriate for litigation and will further address this issue at the prehearing conference

**Response to Applicant's Rephrasing of Contention U:**

The State opposes the Applicant's rephrasing of Contention U. However, the State will address this issue more fully at the prehearing conference.

**REPLY: CONTENTION V (Inadequate Consideration of Transportation-Related Radiological Environmental Impacts)**

The Staff opposes this contention to the extent that it asserts Table S-4 of 10 CFR Part 51 does not apply to an ISFSI, allegedly challenges NRC regulations incorporating Table S-4, and allegedly contends that the Applicant is required to separately consider the environmental impacts of spent fuel storage at Rowley Junction. Staff's Response at 54. However, the Staff appears to accept the contention to the extent that the Applicant's proposal is not enveloped by Table S-4 and various other NRC environmental evaluations following the issuance of Table S-4. The Applicant opposes the contention in its entirety.

Neither the Staff nor the Applicant effectively controverts the showing by the State that by its own terms, the regulation containing Table S-4 does not apply to the

licensing of an ISFSI. Rather, it is limited to construction permits for nuclear power plants. Contrary to the Staff's argument, it is not "too simplistic" and "unfounded" to apply the regulations as they are written.<sup>29</sup> Staff's Response at 55. See also Applicant's Answer at 297-300. For one thing, a party's opinion of a regulation does not constitute grounds for ignoring its plain language. For another, the circumstances involved in evaluating a construction permit are quite distinct from those involved in licensing an ISFSI. At the construction stage for a nuclear reactor, the removal and transportation of spent fuel from the nuclear power plant site are too far off to be addressed with great precision. Of necessity, predictions must be somewhat general. At the stage when these steps are about to be carried out, and are indeed the central focus of the proposed action, they are more capable of the hard look required by NEPA. As the D.C. Circuit recognized in Calvert Cliffs Coordinating Committee v. AEC, 449 F.2d 1109, 1118 (D.C. Cir. 1971), an agency must evaluate environmental impacts to the "fullest extent possible." A much more searching inquiry is required at this stage than was required for the issuance of construction permits to the licensees of the reactors whose fuel is to be stored at the ISFSI.

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<sup>29</sup> The Staff suggests, but wisely avoids actually arguing, that Table S-4 is applicable under 10 CFR § 72.34, which requires applicants for ISFSI's to "meet the requirements of Subpart A of Part 51, which includes 10 CFR § 51.52 and Table S-4. Staff's Response at 55, note 55. Subpart A contains a host of requirements, only some of which apply to an ISFSI, or even to a private entity. For example, all of the requirements for preparation of EIS's by the NRC are contained in Subpart A. It would be absurd to read Section 72.34 to require compliance with these obviously inapplicable provisions.

The Staff concedes that to the extent pre-existing NRC environmental analyses do not envelope the proposal, the Applicant may need to address the environmental impacts of the proposal. Staff's Response at 62. Moreover, the Staff does not appear to object to most of the areas in which the State demonstrates that existing studies are inadequate to address the transportation-related environmental impacts of the proposed ISFSI. However, the Staff opposes the litigation of sabotage-related issues. Staff's Response at 61. According to the Staff, the Licensing Board is precluded from considering sabotage, based on NUREG-0170, an environmental "study" that was prepared over 20 years ago and accepted by the Commission as the basis for a finding that sabotage poses no significant risk to fuel in transit. Staff's Response at 61. However, the existence of a rulemaking in which the NRC made a generic determination about the environmental risks of sabotage does not automatically preclude the State from raising the issue of sabotage. As discussed above, for each new action proposed by the Commission, NEPA imposes an affirmative obligation to make the fullest possible evaluation of its environmental impacts. This affirmative obligation exists, regardless of whether the Commission has previously reached a generic conclusion about the impacts of that type of proposal. Here, the State has provided substantial and well-documented evidence to demonstrate that NUREG-0170 is based on outdated information, and that new weapons have been developed which

significantly increase the risks posed by sabotage.<sup>30</sup> State's Contentions at 152-153.

Accordingly, it has provided sufficient grounds to permit the consideration of sabotage under this contention.

The Applicant argues that under the NRC's regulations, it is not required to evaluate all transportation-related impacts of the proposal, as the State contends, but only regional impacts. Applicant's Answer at 295. The State is not so much concerned with which party – the Applicant or the Staff – is obligated to evaluate the total risks of transportation associated with this proposal, but only that the analysis is carried out, as required by NEPA. Clearly, under NEPA, the Commission may not restrict the scope of a NEPA analysis to a geographic area that is narrower than the actual area of impact. If the Board determines that the Applicant's ER need not discuss transportation-related impacts outside of the region, then the State requests the Board to hold all non-regional aspects of the contention in abeyance until issuance of the EIS.

The Applicant also makes various other arguments, which can only be dealt with briefly here, and will be addressed in more detail in the prehearing conference.

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<sup>30</sup>By the same token, Applicant's argument that a rulemaking petition constitutes the only available avenue for challenging Table S-4 flies in the face of NEPA. Applicant's Answer at 307. NEPA determinations may not be insulated from challenge in the same way that the Commission arguably may insulate safety determinations. For each decision having a significant impact on the human environment, NEPA requires the Commission to evaluate the impacts and weigh their costs and benefits. While there is no question that the Commission may make generic determinations that apply to future specific decisions, NEPA does not allow the Commission to hide behind a generic determination that is demonstrated to be insufficient to address the environmental impacts of the proposal at hand.



First, the Applicant repeatedly argues that the issues raised by the contention are outside the scope of the proceeding, Applicant's Answer at 303, 305. This appears to be an argument that transportation-related environmental impacts cannot be litigated in a licensing proceeding for a storage facility. Clearly, however, the licensing of the storage facility will trigger environmental impacts associated with transportation of the spent fuel to and from the facility. Accordingly, such impacts are litigable here. Thus, for instance, where the intermodal transfer facility constitutes part of the storage facility for purposes of compliance with safety regulations, its environmental impacts must nevertheless be addressed by the Applicant and the NRC.

Finally, the Applicant generally charges that the bases of the contention are unfounded. The deficiencies in the environmental analysis relied on by the Applicant are thoroughly discussed, and are supported by the expert opinion of Dr. Marin Resnikoff, however, and thus this objection has no merit.

#### **Response to Applicant's Proposed Rewording of Contention V:**

The State does not oppose the Applicant's rewording.

#### **REPLY: CONTENTION W (Other Impacts Not Considered)**

Both the Applicant and NRC Staff oppose the admission of this contention on the basis that the State has not provided sufficient information to support its assertion that the Environmental Report does not adequately consider adverse impacts of the

proposed ISFSI. Applicant's Answer at 310-323, Staff's Response at 63. The State's position is that cumulative impacts, risks of accidents along the Skull Valley Road, flooding, pollution effects, seismic, and visual impacts are not assessed. While these issues are addressed specifically in other contentions, the point of Contention W is that compliance with NEPA requires consideration of these impacts which is a distinctly separate legal requirement from compliance with NRC safety regulations. The State has provided sufficient factual information to support its assertions in the referenced contentions. The absence of consideration of adverse impacts for the identified area as required by NEPA has been detailed in the State's Contention W, and the related contentions. Contention W should be admitted.

**Response to Applicant's Rephrasing of Contention W:**

The State does not object to the rephrasing of Contention W.

**REPLY: CONTENTION X (Need for the Facility)**

Both PFS and NRC Staff oppose the admission of this contention on the basis that the State has not provided sufficient information to show there is an issue of fact. Applicant's Answer at 324, Staff's Response at 64. PFS makes the unsupported assertion there is a "need" with no supporting information. NEPA requires an affirmative description and demonstration of need, not an unsupported assertion. Council on Environmental Quality Regulations § 1502.10. On that basis alone this

contention should be admitted.

PFS attempts to explain away the language from the home page of Northern States Power. Cited excerpts from the Frequently Asked Questions part of Northern States Power home page attached hereto as Exhibit 9. It should be noted that this language has apparently now been deleted from the Northern States Power home page. It no longer appears at the site as originally cited. The representations in the cited home page support the State's Contention that need is not adequately discussed or demonstrated.

**Response to Applicant's Rephrasing of Contention X:**

The State objects to the Applicant's rephrasing of Contention X. The purpose of this contention is to contest the failure to affirmatively describe and demonstrate the purpose and need for the proposed facility as required by NEPA. The facts and discussion outlined by the State in its contention are illustrative of the failure to meet the requirement but do not purport to be a comprehensive listing of all facts supportive of the State's NEPA claim. The rephrasing by the Applicant improperly restricts the scope of the contention to the factual examples set forth in the contention. The contention should be accepted as written.

**REPLY: CONTENTION Y (Connected Actions)<sup>31</sup>**

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<sup>31</sup> This contention is supported by the Declaration of Lawrence A. White, Exhibit 1.

NRC staff objects to this contention as an impermissible challenge to the NWPA and the Commission's regulations. Staff's Response at 65. This contention is not such a challenge. The primary purpose of NEPA is to provide the federal decisionmaker with adequate information on which to make an informed decision. The relationship of the proposed ISFSI to the national high level waste program is a major, significant environmental issue that must be described and addressed for NRC to make an appropriate licensing decision. NEPA requires that as a minimum.

PFS argues that the ISFSI is not a "connected action." Applicant's Answer at 331. For the reasons stated in its Contention the State asserts it is a connected action to the national high level waste program. Even if it is not a connected action requiring a single comprehensive environmental impact statement, at a minimum, an analysis of the relationship and impact on the national program is required under NEPA.

Even if after appropriate debate and inquiry the Commission finds that licensing of the proposed facility is not in conflict with the NWPA, NRC is required to prepare an EIS. Given that the proposed facility is a national-scale facility that will store a significant percent of all spent fuel destined for the repository, the EIS must address the implications of this licensing decision on other spent fuel options under the NWPA. These are connected actions, that at the very least are not "sufficiently distinct" as to not be considered. Siting of such a "national-scale facility" should have input through the NEPA process from affected parties such as States impacted by

transportation, construction, operation, and decommissioning of such facilities. The NRC Staff acknowledge that a no action alternative (Contention Z), range of alternatives (Contention AA), and site selection and discriminatory effects (Contention BB) should be addressed. These issues must be addressed in the context of other spent fuel storage options under the NWPA and not narrowly as currently addressed by the applicant's ER. NRC should take action to ensure the Applicant's ER is sufficient in scope to address these issues.

For this Contention Y, and also for Contentions Z and AA, part of the issue is whether the NRC Staff and PFS have unjustifiably restricted the analysis of the proposed action under NEPA. By narrowly defining the proposed action and not considering its broader consequences, the NRC Staff and PFS are not complying with the intent or process of NEPA. Specifically, by virtue of its large size and private operation, the proposed ISFSI does not fit the model of small-scale storage the NRC staff and PFS are using in designing their analyses. The ISFSI should be interpreted as being analogous to an MRS that has broader implications for high-level waste storage nationally, and should be analyzed under NEPA to consider these broader environmental consequences.

NRC Staff in its response, surprisingly and amazingly, states CEQ regulations do not apply, citing to various exemption provisions in the NWPA for preparation of an environmental impact statement under NEPA. The NRC Staff concludes these

exemptions affect the scope of an EIS for the proposed ISFSI. Staff's Response at 67-68. Those exemption provisions in the NWPA apply to federal interim storage, a high level waste repository, and a monitored retrievable storage facility, which we do not have here. Because no exemption exists for the proposed license, a complete NEPA EIS is required. The fact that exemptions exist for other types of facilities supports the State's position that a comprehensive EIS is required because no exemption applies to the current circumstance.

Although NRC is only assessing the proposed project as an private independent facility (*i.e.*, the narrowest possible context), the project is in reality a large, national facility storing about half the amount of spent fuel expected to be generated by the year 2030 and destined for the repository, and nearly two thirds of the capacity allowed for commercial spent fuel storage at Yucca Mountain, the first repository, and should therefore be evaluated in that context. Implications for licensing the proposed project include practically foreclosing DOE and Congressional decisions on future spent fuel storage. NEPA directs NRC to consider these connected actions and elevate its analysis to the programmatic level as necessary. This problem of ignoring the implications of licensing the proposed project on the national high-level waste program is segmenting connected actions or failing to consider cumulative effects.

In Thomas v. Peterson, 753 F.2d 754 (9th Cir. 1985) the court held that the effects of related future actions that were sufficiently certain should be analyzed with the

proposed project. Based on this interpretation, NRC is required to consider the consequences of creating a de facto national facility for the storage of high-level nuclear wastes.

NRC contends that CEQ regulations, that the NRC has not expressly adopted, are not binding, although they are entitled to "substantial deference." This statement is a reference to the decision in Andrus v. Sierra Club, 442 U.S. 347 (1979), where the Court relied on its own interpretation of NEPA and did not hold that the CEQ regulations were controlling. Lower federal court cases since Andrus have held that the 1978 CEQ regulations are controlling (Sierra Club v. U.S. Army Corps of Engineers, 701 F.2d 1011 (2d Cir. 1983); Sierra Club v. Sigler, 695 F.2d 957 (5th Cir. 1983)).

Even though agencies, such as NRC, are expected to adopt NEPA regulations that comply with the CEQ regulations, CEQ does not have the authority to revise these regulations if they do not comply. Nonetheless, federal agencies are subject to judicial review if the agency is challenged. The case law indicates that it is likely that the courts will not accept NRC's position of ignoring CEQ regulations and will find that its environmental analysis is inadequate in regard to considering connected actions of the national high-level nuclear waste program. See Sierra Club cases cited *supra*. Court decisions will also likely be influenced by Congressional intent that with respect to federal facilities, there is a requirement for comprehensive public and stakeholder involvement in a proposed project.

**Response to Applicant's Rephrasing of Contention Y:**

The State objects to the Applicant's rephrasing of Contention Y. The State's contention properly states the NEPA requirement. Applicant's rephrasing simply attempts to limit the scope of the contention by use of specific phrases from the State's discussion.

**REPLY: CONTENTION Z (No Action Alternative)**

The NRC Staff does not oppose the admission of this contention. Staff's Response at 68. PFS again resorts primarily to the "impermissible collateral attack" argument. Applicant's Supplemental Answer at 6, 8. NEPA requires definition of a "no action" alternative. The decisionmaker is required to consider a "no action" alternative. The analysis and description required by NEPA is not satisfied by other processes and proceedings.

The major part of the additional arguments presented by PFS go to factual issues which are disputed. The existence of these factual arguments support the need for consideration of this contention.

*See also* State's replies to Contentions W and Y.

**Response to Applicant's rephrasing of Contention Z:**

The State objects to the Applicant's rephrasing of Contention Z. The State's contention properly states the NEPA requirement. Applicant's rephrasing simply



attempts to limit the scope of the contention by use of specific phrases from the State's discussion.

**REPLY: CONTENTION AA (Range of Alternatives)**

NRC Staff does not oppose the admission of this contention. Staff's Response at 69. PFS objects to the contention because the State has provided no basis to "challenge the sufficiency of the 38 candidate sites" (Applicant's Supplemental Answer at 16) and because the State "ignored relevant material submitted by the Applicant" (Applicant's Supplemental Answer at 15).

NEPA does not require establishing the "sufficiency" of alternative sites, nor does it simply require the identification of "relevant material" on alternatives. NEPA does require that an Environmental Impact Statement include a discussion of the range of "reasonable alternatives." The Environmental Report does not constitute an adequate Environmental Impact Statement for purposes of NEPA as is described in the State's Contention. Surely PFS is not arguing that the Environmental Report constitutes an adequate NEPA EIS.

PFS misses the point of the State's contention. The contention is that NEPA has not been complied with. Nowhere does the State argue that PFS is required to send questionnaires "to all 38 site owners," as claimed by PFS. Applicant's Supplemental Answer at 17. NEPA does require an adequate description and

assessment of alternatives as is described in its contention.

The NRC cannot unduly restrict the range of alternatives considered. The consideration of alternatives under NEPA has been called both the "heart" and the "linchpin" of the EIS. Neither the intent nor the letter of NEPA are met if the NRC does not consider reasonable alternatives to achieving the purpose of the proposed project. Because the purpose of this project is prodigious, the range of alternatives needs to be on a comparable scale.

Courts have even gone so far as to hold that agencies must consider alternatives even though they are measures which the particular agency or official cannot adopt. Natural Resources Defense Council, Inc. v. Morton , 458 F.2d 827 (D.C. Cir. 1972). Later cases also support the requirement that the agency consider alternatives, even those outside the jurisdiction of the agency. See Libby Rod & Gun Club v. Poteat, 457 F. Supp. 1177 (D. Mont. 1978), *aff'd and rev'd in part on other grounds*, 594 F.2d 742 (9th Cir. 1979) (alternative power sources or energy conservation for a proposed dam) and A.T. & S.F. Ry. Co. V. Callaway, 382 F. Supp. 610 (D.D.C. 1974) (other modes of transportation as alternative to improvement of river navigation). Most cases have adopted a rule that alternatives must be discussed which relate to the purposes of the project. In this case, this rule means that NRC must consider reasonable alternatives to siting a large, national-scale spent fuel storage facility. Courts have not been willing to accept an applicant's project definition as the basis for narrowing the range of

alternatives. Van Abbema v. Fornell, 807 F.2d 633 (7th Cir. 1986); Sierra Club v. Marsh, 714 F.Supp. 539 (D. Me. 1992)).

Part of this issue is whether the range of the alternatives agencies must consider is more limited when the agency considers an action proposed by a private applicant. CEQ clearly points out that NEPA does not provide any justification for a dual standard (CEQ Guidance Regarding NEPA Regulations, 48 Fed. Reg. 34,263, 34,266 (1983)).

*See also* State's reply to Contentions W and Y.

**Response to Applicant's rephrasing of Contention AA:**

The State objects to the Applicant's rephrasing of Contention AA. The State's contention properly states the NEPA requirement. Applicant's rephrasing simply attempts to limit the scope of the contention by use of specific phrases from the State's discussion.

**REPLY: CONTENTION BB (Site Selection and Discriminatory Effects)**

The NRC Staff does not oppose the admission of this contention, but requests a clarification of the State's use of the term "investigation." Staff's Response at 69. The State is not seeking an "investigation" of this matter by the NRC Office of Investigations. It is seeking compliance with the President's Executive Order No. 12898 and NEPA.

PFS spends 10 pages arguing over what is or is not required by the Executive

Order and NEPA. The State's assertion is that the process of site selection used by PFS cannot be relied upon as meeting those requirements. NEPA and Executive Order No. 12898 must be complied with by NRC. There is ample justification under NEPA for considering Environmental Justice in this proceeding. By virtue of the large size and unique status of the project, the siting of the ISFSI must receive specific attention.

**Response to Applicant's rephrasing of Contention BB:**

The State objects to the Applicant's rephrasing of Contention BB. The State's contention properly states the NEPA requirements and requirements of Executive Order No. 12898. Applicant's rephrasing simply attempts to limit the scope and meaning of the contention by use of specific phrases from the State's discussion.

**REPLY: CONTENTION CC (One-Sided Costs-Benefit Analysis)**

The NRC Staff does not oppose the admission of portions of this contention, to the extent that the Staff does not oppose the admission of Utah Contentions H through P. Staff's Response at 70. The NRC Staff does take the position that because the State has not demonstrated any reason to believe that the Applicant's discussion is deficient, the "assertion is therefore lacking in the requisite basis." Id.

The Environmental Report is deficient on its face, as is described in the State's contention. Both PFS and the Staff would appear to start from the presumption that if

anything is on paper, it must be adequate. The standard for determining adequacy is listed in 10 CFR § 51.45(c). The brief discussion in Section 7.3 of the Environmental Report does not meet the requirements of 10 CFR § 51.45(c). 10 CFR § 51.45(c) requires "analysis which considers and balances the environmental effects of the proposed action and the alternatives available for reducing or avoiding adverse environmental effects, as well as the environmental, economic, technical and other benefits of the proposed action." That analysis is just simply not included in the report.

PFS's approach is to shift the burden to the State. Under the rule, it is PFS's burden to "quantify" the various factors considered, and if they cannot be quantified, provide an explanation on why qualitative considerations are appropriate. 10 CFR § 51.45(c). No quantification or analysis is included in the report. PFS points to ER Chapter 5 in response to the State's claim that adverse environmental impacts are weighed against alleged benefits. Applicant's Supplemental Answer at 41. Chapter 5 on "Environmental Effects of Accidents" does not meet the requirement for analysis of environmental effects. 10 CFR § 51.45(c) is not limited to accidents. The State's point is there is no analysis. The State cannot address the parts that are allegedly defective where there is no analysis. Even ignoring the specifics contained in the State's contention, the failure to do an analysis is sufficient as the basis for this contention.

A final example is reflective of the deficiencies in the ER. PFS cites to the

Environmental Report, Table 7.3.-1 that emergency response costs are quantified. Applicant's Supplemental Answer at 43. Table 7.3-1 does not contain a category for emergency response costs. PFS claims it is lumped into operating expenses. So what are the costs? How can you evaluate information that is not provided? The entire Table 7.3-1 is so general, without any supporting information or breakdown of information, it is useless. Surely, 10 CFR § 51.45(c) was intended to require more.

Response to Applicant's rephrasing of Contention CC:

The State does not object to the Applicant's rephrasing of Contention CC.

#### REPLY: CONTENTION DD (Ecology and Species)

NRC Staff does not oppose the admission of this contention to the extent that it is limited to the Applicant's discussion of the impacts on the peregrine falcon at the Timpie Springs Waterfowl Management Area, adjacent to the Rowley Junction ITP. Staff's Response at 71. The NRC Staff, likewise, does not oppose the admission of the State's issue concerning the Applicant's discussion of livestock and farm animals. Id.

PFS is inconsistent in the Environmental Report by stating, on the one hand, that construction activities will temporarily disturb resident wildlife species and yet, on the other hand, stating that construction will be ongoing for over twenty years, citing the ER at 4.1-4 to 6. Applicant's Supplemental Answer at 46-47. Nowhere in those pages is there an identification of long term impacts for the twenty year

construction period.

The State presents a significant issue of the potential for contaminated ground or surface water. Any spills of radioactive material, chemicals used at the facility (i.e. lubricating or cleaning chemicals), or other sources of pollution will be collected in the retention pond. There is no discussion in the ER of potential effects of these contaminants on surface and ground water and wildlife, aquatic organisms, or vegetation as required by 10 CFR §§ 72.100 and 72.108 and NEPA.

NRC Staff argues that the State has presented no basis for asking that mitigation plans be provided. Staff's Response at 73. In evaluating environmental impacts, how can you determine whether impacts will be mitigated, if you don't know what the mitigating measures will be? Both NRC rule 10 CFR § 72.100, requiring an evaluation of the effects on the regional environment, and NEPA rule under CEQ Regulation § 1502.16 require at a minimum a description of mitigation measures.

To demonstrate adequacy of its ER on the peregrine falcon, PFS lists the provisions in the ER § 2.3.2.4 which concludes that the peregrine falcon nests are "not located in the vicinity" of the proposed intermodal transfer station. The Timpie Springs Waterfowl Management Area is adjacent to the proposed intermodal transfer station and therefore the impact on this federally endangered species must be addressed.

Responding to PFS's argument on the adequacy of information on pocket

gophers, the State's position is that a survey of pocket gopher mounds must be done to properly be able to describe and determine the effects on the environment resulting from construction, operation and decommissioning of the ISFSI. 10 CFR § 72.100.

The reason for the survey is to meet the requirements of this section.

The Great Salt Lake is adjacent to the intermodal transfer station and transportation routes. In addition, the water drainage from the area of the proposed ISFSI goes to the Great Salt Lake. 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, and NEPA. Furthermore, the potential impact on the environment of the transportation of high-level radioactive waste 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.

The Applicant acknowledges in the ER that additional studies must be done to identify species and develop mitigation plans prior to construction. The State asserts that to meet the requirements of 10 CFR §§ 72.100 and 72.108 and NEPA, the information must be obtained and included in the ER. PFS inconsistently criticizes the State for not identifying any other plant or species of concern, yet acknowledges it doesn't know what is there because it hasn't done the study. The listed sections and NEPA require the Applicant to identify what is there.

Response to Applicant's rephrasing of Contention DD:



The State does not object to PFS rephrasing of Contention DD with one exception:

Subparagraph d) (iv) should be amended to read:

d) (iv). The License Application fails to include information on pocket gopher mounds which may be impacted by the proposal.

#### **IV    Categorization of Contentions**

In accordance with the Board's January 6, 1998 Order, the State categorizes its Contentions into one of the following four categories:

**Safety:** relates primarily to matters discussed in the PFS Safety Analysis Report (SAR).

**Environmental:** relates primarily to matters discussed in the PFS Environmental Report (ER).

**Emergency Planning:** relates primarily to matters discussed in the PFS Emergency Plan (EP).

**Other:** does not fall into one of the three categories outlined above.

**SAFETY:** Contentions [C through Q and S; Late-filed Contentions EE through GG]

**ENVIRONMENTAL:** Contentions [T through DD]

**EMERGENCY PLANNING:** Contentions [R]

**OTHER:** Contentions [A and B]

V. Adoption by Reference of other Participant's Contentions

The State is willing to forego the adoption of other Petitioners' contentions at this time, so long as it may have to opportunity to adopt other Petitioners' admitted contentions at some later date.

DATED this 16th day of January, 1998.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Denise Chancellor", written over a horizontal line.

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## CERTIFICATE OF SERVICE

I hereby certify that copies of STATE OF UTAH'S REPLY TO THE NRC STAFF'S AND APPLICANT'S RESPONSE TO STATE OF UTAH'S CONTENTIONS A THROUGH DD were served on the persons listed below by Electronic Mail (unless otherwise noted) with conforming copies by First class mail this 16th day of January, 1998:

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Dated this 16th day of January, 1998.

  
Denise Chancellor  
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