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June 19, 1998

Dr. Edward Y. Shum
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Spent Fuel Licensing Section
Spent Fuel Project Office,
Office of Nuclear Material Safety & Safeguards
U.S. Nuclear Regulatory Commission
Washington DC 20555

Dear Dr. Shum:

Re: U.S. Nuclear Regulatory Commission, Docket No. 72-22, Private Fuel Storage LLC, Proposal to Store High Level Nuclear Waste on the Skull Valley Reservation

Enclosed are the written comments for the state of Utah in response to the EIS Scoping regarding the above matter.

If you have any questions, please contact me.

Best regards,

Dianne R. Nielson, Ph.D.
Executive Director

enclosure

U. S. NUCLEAR REGULATORY COMMISSION
DOCKET NO.72-22
PRIVATE FUEL STORAGE LLC
PROPOSAL TO STORE HIGH LEVEL NUCLEAR WASTE ON THE SKULL VALLEY RESERVATION

ENVIRONMENTAL IMPACT STATEMENT SCOPING COMMENTS SUBMITTED BY THE STATE OF UTAH JUNE 19, 1998

The following comments are provided by the State of Utah (State) in response to the U.S. Nuclear Regulatory Commission (NRC) Docket No. 72-22, Private Fuel Storage LLC (PFS), Independent Spent Fuel Storage Installation (ISFSI), Skull Valley Reservation, Notice of Intent to Prepare an Environmental Impact Statement (EIS) and conduct a scoping process in accordance with the National Environmental Policy Act (NEPA). 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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EIS SCOPING IS PREMATURE

As defined by the NRC,[1] the purpose of the EIS scoping is to, in part:

- Define the scope of the proposed action which is to be the subject of the EIS,

[1] U. S. Nuclear Regulatory Commission, April 24, 1998, Notice of Intent to Prepare an Environmental Impact Statement and Conduct Scoping Process, Docket No. 72-22.

- Determine the scope of the EIS and identify the significant issues to be analyzed in depth, and
- Identify and eliminate from detailed study issues which are peripheral or are not significant.

However, because of substantial and significant omissions and inadequacies in the license application of PFS, the information necessary for defining the scope of the EIS, much less conducting evaluations for the EIS under NEPA, is not available. Some of those omissions and inadequacies in the application are apparent from the recent Request for Additional Information (RAI) relating to the Safety Evaluation Report that the NRC Staff addressed to the Applicant. The Applicant responded to some of the requests in May 1998, however, the Applicant will not respond to significant portions of the RAI until September and December, 1998. Some of these responses, especially with respect to seismicity, directly impact the scope of the EIS. Furthermore, the NRC Staff is yet to send the Applicant an RAI relating to the deficiencies in the Applicant's Environmental Report.

The Staff's RAIs and the Applicant's responses thereto are integral to the scope of the EIS. If scoping proceeds and public comment on the scoping is concluded on June 19, 1998, there will be information relevant to the licensing of the facility, and therefore preparation of the EIS, which will not be available for consideration in the EIS scoping or preparation.

NRC should consider:

- Is the license application complete, such that additional information will not need to be analyzed or evaluated at a later time as part of the EIS process?
- If more information will be provided later, how will it be included in the EIS scoping and evaluation?
- How will new data and information be made available to the public, and how will the public be provided an opportunity to submit additional comments and scoping questions during the EIS process?

If NRC cannot define a process which provides for scoping, analysis, and evaluation of all issues associated with a complete and technically adequate license application, then it should delay the EIS scoping and analysis until such time as the license application is complete and technically adequate and an environmental impact evaluation can be made as required under NEPA.

PURPOSE AND NEED FOR THE PROPOSED FACILITY

As part of the EIS, the NRC must determine if there is a need for the proposed facility. The Environmental Report isolates the need for the facility to a particular group -- operators of

nuclear power reactors -- and does not discuss any overall social costs or benefits that may be derived from this facility. The EIS must analyze the need for this facility in terms of overall societal costs and benefits. Furthermore, the NRC must look to federal statutes and policies when evaluating the need for this facility.

Under 10 CFR § 51.71(d) "draft environmental impact statements should also include consideration of the economic, technical, and other benefits and costs of the proposed action and alternatives and indicate what other interests and considerations of Federal policy, including factors not related to environmental quality if applicable, are relevant to the consideration of environmental effects of the proposed action identified pursuant to paragraph (a) of this section." Furthermore, NRC must comply with federal statutes and policies contained therein in drafting its EIS. In particular, the EIS must consider whether the need for a centralized national private ISFSI is a violation of the intent and the policies contained in the Nuclear Waste Policy Act, 42 USC §§ 10,101 to 10,270 (NWPA). Under the NWPA, the State in which a federally-owned interim disposal facility is located is guaranteed involvement in "all stages of planning, development, modification, expansion, operation, and closure of storage capacity at a site or facility within such State for the interim storage of spent fuel from civilian nuclear power reactors." 42 USC § 10,155(d)(2). The Governor and the State Legislature are involved in the site selection investigation. 42 USC § 10,155(d)(1). Cooperative agreements between the Department of Energy (DOE) and the State are available for State funding and involvement. 42 USC § 10,155(d)(3). Furthermore, equipment, funds and training are available to states along the transportation corridor routes as well as to the State in which the site is located.

The EIS must evaluate the environmental consequences that flow from PFS's proposal, which has none of the State participation and involvement contemplated by NWPA. In fact, the EIS must evaluate whether PFS's proposal is a deliberate effort to avoid the requirements of the NWPA.

The need for the facility and the "No Action" alternative are coextensive of each other. The No-Action alternative is discussed in the following section, Range of Alternatives.

RANGE OF ALTERNATIVES FOR CONSIDERATION IN EIS

NEPA requires federal agencies to consider whether they can carry out the proposed federal action in a less environmentally damaging manner and whether alternatives exist that make the action unnecessary. A discussion of the range of alternatives is considered the "heart" of an EIS. 40 CFR § 1502.14. The purpose of a discussion of alternatives is to "sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decisionmaker and the public." Id. Yet, the Applicant presents only one option: a centralized national storage facility on the Skull

Valley Reservation.

The discussion of alternatives sites in the Applicant's Environmental Report (ER) is woefully deficient. The Environmental Report lists 38 potential sites. However, there appears no reason, other than a willing host, to substantiate why the Skull Valley Reservation was the only siting alternative discussed in any detail. ER § 8.1. The EIS must rigorously explore and objectively evaluate all the 38 potential sites listed in the ER. The fact that the 38 sites are listed in the Applicant's ER demonstrates that these sites are all reasonable alternatives to a site on the Skull Valley Reservation.

As part of the EIS scoping, the NRC should also determine if the socio-economic nature of the alternative sites suggests that the site identification process was prejudiced, in violation of the requirements of policy and law governing Environmental Justice.[2] *See* Environmental Justice discussion below.

One option that the EIS is compelled to explore is the "No Action" alternative, which is the flip side of the need for the facility. A careful evaluation of the "No Action" alternative is an absolute priority in this case. Existing nuclear power plant sites already have more than sufficient capacity to continue to store spent fuel rods.[3] Before the NRC contemplates licensing the proposed PFS facility, it must carefully evaluate the unique risks and costs posed by transporting thousands of tons of high level nuclear waste across the country to a new, centralized facility, as compared to the risks and costs of maintaining the status quo, i.e., leaving the spent fuel at the sites of the nuclear power plants where it is generated and currently stored, pending the opening of a permanent, deep geologic repository.

The "No-Action" alternative should evaluate the impacts and risks that could be avoided if spent fuel were stored at existing nuclear power plant sites until a permanent repository becomes available. The PFS proposal doubles the number of times that fuel must be transferred from storage casks to shipping casks and from shipping casks to storage casks. It also increases the distance that the spent fuel must be shipped, and increases the time that spent fuel will be moving across the country, subject to accidents or sabotage. This consideration is particularly significant for two reasons:

- Some transportation corridors, including the I-80 - Union Pacific Railroad transportation corridor east-west through Tooele and Salt Lake Counties, are not designated

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[2] Federal Executive Order No. 12898, February 11, 1994.

[3] GAO Report to Congressional Requesters, September 1991, Nuclear Waste--Operation of Monitored Retrievable Storage Facility is Unlikely by 1998, GAO/RCED-91-194, p. 4.

transportation corridors for other shipments of high level nuclear waste; but for the pending proposal, these areas would not be subject to the risks of transportation of high level nuclear waste;

- This is particularly true for the shipments of high level nuclear waste from PFS member corporation Southern California Edison; if Yucca Mountain were the licensed permanent storage facility, there is no cost effective transportation route which would dictate transportation of high level nuclear waste from southern California, through northern Utah, and then back southwest to southern Nevada.

In fact, the Nuclear Waste Policy Act requires the federal government, when selecting interim storage sites, to "minimize the transportation of spent nuclear fuel." 42 USC § 10,155(a)(3). As part of the EIS, if the NRC determines that the proposed facility results in excess transportation of spent fuel rods, the EIS must recommend that the proposed ISFSI alternative is flawed and unacceptable under NEPA.

Another option the EIS must explore is how the proposed ISFSI fits into the overall federal scheme for disposing of high level nuclear waste. Recent proposed legislation to site a Monitored Retrievable Storage (MRS) facility is indicative that this alternative is within the range of reasonable alternatives the EIS must consider. Thus, the environmental effects, including transportation risks of Applicant's private centralized national storage facility must be evaluated against those same risks associated with an MRS. The effect that the Applicant's proposal will have on a comprehensive scheme to deal with the disposal of high level nuclear waste must also be addressed in the EIS.

Another reasonable proposal the EIS must explore is the development of private regional ISFSIs where the transportation distances and volume of fuel would be substantially less than those associated with the PFS proposal.

The EIS should also examine the alternative of providing a hot cell where damaged fuel can be retrieved, thereby avoiding the risks incurred in shipping the fuel back across the country to the originating nuclear power plant. The avoided risks that should be considered include the risk of accidents (which is enhanced by the loss of cladding effectiveness), and the risk of sabotage.

GUARANTEE THAT FACILITY WILL BE "TEMPORARY"

The "temporary" designation of this proposed facility is also within the purview of this EIS. The facility is being proposed and evaluated as a temporary storage facility. However, there is no way to ensure that spent fuel rods will ever be removed after they are shipped to the facility.

- There is no permanent repository, and Yucca Mountain remains under study. There is no

permanent, deep geologic storage facility for the high level nuclear waste commercial spent fuel rods.

- Furthermore, the license application clearly states that one of the objectives for licensing this temporary facility is to enable fuel rods to be shipped off-site so the nuclear power plant can be decommissioned. Once all the fuel is transported from the power plant and the possession-only license (POL) is relinquished, fuel rods could not be returned to the power plant.
- Because the PFS facility is proposed to be designated a "start clean, stay clean" facility, if there is an accident or problem during transportation or storage and a cask leaks, there is no hot cell, which would be needed to repair or repackage the rods or cask. If the cask were leaking, regulatory requirements and opposition from transportation corridor states would likely make it impossible to remove the material from the proposed "temporary" PFS facility.

The NEPA process requires an evaluation of the facility as proposed for operation, a *temporary* facility. If the facility cannot be demonstrated to be temporary, then the facility would operate beyond the scope of the license and beyond the scope of the EIS, irrespective of NRC Waste Confidence Decision.

QUANTITATIVE AND QUALITATIVE RISK ASSESSMENTS

Risk assessments, both quantitative and qualitative, are critical for the initial and ongoing evaluation of a facility for licensing, environmental impact analysis, and operations. The nuclear industry has conducted extensive work in these areas as part of the licensing of nuclear power plants. The techniques and information have evolved significantly, and regulatory agencies as well as the public and the industry have come to rely more heavily on these assessments, not only for initial evaluations of risk, but for quality, compliant, safe operations.

The Utah Department of Environmental Quality (DEQ) used both quantitative and qualitative (health/ecological) risk assessments as required components of the permit for the Tooele Chemical Agent Destruction Facility (TOCDF) at Deseret Chemical Depot in Tooele County. The health/ecological risk assessment is used to identify potential reasonable worse case contaminants, pathways, and impacts on public health and the environment. The original assessment is update as needed to reflect changes in operations. DEQ works closely with the U.S. Environmental Protection Agency (EPA) in selecting and revising the model and procedures. The quantitative risk assessment identifies all human or mechanical errors, the impacts of errors, accident scenarios, and the statistical probability for each step in a process or function. Then risks, including injuries and fatalities, of each individual step, combined risks of the process, and the overall activity are determined.

Quantitative and qualitative (health/ecological) risk assessments have not been provided as part of the existing information in the PFS license application. Nor is there any indication when such risk assessments would be completed. This is information which is essential, not only to the evaluation of the construction and operation of the storage facility, transportation operations, transfer station, and related operations and facilities, but also to the impacts of such operations on public health and the environment.

When an ISFSI is licensed in conjunction with and located at an existing nuclear power plant, some portion of the impacts are potentially already included in existing health/ecological and quantitative risk assessments. However, where an ISFSI is constructed away from a nuclear power plant, the entire site- and operation-specific risk assessments must be designed and conducted. This has not been provided in the license application for the PFS proposed facilities and operations, and until it has been done, and a sufficient opportunity for public review is provided, it is impossible to evaluate the cumulative impacts of facility and transportation options on the public and the environment. And without such evaluation, the EIS is incomplete and unacceptable.

CUMULATIVE IMPACT ANALYSIS

The EIS must consider the cumulative impact of the proposed storage site and the numerous other facilities and activities in the West Desert. This area is already the storage site for 42 percent of the U. S. stockpile of chemical weapons. The malfunction and crash of a Cruise Missile on the adjacent Dugway Proving Grounds, as well as crashes of F-16s on maneuvers over the adjacent Utah Test and Training Range are well-documented. Within a 30 mile radius of the proposed site, there are two hazardous waste incinerators, one hazardous waste land disposal site, one NORM/Mixed waste/11(e)2 waste disposal facility, the single largest Toxic Release Inventory (TRI) air pollution source in the United States (Magnesium Corporation of America, Rowley, Utah facility), and operations for stockpile and destruction of conventional munitions. Dugway Proving Grounds is also the designated landing site for NASA's Stardust spacecraft and the MUSES-C Asteroid Mission, a Japanese mission with NASA participation.

These existing activities and operations must be considered in the EIS. The NRC has a responsibility under NEPA to know, to evaluate, and to mitigate the cumulative impacts of those activities, or to disapprove the proposed storage facility. Utah and the Skull Valley Reservation are not safe places to store radioactive waste fuel rods.

COST-BENEFIT ANALYSIS

A statutory requirement under NEPA is that all agencies of the federal government develop methods "which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking." NEPA § 102(2)(B), 42 USC § 4332(2)(B). In addition, NRC regulations require a draft environmental impact statement "include consideration of the economic, technical and other benefits and costs of the proposed action and alternatives...." 10 CFR § 51.70(d). In Utah Contention CC, the State described the Applicant's inadequate balancing of costs and benefits in the Environmental Report. Contention CC, One-Sided Cost-Benefit Analysis, at 178-79, is incorporated by reference into these comments. Because the complete lease agreement between the Skull Valley Band of Goshutes and PFS is not available, the impacts of financial commitments governing the lease, which impact the total cost-benefit analysis, are also not available. Without this information in the license, and absent additional financial information from the lease agreement, there is insufficient information for a cost-benefit evaluation. The NRC secure that information and must objectively discuss, quantify and weigh the adverse socioeconomic and environmental consequences that flow from the Applicant's activities associated with the proposed ISFSI.

Decentralized at-reactor storage costs and benefits must be compared to PFS centralized storage and federal centralized storage at Yucca Mountain. For decentralized storage, the economic costs should include licensing a decentralized ISFSI, ISFSI construction, casks and staff (unless the federal government assumes the burden) until fuel is transported and the POL is relinquished. Under the PFS proposal, the economic costs should include the casks, staff, transportation, Rowley Junction facility costs, licensing and decommissioning the facility. Under federal interim storage, all transportation and storage costs would be paid out of the Federal Waste Management Fund. While the proposed ISFSI is only being considered for a twenty year license, a more reasonable projection is 60 years or more (if temporary).

The financial impacts on ratepayers of the member utilties of PFS should also be considered in the evaluation. Rate payers have already paid for the disposal of spent nuclear fuel by the federal government. By committing funds from public utilities to fund a second storage facility, the ratepayers are paying twice. This is particularly troublesome when existing capacity for temporary storage already exists at current nuclear power generating facility. See discussion under Range of Alternative for Consideration in EIS, above.

TRANSPORTATION IMPACTS

Before preparing the Draft EIS, the NRC staff must obtain more information from PFS regarding

the nature of the proposed action as it relates to transportation of the spent fuel. As PFS has acknowledged, its study of transportation alternatives is "ongoing." Letter from Jay E. Silberg, Counsel to Applicant, to Licensing Board Panel (June 8, 1998). Because PFS's study has not concluded, PFS's license application still lacks crucial information that is necessary for the evaluation of the proper scope of the EIS. For instance, PFS's application has not identified the originating locations of the spent fuel, the means and routes by which it will be shipped, or the manner in which it will be transferred to shipping vehicles. In addition, as PFS has acknowledged, it has not yet settled on the means for transporting the spent fuel from the main railroad line to the Private Fuel Storage facility. Id. Thus, to a significant degree, the "proposed action" which must be evaluated in the Draft EIS remains undefined. Therefore, it is not possible to fully evaluate the necessary scope of the EIS. *See, e.g.,* Sierra Club v. Watkins, 808 F. Supp. 852 (D.C.D.C. 1991), in which an environmental assessment was remanded for failure to adequately identify and evaluate alternatives to the Port of Hampton Roads for receipt of fuel rod shipments. Here, it would be impossible to identify the scope of alternative shipping routes that should be considered, because there is no specific proposal with which to compare alternatives. Once the Applicant has made a more definite proposal, the NRC Staff should provide an additional opportunity for comments on the scope of the EIS. To the extent that it is possible to comment on the scope of the EIS based on information provided to date, the State does so below.

The EIS must address the impacts of all actions that are foreseeable as a result of the licensing of the activities proposed by PFS in its license application. Both impacts of normal operations and non-normal operations such as accidents and sabotage must be considered. The activities whose impacts must be evaluated include preparation of spent fuel for transportation to the ISFSI, actual transportation of spent fuel to the proposed ISFSI by rail and/or truck, transfer from rail to truck at the currently proposed Rowley Junction intermodal transfer site, transportation from Rowley Junction to the PFS facility by heavy-haul truck, and transfer from transportation casks to storage casks. The EIS must also consider transfer-related and transportation-related impacts incurred if and when spent fuel must be returned to the originating nuclear power plant site or another site if it is found to be improperly packaged or defective, and the impacts of transferring and transporting spent fuel to a final repository at the conclusion of the storage period at the PFS facility.

The EIS should take into account the following considerations relating to spent fuel transfer and transportation:

- *Transportation corridor impacts.* Major transportation corridors in the West are critical not only to the states and communities they connect, but to the economic viability of local, national, and international businesses and governments. Interstate 80 and the Union Pacific Railroad through Salt Lake and Tooele Counties comprise a critical east-west transportation corridor. This is the corridor PFS will use, whether it transports

nuclear fuel rods by truck or rail. Any accident resulting in the release of radioactive material would be devastating to public safety. But even an accident which blocks east-west transportation for hours or days could have significant impacts on commerce, business, and the public. There is no nearby, equivalent transportation corridor. When the Great Salt Lake threatened to flood this transportation corridor, the State of Utah spent more than $50 million dollars on pumps to lower the Great Salt Lake and protect this critical transportation corridor. The EIS should evaluate whether and how the owners/operators of the proposed facility will provide the financial and procedural guarantees necessary to assure an equivalent level of protection based on impacts from their facility and transportation operations.

- *Impacts of normal transportation.* The EIS should consider all environmental impacts associated with normal transportation of spent fuel, including occupational radiation exposures and exposures to the public along highways and rail lines. In evaluating radiation exposures, the NRC should utilize the RADTRAN computer code, which is significantly more accurate and generally shows much higher radiological doses to the general public than methods used in the past by the NRC. *See* State of Utah's Contentions on the Construction and Operating License Application by PFS, LLC for an ISFSI, dated November 23, 1997 (hereinafter "State's Contentions") at 159-60. RADTRAN is consistently used by the Department of Energy in its environmental analyses of radioactive waste transportation, and there is no reason it cannot be used by the NRC.

- *Impacts of accidents.* The EIS should identify and evaluate the impacts of the range of foreseeable accidents that could occur during fuel transfer, transportation and storage. Accidents evaluated should include, but not be limited to, cask drop, collision during transportation, collapse of or fall from railroad trestle (including impacts of burial in sediment and water intrusion into cask), and major fires. *See* State's Contentions at 146-59. The EIS should also evaluate the risks of flooding of transportation corridors by the Great Salt Lake. In addition, the EIS should evaluate the likelihood of fuel cladding degradation due to pre-shipment dry cask storage, and its effects on the risk of accidental radiation releases. *See* State's Contentions at 157-58. Previous NRC environmental studies, which assume pre-shipment storage in spent fuel pools, are inadequate to address this phenomenon.

- *Impacts of sabotage.* The EIS should thoroughly evaluate the risks and impacts of sabotage during transportation and storage of spent fuel. 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 Murrah Federal Building in Oklahoma City have vividly demonstrated the credibility of sabotage as a

very real threat. *See* State's Contentions at 152-54. The NRC's previous environmental studies are inadequate to address the increased sophistication and availability of weapons for sabotage purposes. Nor do currently available NRC studies address the particular circumstances of the proposed PFS facility and transportation scheme (to the extent they are known) which render them especially vulnerable to sabotage, such as the shipment of large quantities of fuel at low speeds on rail lines that are easily accessible to saboteurs, the increased vulnerability of transportation casks to sabotage during long layovers in rail yards, and the close proximity of Rowley Junction to I-80.

- *Impacts caused by human error and maximum credible accidents.* The EIS should consider the risk of accidental radiation exposure caused by human error in the design and construction of casks. *See* State's Contentions at 154-55. The EIS should also identify and evaluate a bounding accident, taking into account the maximum hazards and demographic conditions of the environment.

- *Characteristics of fuel.* The EIS should take into account the characteristics of the fuel shipments, such as the burn-up level of the fuel, and the weight of fuel shipments. For the reasons stated in Utah Contention V, *see* State's Contentions at 146-49, it is inappropriate to rely on Table S-4 of 10 C.F.R. Part 51 to evaluate these factors.

- *Rail and highway conditions.* PFS projects shipment of spent fuel at a large volume and frequency -- 100-200 rail shipments per year, with 4,000 casks to be shipped altogether. SAR at 1.4-2, License Application at 3-1. This amounts to approximately 8-17 rail shipments per month. Some fuel may also be shipped by truck. The EIS should take into account the contribution to the risks and impacts of spent fuel transportation caused by current and anticipated conditions on interstate highways and rail corridors. For instance, traffic congestion and highway speeds on interstate highways have significantly increased since the 1970s, when WASH-1238 was prepared. The use of railroad lines for freight traffic has also greatly increased in recent years, causing delays and bottlenecks in shipping. *See, e.g.*, New York Times: Weary Hands at the Throttle (April 26, 1998), attached hereto as Exhibit A. Such congestion increases the potential for accidental collisions, and also increases the potential for sabotage against unprotected railroad cars that are either moving very slowly or sitting on railroad sidings for extended periods of time. The EIS should also examine the potential bottlenecking effect of focusing a large number of spent fuel shipments, originating all over the United States, on a single geographic area.

- *Impacts of extended storage at Rowley Junction.* The large volume and frequency of proposed rail shipments by PFS creates the significant potential for backup of trains and casks at Rowley Junction. In addition, Union Pacific Railroad has a stated policy of

shipping spent fuel in dedicated trains at 35 miles per hour. Thus, it can be reasonably anticipated that five or more casks will arrive at Rowley Junction at the same time. Furthermore, the amount of time required to move a cask out of Rowley Junction is contingent on many factors: there is only one crane to unload casks at Rowley Junction; the cask must be transported 24 miles by a slow moving heavy haul truck from Rowley Junction to the ISFSI; once at the ISFSI the cask must be inspected and removed from the truck and shipping container to a transfer container then to a storage container-- an operation that could take anywhere from 11 to 22 hours. *See* SAR Table 5.1-2. Potentially only one cask per day could be moved out of Rowley Junction. Consequently, if casks have to be stored at Rowley Junction, both the radiation doses to workers and the public and the risk of accidents will increase. These impacts are not anticipated in previous NRC environmental analyses, and must be considered in the EIS for the PFS facility.

- *Demographic characteristics of transportation corridors.* In assessing normal and accident-related radiation exposures and risks, the NRC should evaluate the demographics of transportation corridors proposed for use by PFS. The State is concerned, for example, that large quantities of spent fuel will pass through Salt Lake City, a major population center. WASH-1238 is inadequate for purposes of assessing the impacts of spent fuel transportation on large population centers such as Salt Lake City.

- *Shipment to PFS from nuclear power plants not serviced by rail lines.* The EIS should 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. However, there are some plants, such as Indian Point, which do not have sufficient crane capability to handle heavy shipping casks. The impacts of these transfers have not been assessed by PFS, nor have they been assessed in previous NRC environmental impact statements.

- *Accident costs.* The EIS should address the costs of accidents, which are likely to be significant. *See* State's Contentions at 155-56. Cost analyses should take into account the vital role played by rail lines and interstate highway 80 in the economic health and well-being of the State of Utah and the entire region.

  The EIS should also address the issue of who will pay the cleanup costs, as well as the level of assurance that the costs will be paid. If cleanup costs cannot be paid promptly by responsible parties, the economic and health costs to the public are likely to increase.

- *Radiological releases.* The EIS should re-evaluate previous assumptions and calculations regarding radiological releases during an accident. Recent analyses suggest that during a severe accident, a greater fraction of cesium-137 may be released than estimated in WASH-1238. *See* State's Contentions at 158. Moreover, the cesium-137 inventory of the TransStor cask is a factor of 3.4 greater than assumed in WASH-1238. This new information must be evaluated in the EIS.

- *Transportation Distances.* The EIS must consider the great distances over which spent fuel will be shipped to the PFS facility. WASH-1238 is based on a transportation distance of approximately 1,000 miles. WASH-1238 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 1,000 miles. For example, the one way mileage from Boston, Massachusetts to Salt Lake City is 2388 miles. 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. *See* State's Contentions at 160-61.

- *Cumulative Transportation Impacts.* The State of Utah has a number of facilities for the storage and/or processing of radiological and hazardous materials, including both civilian and military material. The EIS should examine the cumulative impacts of shipping various kinds of dangerous materials through the State, including cumulative risks of normal and accidental exposure to toxic materials, and risks of accidental collisions. The EIS should also evaluate the interaction of spent fuel transportation to and from the PFS facility on other activities in the area. For instance, State Route 196, a two-lane blacktop road that runs north-south from I-80 at Rowley Junction to Dugway Proving Ground, is the route defined by PFS for transportation of spent fuel rods by heavy haul truck. The EIS must evaluate other uses and priorities for this route, including the fact that it is the primary surface transportation route for Dugway Proving Grounds, and is one of three emergency evacuation routes for the nearby chemical weapons incinerator at Desert Chemical Depot. It is also the sole access for the community of Iosepa, Utah, the adjacent ranching community, and residents of Skull Valley Reservation. There is also a need to evaluate the impacts of upgrading or widening the road, if that is the transportation corridor for transportation of spent fuel rods or as a result of increased traffic and use of the state route.

- *Risks of transporting damaged fuel from PFS facility to originating plant.* Contrary to the requirements of 10 C.F.R. § 72.122(l), PFS's application does not clearly establish measures for assuring the retrievability of spent fuel. If fuel is found to be damaged, PFS

proposes to return it to the originating nuclear power plant or to some other facility where it can be repackaged. The EIS should evaluate the impacts of transporting spent fuel whose cladding is known to be damaged, and therefore less capable of performing its safety function. Moreover, the EIS should evaluate the environmental impacts that would result if the spent fuel could not be transported to the originating plant because the plant had closed, and no other nuclear licensee would accept the fuel for repackaging.

- *Unique impact on transportation corridor.* The I-80 - Union Pacific Railroad transportation corridor east-west through Tooele and Salt Lake Counties is not a designated transportation corridor for other shipments of high level nuclear waste. Therefore, this proposed facility and the transportation corridor impacts which are uniquely associated with the proposed facility pose an otherwise non-existent set of risks to the local community, users of the transportation corridor, and the environment along the corridor. The significant and unique risks must be evaluated as part of the EIS. Impacts to be considered include:

  -- What are the impacts of using non-dedicated trains to transport high level nuclear waste fuel rods, not only through Utah, but across the United States?
  -- What are the impacts of shipment along a corridor which is not and will not likely be proposed for shipment of waste to the proposed deep geologic repository at Yucca Mountain, Nevada?
  -- What are the additional impacts of transporting high level nuclear waste fuel rods from Southern California Edison's nuclear power plants, realizing that these wastes would not otherwise travel through Utah on their way to deep geologic storage at the proposed site at Yucca Mountain, Nevada?
  -- What are the impacts of not providing funding for emergency response along the transportation corridor throughout the United States?
  -- How will transportation by truck or rail be scheduled to avoid delays and conflicts with normal commerce and as well as emergency transportation?
  -- How will conflicting transportation on State Route 196 be mitigated, recognizing that based on information in the license application, there will be up to 200 shipments per year, and turn around time for unloading each cask once it arrives at the ISFSI will take anywhere from 11 to 22 hours per cask? *See* SAR Table 5.1-2.

- *Other impact considerations.* As part of the scope of this EIS, the full and complete impacts to all transportation corridors must be evaluated.

  -- What are the types of accidents which are possible because of the transportation of high level nuclear waste fuel rods?

- -- What impacts are caused by such accidents?
- -- How will impacts of transportation accidents involving high level nuclear waste be mitigated?
- -- Who will bear responsibility for financial and other losses resulting from such accidents?
- -- How will that financial responsibility and payment be assured?
- -- What are the cumulative possibilities for high level nuclear waste accidents and other accidents associated with existing and currently known activities?
- -- What transportation modes will be used by PFS, when will these be identified, and how will these alternatives be evaluated?

PUBLIC SAFETY AND EMERGENCY RESPONSE

The lack of emergency planning exhibited in the license application and the need for such planning are critical issues. But, emergency planning is a fall-back, fail-safe measure, not the primary means for assuring the safety of the public. In the context of the NRC safety regulations, the NRC must first conclude that the spent fuel can be safely transported in compliance with all relevant regulations. In the context of NEPA, emergency planning is not a substitute for an adequate EIS that evaluates all of the risks and costs posed by the proposed spent fuel transportation, objectively weighs whether the planned transportation constitutes the most cost-beneficial alternative, and then applies appropriate mitigation measures.

A critical aspect of the EIS scoping process is the definition of emergencies, both those that could result from the operation of the proposed storage of high level nuclear waste fuel rods and emergencies which could impact the ISFSI operations. Cumulative impacts of these emergencies should also be developed and evaluated. This evaluation should include a quantitative risk assessment as well as a detailed evaluation of the regulations, procedures, and equipments and personnel necessary to mitigate the impacts of the individual and cumulative problems. The following represents a partial list of the types of problems, accidents, and emergencies which need to be evaluated and mitigated in order to ensure protection of public health and the environment under the scope of the EIS. For example:

- How will the impacts and risks of range or wildfires be evaluated and mitigated?
- How will the risk of snow build-up around storage casks on-site be evaluated and mitigated?
- How will excessive heat and cold and resulting damage during summertime and wintertime storage be evaluated and mitigated?
- What is the necessary response time and capability for righting an overturned cask?
- What would be the impacts of being unable to repackage a cask which is damaged or leaking, during transportation and storage?

The EIS should also indicate what permits, licenses, regulation, and procedures, at a minimum, would be required to ensure that these impacts can be mitigated.

The State Science Advisor acts as coordinator for all state executive agencies for transportation related issues for high level and transuranic radioactive waste. The State Science Advisor has expressed serious and extensive concerns regarding the PFS proposal and its deliberate and inexcusable omission of any consideration of a comprehensive and detailed transportation or emergency response plan.

In recognition of the multitude and seriousness of concerns relating to the transportation of radioactive materials, Congress enacted the Nuclear Waste Policy Act of 1982 as amended in 1987 to provide for the safe, efficient and cost effective transportation of radioactive materials with specific provisions for spent nuclear fuel, naming the Department of Energy's Office of Civilian Radioactive Waste Management as the agency responsible for all shipments of high-level nuclear waste and commercial spent fuel to federal facilities. It is the position of the State of Utah that this proposal between PFS and the Skull Valley Band of Goshutes is an intentional and calculated attempt to circumvent the provisions of that Act which Congress deemed necessary to ensure the safety and environmental protection of nuclear waste shipping campaigns.

In preparation for shipments of high level radioactive waste transportation campaigns, the DOE began development of the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico to serve as a pilot and demonstration program for handling, transporting and storing radioactive waste. Through the WIPP and other DOE related campaigns, the State of Utah has worked cooperatively and productively to design, plan, and implement a comprehensive and detailed transportation program and emergency response capability with critical and necessary input from all stakeholders involved. As a result of the successful cooperation of all parties, DOE will begin shipping materials to the WIPP facility this month with the full assurance of all corridor states that appropriate measures are in place. This effort has required many years of planning, written memoranda of understanding and agreement and development of a relationship of cooperation and trust. The State believes this has been a valuable pilot program and should serve as a model for PFS for the planning, implementation and operation of a high-level nuclear waste storage facility within the State's borders.

Private Fuel Storage proposes to undertake the design, building, transportation to and operation of a facility, the order of magnitude and the potential lethality of which is unprecedented in this country. With no experience, nor concern for the impacted stakeholders, PFS has demonstrated an egregious arrogance and lack of respect for not only the State of Utah but for every corridor state, local community and Native American jurisdiction through which the transportation of

these materials must pass.

It is the State's position that a comprehensive, detailed and cooperatively developed transportation plan to the proposed nuclear waste storage facility be provided to all potential corridor states and tribes. Further, it is the State's position that all provisions of the Nuclear Waste Policy Act be met by the proposers of this facility, including but not limited to financial and technical assistance, training, equipment and mutually agreed upon development for:

- Route selection ;
- Alternative route analysis;
- Route risk analysis;
- Route inspection (highway and rail) contingency routing plans;
- Transportation infrastructure improvements;
- Shipment notification;
- Shipment tracking;
- Shipment escorting;
- Provision of public information on routing and shipments;
- Preparation and enforcement of transportation operations protocols;
- Carrier and shipper compliance reviews;
- Assessment of state and local capabilities regarding safe routine transport and emergency response;
- Enhancement and maintenance of emergency response and recovery capabilities;
- Awareness training for first-on-the-scene and first responder personnel;
- Specialized training for emergency management and recovery personnel;
- Public information training for route community liaison personnel;
- Training for hospital personnel and other medical personnel;
- Waste acceptance scheduling(start date and annual rate);
- Safe and adequate contingency measures for handling and returning damaged fuel casks;
- Cask loading;
- Cask full scale testing;
- Accident notification;
- Safe parking designation and procedures; and
- Provision of equipment for emergency response, inspection, first response personnel.

A separate, comprehensive transportation and handling plan must be developed to address all aspects of the additional rail spur required or intermodal transfer of the high level waste at Rowley Junction, including but not limited to infrastructure improvements, handling equipment and protocols, security and sabotage safeguards, inspection of shipping casks, vehicles and carriers and state oversight and regulation.

It is further the State's position that responsibility for transportation-related damages from accidents involving spent fuel moving to and from this private facility will be solely and completely borne by Private Fuel Storage.

The Utah Division of Comprehensive Emergency Management (CEM) serves to save lives, reduce injuries, and protect property and the environment from the effects of natural and man-caused disasters. This is achieved through a statutory, comprehensive effort to prepare for, respond to, recover from, and mitigate the effects of disasters and emergencies created by a wide variety of hazards. CEM cares for people.

The best way to mitigate against a hazard is to reduce the risks associated with it to as low a level as possible. For example, while the State cannot remove the many earthquake faults that lie under our populated areas, it can establish and enforce appropriate building codes, increase public awareness and understanding of the earthquake threat, and take many related, proactive mitigation measures as individuals, families, and communities to plan and prepare for a major quake that is known to be overdue here.

The State can also continue efforts such as the intensive, cooperative process among local, state and federal agencies to eliminate the huge stockpile of chemical weapons currently being destroyed at the Tooele Chemical Weapons Disposal Facility at Deseret Chemical Depot. When these weapons are gone forever from the State, so will be the risks associated with them. The Chemical Stockpile Emergency Preparedness Program (CSEPP), coordinated by CEM in Utah, represents a great effort on the part of many different levels of government to protect the public during the destruction process. The State's CSEPP successes have been well documented, and have come about only through many years of concentrated work by dedicated professionals who recognize that effective communication and coordination are essential to protect the residents of our State. In fact, Utah CSEPP has established a standard of care that directly or indirectly applies to the emergency management of other technological hazards, and perhaps many natural hazards as well.

On the other hand, CEM's experience with the ISFSI proposed by PFS on the Skull Valley Reservation has proven to be quite a departure from the Utah CSEPP standard of care. Never once has PFS, nor any other representative of this effort, contacted CEM regarding its plans to store high level nuclear waste in Utah. Never once has any reply been offered to the many CEM comments and observations about the gross deficiencies in PFS's Emergency Plan, as outlined in the State of Utah 2.206 Petition (June 27, 1997), and the more recent State of Utah's Contentions. PFS's failure to communicate and coordinate with the State agency whose statutory responsibility for emergency management has been well established for many years is particularly remarkable since the intent of the consortium is to introduce an arguably significant hazard into the State's environment. Simply put, PFS's purpose is quite the opposite of hazard

mitigation; for Utah, it is *hazard promulgation.*

The State is aware that PFS has contacted Tooele County Emergency Management (one of the State's CSEPP partners), and we know, too, that Tooele County Emergency Management has replied to PFS with a list of concerns they share with CEM. However, the ISFSI is not uniquely a Skull Valley Goshute Indian business opportunity, nor an internal Tooele County problem that can be solved within the confines of Tooele County's boundaries. This is a vexing State issue that will affect hundreds of thousands of the State's residents along the expected transportation corridors to the proposed waste site. It is an issue for which appropriate, comprehensive emergency planning, such as in CSEPP, must take place.

In August of 1997, with an eye to emergency management-related issues, three CEM senior staff conducted a careful review and analysis of the PFS license application and related materials, including the Emergency Plan for the proposed PFS facility. More than ninety critical observations and questions regarding the PSF Emergency Plan alone were compiled at that time. These issues appear to remain largely unresolved to this day.

For example, regarding the PFS Emergency Plan, CEM commented: "Transportation planning here is confined to the site itself, and the area surrounding it within Tooele County. The plan does not consider intrastate transportation and interstate transportation planning requirements. This is not satisfactory considering the heavily populated regional transportation corridors along which these dangerous cargos may move. For example, Salt Lake County is likely to be affected, but does not receive any planning consideration (See SAR 1-4-1, and 10 CFR 72.108)."

Other serious questions follow on these observations. What exactly are the identified transportation routes from the nuclear reactors to the ISFSI site? What specific Utah communities will be affected, can they deal with a nuclear waste-related emergency, and what remedial or enhanced emergency management measures will be required? What unique security-related circumstances along the identified routes must be considered -- what factors that could make the shipments vulnerable to sabotage or accident? What is the overall hazard vulnerability of the transfer site at the routes' end? These, and many other concerns must receive appropriate emergency planning consideration.

The State has learned through the precedent of many years' successful participation in the Chemical Stockpile Emergency Preparedness Program that forthright communication, coordination, and effective planning by all jurisdictions and entities are essential to the attainment of public safety. Further, CEM believes that the State's residents, and those who serve them, have a right to accept or reject being subjected to unwarranted, unwanted risks over which they may exercise some control. In the absence of the communication, coordination, and effective planning elements that characterize a successful emergency management effort, the

ISFSI proposed for Skull Valley is viewed as especially unwelcome by Utah CEM. Therefore in the interest of public safety, CEM requests that the NRC reject the PFS proposal.

SCHOOL AND INSTITUTIONAL TRUST LANDS AND FUNDS

Through the Utah Enabling Act of 1894, Congress granted to the State approximately 1/9th of the lands in Utah for the support of public education (trust lands). The United States Supreme Court has referred to this Enabling Act land grant as a "solemn compact" between the United States and the State of Utah. Andrus v. Utah, 446 U.S. 500, 507 (1980). The grant has also been held to constitute a perpetual trust to which standard trust principles apply.

Trust principles impose fiduciary duties upon the State of Utah, including the duty to manage the trust lands in the most prudent and profitable manner possible, and not for any purpose inconsistent with the best interest of the trust beneficiaries. In Utah, the trust lands are managed by the School and Institutional Trust Lands Administration (Trust Lands Administration), which acts as a trustee for the State's public schools, the major trust beneficiary. Accordingly, the Trust Lands Administration must maximize the commercial gain from trust land uses consistent with long-term support of the trust beneficiaries. Pursuant to this fiduciary duty, the Trust Lands Administration is authorized, among other things, to sell or exchange trust lands, develop mineral resources contained upon or within trust lands, issue grazing permits, special use leases, easements and permit rights-of-entry across trust lands, and designate parcels of trust lands as development property.

Furthermore, imposed upon the Trust Lands Administration is the duty of undivided loyalty to, and a strict requirement to administer the trust corpus for the exclusive benefit of, the trust beneficiaries, which do not include governmental institutions or agencies or the public at large. This "solemn compact" imposes reciprocal duties upon the United States, as grantor of the trust. Consequently, the United States is bound to act "for the support of common schools" that were the beneficiaries of this trust.

It is critical that the NRC take into account the purpose of trust lands in the drafting of an EIS for, and ultimately in its consideration of whether to approve, the construction and operation of an ISFSI by PFS on the Skull Valley Reservation in Tooele County, Utah (the Proposal). The problem of addressing the handling of high level radioactive waste (HLW) is fraught with uncertainties as a result of the complexity of technical issues, its novelty, its extraordinary time horizon, and the extreme difficulty in predicting with any confidence the numerous unknowns associated with HLW. This has resulted in the American people being deeply apprehensive of HLW.

In fact, studies show that the possibility of exposure to radiation evokes considerably more dread than other hazards that may be more dangerous, and that the public has little confidence or trust in the federal agencies regulating HLW, especially concerning the agencies' estimates regarding the health dangers posed by HLW. Consequently, the public fear of the risks of accidents during the packaging, transportation, and storage of HLW is high.

This public perception and attitude towards HLW results in the diminution of the property value of lands surrounding activities involving HLW. Regardless of whether public perception regarding HLW is justified or is simply irrational, the fact is that the public's feelings shape their behavior and attitude regarding HLW, and consequently, the value of lands associated with or surrounding the packaging, transportation, and storage of HLW is adversely impacted. The case of City of Santa Fe v. Komis, 845 P.2d 753 (NM 1992), which dealt with an inverse condemnation action involving the construction of a highway to transport radioactive waste to the Waste Isolation Pilot Project in New Mexico, is illustrative of this point.

The court in Komis held that the plaintiff was entitled to compensation for the loss of market value of its property even if the loss is based on fears not founded on objective standards. The court stated, "if loss of value can be proven, it should be compensable regardless of its source. Thus, if people will not purchase property because they fear living or working on or near a WIPP route, or if a buyer can be found, but only at a reduced price, a loss of value exists." Komis, 845 P.2d at 756-57.

The public fear discussed in the Komis case is by no means isolated to the WIPP project, but stems from the public's general perception of radioactive wastes, and therefore, is present with any proposal involving radioactive wastes. Consequently, the effect of the public's behavior and attitude on the market value and revenue generating potential of trust lands surrounding PFS's proposed ISFSI, intermodal transfer point (ITP), and transportation routes especially concerns the Trust Lands Administration.

The Proposal has the potential of dramatically impacting trust lands, as the Trust Lands Administration administers approximately 42,780 acres of fee surface and mineral, 35,311 acres of fee mineral, and 4,850 acres of fee surface within Skull Valley and the area surrounding Rowley Junction. The market value and revenue generating potential of these trust lands will probably be adversely affected if NRC approves the Proposal.

Pursuant to the applicable rules and regulations implementing the NEPA and NRC statutes, the EIS must evaluate both direct and indirect effects that are "caused by" the Proposal. Under 40 C.F.R. § 1508.8 and 10 C.F.R. § 51, Subpt. A, App. A, this evaluation requires an analysis of the present and future economic effects of the Proposal on surrounding trust lands. Furthermore, this economic analysis must account for all diminution in value to trust lands, including any impact to

trust lands "caused by" the public's attitude towards the Proposal and its involvement with the handling, transportation and storage of HLW.

If the EIS determines that the economic value and revenue generating potential of trust lands will be adversely impacted or that the Trust Lands Administration will be hindered in its ability to effectively manage trust land, the United States, acting through NRC, must honor its duty as grantor of the trust and either compensate the Trust Lands Administration or deny licensing of the Proposal.

In addition, the Trust Lands Administration submits the following comments to be utilized in the development of the EIS for the Proposal:

1. *Purpose and Need* - Pursuant to NEPA, the EIS must analyze the purpose and need for the Proposal. This analysis must assess existing on-site storage capacities of the generators of HLW and the ability of HLW generators to construct additional storage capacity on-site. Moreover, this analysis must account for the possible storage capabilities of the Yucca Mountain site as a repository for HLW in the future. If this analysis determines that existing on-site storage is sufficient, construction of additional storage is feasible, or that the Yucca Mountain site will be available as a repository for HLW in the future, then the EIS should indicate that no valid need exists for the Proposal. Accordingly, NRC should deny the PFS's license application for the Proposal as no need exists and its costs will outweigh its benefits.

2. *Decommissioning* - Under 10 C.F.R. § 72.42, the Proposal can only be licensed for a maximum of forty (40) years, which reflects a twenty (20) year license term with an additional (20) year renewal term. Since the Proposal contemplates a temporary storage facility for HLW, decommissioning of the Proposal facilities must occur. However, as raised in the State's Contentions, questions exist whether decommissioning can occur. As the Contentions indicate, PFS fails to provide sufficient data about the design of its storage casks to assure compatibility with Department of Energy (DOE) repository specifications. Furthermore, the proposed facilities are not capable of repackaging spent fuel. Consequently, a question exists whether the HLW can be removed from the proposed facilities, thereby facilitating decommissioning of the proposed facilities as required under NRC regulations.

   NEPA requires that all reasonable consequences of the Proposal be considered and addressed. Since questions exist regarding the compatibility of the storage casks with DOE specifications and the Proposal fails to provide for repacking of spent fuel, it is reasonable to consider that decommissioning of the proposed facilities could be delayed or will not occur. Accordingly, the EIS must analyze all impacts on trust lands,

including economic impacts, associated with either the delay or the failure to decommission the proposed facilities.

3. *Alternatives* - The EIS must include all reasonable alternatives to the Proposal. The importance of identifying and analyzing all reasonable alternatives is illustrated under NRC's own regulation, 10 C.F.R. § 51, Subpt. A, App. A, which states the alternative section "is the heart of the [EIS]." Pursuant to 40 C.F.R. § 1502.14, NRC must "rigorously explore and objectively evaluate all reasonable alternatives...[and] devote substantial treatment to each alternative...so that reviewers may evaluate their comparative merits." Reasonable alternatives to the Proposal include:

a) *"No Action" alternative* - Under 40 C.F.R. §1502.14(d), the EIS must include the analysis of the no action alternative.

b) *On-site storage* - The EIS must analyze the option of storing HLW at the place of generation. Accordingly, an assessment must occur to determine the existing on-site capacity or the feasibility of constructing additional on-site storage capacity at the facilities generating the HLW. Such an assessment will allow NRC to better analyze whether a legitimate need exists for the Proposal or whether on-site storage is feasible at the place of generation.

Storage at the place of generation ("on-site storage") is the most logical approach in the management of HLW. On-site storage reduces the public's exposure to HLW, and consequently, the health risk posed by HLW is reduced. Furthermore, on-site storage presents a more manageable and controlled environment should an accident occur - the site is secure from the public; employees of generators of HLW are trained in evacuation procedures; trained personnel and specialized equipment are present thereby reducing risk of exposure and facilitating prevention or containment of contamination; the site has undergone extensive scientific studies and been deemed suitable for activities involving radioactive material.

Public exposure and the health risk presented by HLW is extremely high with storage of HLW at a place other than the place of generation ("off-site storage"). Off-site storage requires the utilization of railroads and public highways for the transportation of HLW. Consequently, a less manageable and totally uncontrolled environment exists should an accident occur - no secure site exists, as the public is present; the public is not educated nor trained in protecting themselves from the dangers of radioactive material; trained personnel and specialized equipment are not present; thus, risk of exposure and likelihood of contamination are greatly compounded; railroads and public highways often border waterways, thus facilitating rapid and widespread dispersion of radioactive materials and

increasing the area of contamination.

c) *Alternative site location* - The EIS must analyze the option of alternative site locations. Such alternative site locations must encompass all possible site locations, whether presently feasible or feasible in the future, including utilization of the Yucca Mountain site as a storage facility for HLW.

4. *Transportation* - The EIS must analyze the proposed equipment, the frequency, and the routes to be utilized in the transportation of HLW from the place of generation to the proposed ISFSI site. This analysis must fully examine:

a) *Direct and Indirect Impacts* - The EIS must analyze the direct and indirect impacts of the transportation of HLW to the proposed ISFSI site, including the economic impact to trust lands adjacent to transportation routes. In addition, the EIS must assess the economic impact to the approximately 15,890 acres of fee surface and mineral and approximately 4,140 acres of fee mineral administered by the Trust Lands Administration around Rowley Junction - the proposed ITP site.

b) *Safety Issues* - The EIS must fully examine the safety of all the equipment to be utilized in the transportation of the HLW, including canisters, trucks, railroad cars, loading and unloading equipment, etc.

c) *Accident Rates* - The EIS must determine the accident rates associated with each type of equipment to be utilized in the transportation of HLW, the probability of each type of accident event, and its impact upon each proposed transportation route. In assessing the impact, the EIS must assess any economic impact that may occur as a result of the closure of each proposed transportation route to facilitate the containment and cleanup of any contamination.

5. *Cumulative Impacts* - The EIS must determine and analyze the cumulative impacts, including economic impacts, to trust lands should NRC approve the Proposal. In this evaluation, the EIS must take into account the Proposal's effect on trust lands in conjunction with the Dugway Proving Ground, the Hill Air Force Base Bombing and Gunnery Range, the Wendover Bombing and Gunnery Range, the Army's Chemical Weapon's Incinerator, the Laidlaw APTUS hazardous waste incinerator, and the Envirocare low level and mixed waste landfill.

6. *Affected Environment & Environmental Consequences* - Pursuant to the requirements of NEPA and NRC regulations, the EIS must succinctly describe the environment of the area(s) to be affected by, and assess the environmental consequences of, the Proposal and

its alternatives. In particular, the EIS must address:

a) *Seismology* - The Trust Lands Administration is concerned that Skull Valley has a potential for seismic activity, and may thereby expose trust lands surrounding the Proposal to the threat of contamination from HLW should the Proposal be approved. Accordingly, the EIS must fully examine the geologic stability of the region surrounding the proposed ISFSI site. This examination must assess surface and subsurface faulting, ground motion (including liquefaction), and soil stability.

b) *Hydrology* - Contamination of trust lands via hydrological systems is a serious concern to the Trust Lands Administration. The EIS must analyze the Proposal's potential to contaminate surface and groundwater systems. Accordingly, the EIS must identify all surface and groundwater systems, contamination sources of the Proposal, and the impact of contamination to trust lands down gradient.

Furthermore, the EIS must require the installation of monitoring wells around the proposed ISFSI and ITP facilities to safeguard against contamination of surface and groundwater systems. Baseline data must be compiled to be utilized in conjunction with the monitoring wells to effectively monitor for the presence of contaminants from the Proposal. Moreover, monitoring wells will assist in identifying the direction and migration rate of any contamination should it occur, and thereby, facilitate a more efficient and effective cleanup.

7. *Mitigation* - NEPA and NRC regulations require the EIS to identify mitigation measures for the Proposal. Therefore, the EIS must include measures and assurances that the contamination of any trust lands as a result of the Proposal with be rectified. Furthermore, the EIS must include a means to compensate for any loss of economic value of trust lands or the imposition of any additional costs associated with the management of trust lands as a result of the approval of the Proposal.

8. *Conflicts* - Pursuant to 10 C.F.R. § 51, Subpt. A, App. A, the EIS must identify possible conflicts between the Proposal and its alternatives and the objectives of federal and State policies. The fiduciary duties imposed upon the Trust Lands Administration constitute the basis for its policies outlining the management of trust lands. As previously indicated, in upholding its fiduciary duties the Trust Lands Administration must manage the trust lands in the most prudent and profitable manner possible, and not for any purpose inconsistent with the best interest of the trust beneficiaries. Accordingly, the Trust Lands Administration must maximize the commercial gain from trust land uses consistent with long-term support of the trust beneficiaries.

> The "solemn compact" creating trust lands imposes reciprocal duties upon the United States as grantor of the trust. Consequently, the United States is bound to act "for the support of common schools" that are the beneficiaries of this trust. To the extent the Proposal hinders the ability of the Trust Lands Administration to effectively manage trust lands, or diminishes the market value or revenue generating potential of trust land, the Proposal is in conflict with the objectives of both the State and federal policies for trust lands. Accordingly, the EIS must identify and fully discuss the presence of this conflict.

Notwithstanding the fact that no HLW is generated as a result of the operation of nuclear power plants within the State of Utah, the school children of Utah should not be forced to suffer an economic loss as a result of the storage of HLW pursuant to the Proposal. It is the hope of the Trust Lands Administration that NRC fully consider the purpose of trust lands and the issues submitted above in the drafting of the EIS. And if the EIS determines that the Proposal will hinder the ability of the Trust Lands Administration to effectively manage trust lands or adversely impact the economic value or revenue generating potential of trust lands, the United States, through NRC, should honor its duty as grantor of the trust and either compensate the Trust Lands Administration fully or deny the licensing of the Proposal.

NATURAL RESOURCE AND HAZARDS IMPACTS

In accordance with NRC regulations, the NRC has determined that the proposed license is a major federal action that warrants the preparation of an EIS. The Utah Geological Survey (UGS) has identified significant geotechnical issues that should be analyzed in depth, not only in the NRC's staff safety review but also in the EIS. These issues are crucial to the safe and responsible siting of the ISFSI and, to date, have not been satisfactorily addressed by PFS. The issues are summarized in following discussion:

- UGS believes that capable faults, as defined by the NRC, may underlie the proposed ISFSI; if so, earthquakes generated by the faults may produce greater vibratory ground motions than that for which the facility is designed, and may pose a threat of surface fault rupture.
- PFS has not conducted a rigorous and detailed investigation of subsurface conditions appropriate for a critical facility of this type; the current level of investigation is very preliminary and not a detailed determination of site suitability necessary for establishing design parameters. In some instances, the PFS characterization of subsurface foundation soils is not supported by their own test data.

These issues are significant and must be analyzed and resolved as a prerequisite for a responsible decision on the future of the proposed facility. Furthermore, Part 51.61 to Title 10 of the Code of

Federal Regulations (10 CFR Part 51.61) requires that the Environmental Report, which forms the basis for NRC's EIS, address the siting evaluation factors contained in 10 CFR Part 72, subpart E. Without proper analysis of geotechnical issues related to siting evaluation factors, including a detailed characterization of the geologic and seismic environment, the potential impacts of this critical facility may not be fully recognized. Thus, the issues described herein must be fully addressed in the EIS. *See* State's Contentions at 80-96. *See also* April 1998 memo to the Utah Department Environmental Quality that highlights potential earthquake hazards in Skull Valley, attached hereto as Exhibit B.

It is unclear how water will be obtained for the proposed site. The Utah Department of Natural Resources and the Division of Water Rights are concerned that the availability of water has not been sufficiently investigated. If the Tribe plans to make water available for the facility under a claim of a federal reserved water right, the Division foresees potential challenges to the validity and extent of the Tribe's water rights claims. If the Tribe plans to make water available for the facility under state-created water rights, the Department of Natural Resources and Division of Water Rights foresee potential challenges under the change application process conducted by the state engineer.

The Tribe's federal reserved water rights will depend on the number of practicably irrigable acres (PIA) located on the reservation. The process of determining PIA requires a detailed analysis of the hydrology, soils, engineering feasibility, economic feasibility and numerous legal issues related to the establishment of the reservation. This is a complex process in and of itself. Once the right is quantified, the type of water use must be changed from irrigation to the industrial or commercial uses associated with the fuel rod storage. Approval of this change of use, regardless of how it is undertaken, will be another time-consuming process fraught with difficulty and perhaps challenges by other water users.

Even if the Tribe chooses to forego claims of reserved rights and uses state-created rights it already holds, or purchases water rights held by others, it will need to file a change application to put the water to the new uses associated with fuel rod storage. Again, deliberations related to this change of use will be time-consuming and complicated -- many challenges can be expected.

The Division of Water Resources disagrees with the drainage area that was used to compute the Probable Maximum Flood (PMF) for the portion of the area that cuts across the access road east of the storage facility. The Applicant used a drainage area of 26 square miles. The State believes the drainage area is closer to 240 square miles. In wetter-than-average years, the large depressions south of the access road filled, the ground was saturated, and most of Skull Valley produced significant amounts of run-off. Wetter-than-average conditions which would occur during a probable maximum flood event would fill the depression and water running off from the southern end of Skull Valley would only drain through the depression near the northeast corner

of the area, causing flooding.

The Division is also concerned with potential contamination of the groundwater aquifer underlying the site and the potential for contamination of other water sources. These impacts would be critical also to springs which provide water to adjacent ranching operations.

According to the Division of Wildlife Resources, risks to ground and surface waters due to an accident either at the PFS facility or along any transportation corridor should not be underestimated nor should the value of those resources to local wildlife be disregarded. The nearby Horseshoe Springs (managed as a wildlife use area by the Bureau of Land Management) and Timpie Springs (managed as a wildlife management area by Utah Division of Wildlife Resources) areas represent important wetlands for migratory birds. They are simply extensions of the much larger Greater Great Salt Lake Wetland Ecosystem. The Great Salt Lake is an internationally recognized wetland as part of the Western Hemispheric Shorebird Reserve Network. Radionuclide contamination of the Great Salt Lake or its tributary waters and associated wetlands would represent an international tragedy.

Because of the unique wind patterns associated with the Stansbury Mountains along the east side of Skull Valley and the presence of an abundant prey source, multiple raptor species occur proximal to the PFS facility. Some of the raptors nest while others simply forage as they migrate through western Utah. Regardless, bioaccumulation of radionuclides in the raptor population from accidental contamination of the raptors' prey sources would have international consequences.

Super-human efforts must be made to avoid or minimize impacts, particularly radionuclide contamination to wildlife or their habitat use areas. Compensatory mitigation for unavoidable construction and operational or maintenance impacts must be planned. The Applicant is urged to coordinate with the division to develop acceptable mitigation strategies.

With respect to population impacts evaluated by the Division of Parks and Recreation, PFS did not meet the requirements of 10 CFR § 72.11, completeness and accuracy of information. The information provided in the initial application process was insufficient and incomplete. The stated impact on population distributions from potential contamination is vastly underestimated. The description of "influence zones" in the initial application process was misleading. The influence zone actually contains one of the most urbanized areas in the country (top third or fifth) -- the Wasatch Front. This was played down or not even mentioned in the original application. For example, there was no discussion of factors or conditions such as "wind travel/wind speed" to show how quickly materials could be broadcast by frequent winds from the north-west, west and south-west.

The Transtor Cask seems flawed. Rodent and insect barriers may be needed to prevent the spreading of waste and radiation from the site. Freeze thaw from moisture could also damage the cask (air inlets and outlets -- natural convection cooling in an area with extreme temperature changes; i.e., 30° below zero to over 105° F).

It seems incongruous to be destroying dangerous chemical warfare materials at Dugway, while introducing additional dangerous and toxic nuclear materials within a few miles. This area has high visual value from Deseret Peak Wilderness Area and freeway, and the Wasatch National Forest area. It is within eight miles of the old Hawaiian Historic settlement area and the Pony Express, California, Donner Party Historic trail alignment. After 20 to 40 years, the storage casks may have to be structurally and mechanically stabilized in order to move them. Do it right the first time!

The fact that USPCI, Aptus, Inc., and Envirocare are already in the area argues that enough is enough. The Wendover Range and aerial munitions testing area is seconds from an off-course F-16, an errant missile or artillery round. The historic pattern of errors, chemical leakages, dead sheep, frequency of carcinogenic anomalies, and nuclear fall-out over the past 50 years in western Utah, speaks poorly for attempting to locate such a dangerous facility this close to the Wasatch Front. The site is well within the active Great Basin Seismic belt. Terming the area "remote" is a relative term. Minutes from the Wasatch Front is not remote. The rate of urban development in Tooele County is rapidly increasing in terms of density and units.

The mission of many government divisions is to improve the "quality of life in Utah." How will this project meet that standard or shared statewide value? It clearly doesn't. Technology was allowed to develop that didn't know how to clean up its own mess. Why perpetuate it at such great economic, social and environmental costs? It may greatly enrich a few absentee reservation and property owners and protect a number of stockholders. But, it is the antithesis of the current, great statewide effort and huge capital development investment to improve infrastructure, provide more publicly accessible open space, and prepare for the 2002 Olympics. If any proposed action such as this cannot meet, implement or augment the array of reasonable State values, such as quality of life, safety, aesthetic beauty, and long-term development options, then it should be summarily dismissed.

Even though the proposed method of transporting these radioactive materials by rail may minimize human exposure, an elevated level of concern is associated with the transport through upland forested areas and associated watershed areas. Incidents and accidents are not uncommon along the various rail routes throughout the State. It is estimated by the Nuclear Information and Resource Service that more than 15,000 shipments could be made over the next 30 years, with each train cask carrying the long-lived radiological equivalent of 200 Hiroshima bombs. Many of the routes cut across key upland watershed areas providing downstream communities with

high quality water.

The rail route from the east runs adjacent to national forest and private forested lands and critical watershed areas. An ongoing project to create statewide water quality guidelines facilitated by the Department of Natural Resources and the Department of Environmental Quality per EPA requirements will assist in protecting these watersheds. However, the exposure from radioactive incidents along transportation corridors appears to offset any and all preventative measures that may be obtained through these guidelines.

The proposed transportation routes include rail lines coming into Utah from the west and east, continuing to Rowley Junction. At this point the radioactive materials would be transferred to trucks for shipment to Skull Valley which could increase the potential for accident. The rail route from the west travels parallel to Great Salt Lake and the state-administered sovereign lands -- an area impacted by extensive flooding in the recent past due to rising elevation of the lake. The obvious danger to nearby resources in Great Salt Lake include the riparian and wetland habitat, brine shrimp industry, mineral and salt extraction and extensive waterfowl habitat.

The potential for hazard to human health is just too high to allow the transportation of these materials through watershed and other key resource areas.

SOCIO-ECONOMIC IMPACTS

The NRC should not rely on the Applicant's inadequate discussion in the Environment Report of the socio-economic impacts of its proposed facility. See ER § 2.7. Furthermore, the Applicant's Environmental Report states: "the indirect costs, which are derived from 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. Conversely, the Applicant gives an over-inflated view of the indirect benefit of the project. ER at 7.2-3.

The license application also fails to address the impacts of the PFS proposal on future growth in this area of Utah. The population of Utah in projected to more than double in the next 25 years, with the most significant increases occuring along the Wasatch Front and adjacent counties to the east and west. Tooele County is already experiencing that growth in residential development. Various organizations and partnerships are currently assessing, through public scoping processes, options or scenarios for such growth. There is significant public information available. The NRC should consider that work as part of its EIS scoping, and must evaluate the impacts of transportation and storage of high level nuclear waste on the public and on infrastructure, for the entire life of the proposed facility and operations.

The Applicant's Environment Report fails to adequately analyze known and potential cultural resources in the area. The Utah Division of State History has informed the Applicant that there are at least nine archaeological sites in the area, that a significant portion of the area has yet to be surveyed for historic properties, and there is a high potential for location of other historic properties in the area. *See* April 30, 1997 letter from the Utah Division of State History to Stone & Webster, attached hereto as Exhibit C. Consequently, the draft EIS must address all known and potential cultural resources in the area.

LAWS, ENTITLEMENTS, REGULATIONS, AND PLANNING REQUIREMENTS

The NRC cannot rely on the Environmental Report prepared by the Applicant because it is inadequate to satisfy the requirements for writing a defensible Environmental Impact Statement. NRC regulations require Environmental Impact Statements to describe approvals, permits, and legal entitlements that the facility will need to undertake the proposed action and the status of compliance with those requirements. 10 CFR § 51.71(c). In addition, the Council on Environmental Quality regulations require full cooperation and lack of duplication with State and local procedures. For example, 40 CFR § 1506.2(d) states:

> To better integrate environmental impact statements into State or local planning processes, statements shall discuss any inconsistency of a proposed action with any approved State or local plan and laws (whether or not federally sanctioned). Where an inconsistency exists, the statement should describe the extent to which the agency would reconcile its proposed action with the plan or law.

State environmental permits or approval orders, both those authorized through delegated Federal programs and those required by State law, are designed to protect public health and the environment from the adverse effects of facilities and activities that might reasonably be expected to be a source or an indirect source of pollution. In addition to the media-specific environmental regulation, there are also State requirements for facility siting and public notice and review. Also, the State has long term plans in place for the management of the State's air resource (Utah Code Ann. § 19-2-104), radioactive waste (id. § 19-3-107), solid waste (id. § 19-6-104) and comprehensive emergency planning and response (id. § 53-2-104). Finally, Utah is a member of the North West Interstate Compact on Low-Level Radioactive Waste. Low-level waste generated in the State may be disposed of at the Compact site. However, as the PFS facility will be sited on the Skull Valley Reservation, it is unknown whether low-level waste generated on an Indian reservation would be eligible for disposal at the Compact site. The EIS scoping should evaluate all of the foregoing requirements, determine how to ensure those requirements are met, what the impacts of not meeting those requirements would be, and what impacts cannot be mitigated.

One of the contentions the State of Utah submitted in the PFS adjudicatory proceeding before the Atomic Safety and Licensing Board, discusses the entitlements, permits and approvals required under NEPA. The State incorporates by reference Utah Contention T and related responses into these comments. *See* State's Contentions, at 131-141; and State's Reply to NRC Staff's and Applicant's Response to State's Contentions A through DD dated January 16, 1998 (hereinafter "State's Reply") at 74-83.

The application does not address required legal entitlements for the Applicant to undertake critical activities associated with the ISFSI proposal. For example, the NRC must satisfy itself that the Applicant is entitled to use and control the proposed ISFSI site on the Skull Valley Reservation. This requires full disclosure of the lease between the Applicant and the Skull Valley Band of Goshutes. Currently, only a portion of the lease has been released and it is unknown whether the redacted portions of the lease contain termination clauses and other substantive lease provisions that the Applicant and the Band have withheld from scrutiny by the public or the NRC. Likewise, the Applicant has not shown that it is entitled to use or control the off-loading site and intermodal facility at Rowley Junction (or wherever else the Applicant intends to locate its transfer facility).

There is no record of the Applicant's legal entitlement from any governmental entity to widen public roads, rights-of-way or other property for use as a heavy haul road or rail spur from the railhead to the site.[4] Nor is there a citation to any law or regulation that would allow such approvals. In fact, the Environmental Report is fatally flawed because the specific route to the site has yet to be chosen by the Applicant. The Applicant, for the first time and almost one year after it submitted its application to the NRC, announced at the public scoping meeting held on June 2, 1998 that it is studying a new transportation route somewhere west of Skull Valley Road. The Applicant did not publicly disclose any details of the new route. The public cannot legitimately comment on the scope of the EIS until such time as the Applicant submits a transportation and routing plan to NRC as part of its license application. In any event, most of the land between the Union Pacific mainline and the site is held by the State, the county or the federal government (*e.g.*, military, Bureau of Land Management, Forest Service). Thus, the Applicant would need approval from these entities to construct a transportation corridor to the site. Such a route may trigger "major federal action" and the need for an additional independent EIS. The State reiterates its requests that NRC re-open the public comment period on scoping to allow legitimate public comment once the Applicant has deigned to inform the NRC, the State, and the public of its final and detailed plan for transporting and routing the casks to the proposed site.

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[4] *See* comments below regarding the State's jurisdiction over Skull Valley Road.

The Applicant must comply with environmental quality standards and requirements. The EIS must do more than the Applicant's inadequate assessment of air quality impacts from its construction and operation activities at the intermodal site, along the transportation route and at the proposed ISFSI site. The Environment Report has a totally inadequate analysis of air quality modeling techniques. *See* ER 4.3.3, 4.8-2. The Applicant appears to have used EPA "SCREEN3" model which is an inappropriate model for this operation. Furthermore, the Applicant has failed to adequately analyze whether it will be in compliance with the National Air Quality Standards, whether it will be subject to regulation under Section 111 of the Clean Air Act, whether it is a major stationary source of air pollution requiring a Prevention of Significant Deterioration permit. Moreover, the Applicant may require an Operating Permit in accordance with Title V of the Clean Air Act and also a State air quality Approval Order. The EIS must address and show how the Applicant will achieve compliance with these permitting requirements. *See* Utah Contention T at 137-39 and State's Reply at 77-79.

The State of Utah has jurisdiction over all groundwater within the State. Utah Code Ann. § 73-1-1. As such, the EIS must show how the Applicant will come into compliance with Utah's Groundwater Discharge Permit requirements. As is abundantly clear from the application, the retention pond proposed by the Applicant at the north end of the storage pad is designed to leach into groundwater. ER at 4.2-4. This is an unacceptable practice. Furthermore, the Applicant proposes to use a septic tank(s) for its wastewater disposal system. ER at 3.3-4, 5 and SAR 4.3-3. This is yet another unacceptable environmental practice and is a direct contaminant pathway to groundwater. The Environment Impact Statement must analyze the effect of the Applicant's questionable environmental water quality proposal on groundwater and downgradient resources and how the Applicant will achieve compliance with water quality regulations. Utah Contention O at 100-05, 107-08 and State's Reply at 60-61, and Utah Contention T at 139-140 and State's Reply at 81 are incorporated by reference into these comments.

In the arid West, water rights are a significant and often a contentious issue. The problem is exacerbated in this instance because the facility is proposed to be located on an Indian reservation. Not only does this implicate the State's jurisdiction over allocation of water rights within the State but it also raises the question of Federal reserved water rights and whether the Applicant's industrial use of water would fall within those rights. The EIS must address the legal authority of the Applicant to obtain water, the potential challenges from other water users, and the quantification of the amount of water the Applicant is entitled to use.[5] The State has addressed this issue in its Contentions. *See* Utah Contention O at 105-06 and State's Reply at 60-61, and Utah Contention T at 140-41 and State's Reply at 79-82, which are incorporated by

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[5] *See also* discussion on water availability under the Natural Resource and Hazards Impact section above.

reference into these comments.

In addition to permits and approvals from the State of Utah, the EIS should evaluate what permits are required from the U.S. Environmental Protection Agency for activities that occur on the reservation, such as air quality or storm water permits. As currently proposed, the Applicant will disturb wetlands in the transportation corridor and the EIS must address how the Applicant will achieve compliance with the U.S. Army Corps of Engineers Section 404 dredge and fill permits. However, until such time as the Applicant provides a definitive transportation and routing plan, this scoping issue should remain open for public comment.

The State enacted new legislation in the 1998 General Legislative Session that the NRC should review for purposes of scoping. The High Level Nuclear Waste Disposal Act, S.B. 196, *inter alia*, places certain restrictions on the placement of high level nuclear waste and greater than class C radioactive waste in the State of Utah, establishes siting criteria, and requires certain findings and approvals be made by the Department of Environmental Quality. An enrolled copy of S.B. 196 is attached hereto as Exhibit D. In the 1998 session, the State designated SR-196 "[f]rom Route 199 near the control gate at Dugway Proving Grounds northerly via the Skull Valley Road to the west bound on and off ramps of Route 80 at the Rowley Junction Interchange" as a State highway. *See* S.B. 78 (1998). This means that the State of Utah has jurisdiction and control over the Applicant's proposed transportation route from Rowley Junction intermodal transfer facility to the proposed ISFSI site. The EIS must show whether it is feasible for the Applicant to undertake any road widening or rail spur construction activities involving the road and public right-of-way along Skull Valley Road.

The NRC has the obligation to write an EIS that addresses the effect of the Applicant's proposal, including construction, operation, transportation, and long term effects, on the State's overall environmental plans and duly enacted regulatory and legal requirements. Furthermore, the State expects cooperation and coordination from NRC and its contractors by showing that it is willing to openly discuss the full extent of the State's legal and regulatory authority involving the proposed action with appropriate State regulatory officials.

APPLICANT'S FINANCIAL AND CORPORATE STRUCTURE

Private Fuel Storage is a newly formed limited liability company without any independent assets. *See* LA at 1-3,4. PFS consists of seven or eight electric utilities; however, the member utilities merely make contributions to PFS, and the assets of the member utilities are shielded from liability associated with the PFS project. In Utah Contention E, the State discussed the Applicant's lack of financial qualification to engage in the Part 72 activities for which it seeks a license and in Utah Contention S, the Applicant's lack of assurance that it will have funds

necessary to decommission the facility. The State incorporates by reference Utah Contention F, Financial Assurance, State's Contentions at 27-38; and Utah Contention S, Decommissioning, State's Contentions at 123-130, into these comments.

Given that the Applicant appears to be nothing more than a shell company devoid of any assets or capital, it is critical that the EIS analyze the environmental consequences of licensing, constructing, operating and decommissioning a national centralized facility where spent fuel casks will be stored for 20, 40 or more years. The funding requirements for this project are not only critical to safety concerns but also to the level of maintenance, and timeliness and effectiveness of decommissioning. The environmental consequences that flow from undercapitalization and operating on a shoestring budget must be addressed in the EIS.

Another factor that the EIS must consider is the ability of this limited liability company to be accountable and responsible for the consequences of accidents and environmental contamination along the transportation route and at the site. The EIS should contrast this project with interim storage facilities authorized under the Nuclear Waste Policy Act which are owned and operated by the Department of Energy and have the full financial backing of the United States government.

ENVIRONMENTAL JUSTICE

Under Executive Order No. 12898 on Environmental Justice, issued on February 11, 1994, the U.S. Nuclear Regulatory Commission is required to:

> ... analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low income communities, when such analysis is required by the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. section 4321 *et seq.*[6]

Environmental Justice is defined by the U. S. Environmental Protection Agency as:

> ...the fair treatment of people of all races, income, and cultures with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative environmental impacts resulting from the execution of

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[6] Clinton, W. J., President, February 11, 1994, Memorandum for the Heads of All Departments and Agencies.

environmental programs.[7]

Earlier policy of the Department of Energy, in seeking a Monitored Retrievable Storage (MRS) site, focused on siting the facility(ies) on Indian Reservations and clearly was in violation of this directive. Members of Private Fuel Storage LLC are also responsible for site selection decisions, and the license application for the ISFSI which, if licensed, would violate the Order. Even if the Chairman of the Skull Valley Band of Goshutes approached PFS to site the facility, rather than visa versa, that action does not outweigh the Environmental Justice impacts on members of the Tribe who oppose the facility or individuals who live and work adjacent to the proposed site. But for the protection provided under Environmental Justice provisions, these groups do not have equal protection under the law, equal protection regarding the siting decision, because the proposed facility is located on an Indian Reservation. Nor does the contractual arrangement between the Skull Valley Band of Goshutes and PFS absolve the NRC or the federal government from any responsibility under NEPA, Title VI of the Civil Rights Act, or Executive Order No. 12898.

Therefore, as part of the EIS process, the NRC must fully and completely analyze and evaluate the Environmental Justice data, criteria and impacts of the proposed facility.

- What are the impacts related to the proposed decision to locate the facility on an Indian Reservation?
- What groups of individuals are impacted?
- What are the environmental, human health, social, economic, and other impacts?
- Are these impacts mitigated under one or more of the alternative actions?

If Environmental Justice impacts cannot be mitigated, NRC should disallow the proposed site alternative in the EIS.

COOPERATING FEDERAL AGENCIES

The Council on Environmental Quality Regulations emphasizes the need for cooperation among Federal agencies early in the NEPA process. Other federal agencies who have jurisdiction by law or who have special expertise with respect to any environmental issue that should be considered in an EIS shall be made a "cooperating agency" at the request of the lead agency. 40 CFR § 1501.6. There are a number of federal agencies with whom the NRC should consult on

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[7] U. S. Environmental Protection Agency, April 22, 1997, Region VIII Environmental Justice Fact Sheet.

this action, including the U.S. Military (Army, Air Force), Bureau of Land Management, Forest Service and Department of Energy.

By contrast, the Bureau of Indian Affairs, Department of Interior, cannot be a cooperating agency with respect to its approval of the lease between the Skull Valley Band of Goshutes and the Applicant. Such an action requires an independent EIS by the BIA because different standards are used in evaluating the impacts of these two major federal actions under NEPA. The BIA has a trust responsibility to all tribal members in evaluating the effects of approving the lease whereas the NRC's EIS will not evaluate the fiduciary responsibility of the federal government to tribal members.

INCORPORATION OF CONTENTIONS AND OTHER PLEADINGS

Contentions and other pleadings which are filed as part of the licensing hearing before the Administrative Licensing and Appeals Board (ASLB) raise issues and address matters which are relevant and necessary for consideration in the EIS process, regardless of whether the contention or pleading was rejected for licensing board purposes. Therefore, the following contentions and pleadings are incorporated in this written response by reference and raised for evaluation as part of the EIS. As new contentions and pleadings are filed, just as when the license application is modified by NRC staff recommendations or PFS modifications and changes, the new or additional information should be evaluated as part of the EIS, and the NRC should provide an opportunity for public notification and comment.

The State of Utah's Contentions, dated November 23, 1997, are hereby incorporated by reference, and a copy is attached hereto as Exhibit E.

The State filed a 2.206 Petition with the NRC on June 26, 1997, which in part addressed the severity of wildfires in Skull Valley and challenged whether the Applicant had sufficient resources to handle fires at or near the ISFSI. The EIS must evaluate the effect of severe wildfire that occur in Skull Valley as it relates to siting the ISFSI and whether there are sufficient resources available to the Applicant to stave off a wildfire. In addition to incorporating the June 26, 1997, 2.206 Petition by reference into these comments, the State attaches hereto Exhibit F, a copy of the May 27, 1997 memorandum dealing with fire frequency in Skull Valley that was attached as Exhibit 5 to the 2.206 petition.

The following pleadings are also incorporated by reference into these comm

- State of Utah 2.206 Petition, dated June 27, 1998;
- State of Utah 2.206 Petition, dated July 21, 1997;

- Petition to Intervene and Request for Hearing filed by State of Utah, dated September 11, 1997; and
- State of Utah's Reply to the NRC Staff's and Applicant's Response to State of Utah's Contentions A through DD, dated January 16, 1998.

EXHIBIT A
Comments from the State of Utah
EIS Scoping, Docket No. 72-22
June 19, 1998

The New York Times

Sunday, April 26, 1998

Money & Business

Section 3

Logjam

For the conductors and engineers of the Union Pacific, schedules have varied so wildly amid the railroad's recent disarray that no week is truly typical. Patrick Murphy, right, a conductor, said one week last winter was better than others: he never had to spend an entire shift sitting on a stalled train.

SUNDAY, DEC. 21–MONDAY, DEC. 22

6 P.M. Dispatcher calls.

9 P.M. Takes over a train in the Houston yards bound for Lafayette, La.

9 A.M. After 12 hours, Mr. Murphy must go off duty, under Federal rules. The train stops at Echo, Tex., less than halfway to its destination.

10 A.M. A company vehicle picks up the crew.

12:30 P.M. He is dropped off at a motel in Lafayette.

Weary Hands At the Throttle

Workers Feel Strain of Merger At Union Pacific

By ALLEN R. MYERSON

LIVONIA, La.

FOR the Union Pacific Railroad workers crowded between shifts into a motel break room

TUESDAY, DEC. 23

6 A.M. Dispatcher calls.

8 A.M. Driver picks him up for the trip to a train stuck between Beaumont, Tex., and Lafayette.

About 10 A.M. Arrives at train.

8 P.M. Arrives Lafayette. After a wait, a vehicle picks him up for the drive back to Houston.

WEDNESDAY, DEC. 24

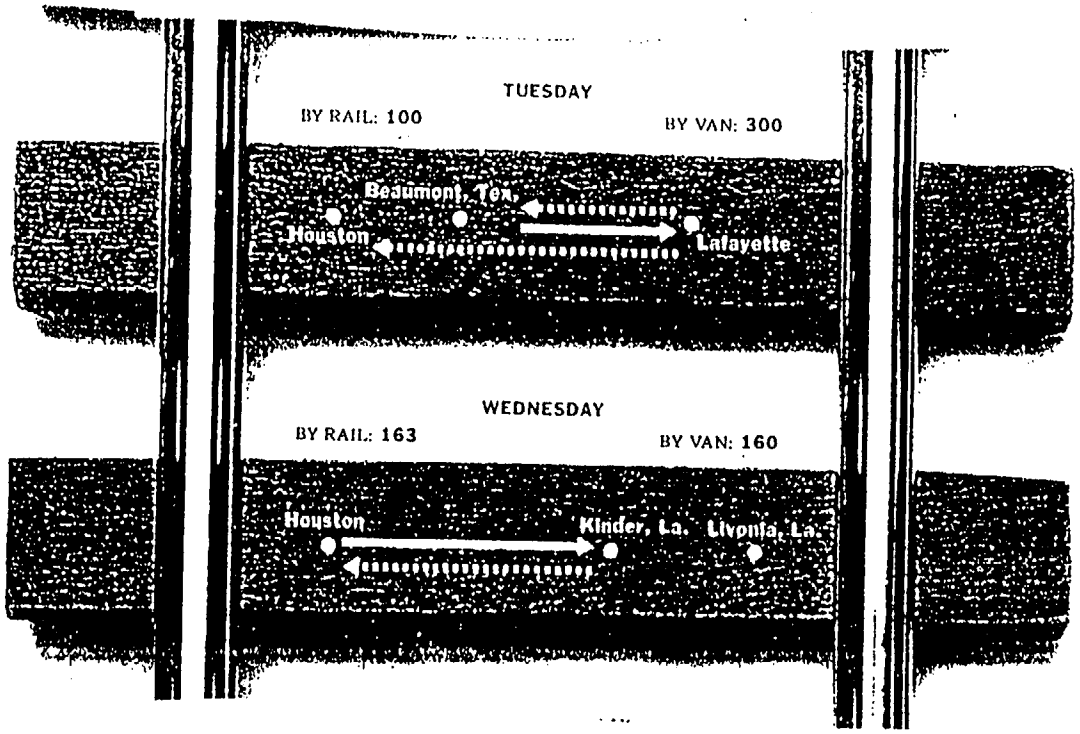
12:40 A.M. Arrives Houston.

9 A.M. Dispatcher calls.

Noon Boards train in Houston bound for Livonia, La.

8 P.M. Train stops in Kinder, La. Driver picks him up for a ride back to Houston.

11:15 P.M. Arrives Houston.



here, beetles crunching under their work boots, nights and weekends never arrive. And almost everyone has stories about their schedules.

Consider the conductor who departed Houston at 8:40 P.M. on a recent Thursday. So many other trains were trying to use the same rails that his 12-hour shift, the federally allowed maximum, brought him only 80 miles, just a third of the way to Livonia, a bayou town a couple of parishes west of Baton Rouge.

With no choice but to halt, the conductor was stranded more than three hours until a van came to his rescue. It took nearly five hours more to reach the motel here.

Dispatched back to Houston late on Saturday morning, he arrived shortly before midnight. After a few waking hours with his wife, he was back on duty just before noon on Sunday. This time he made it closer to the Livonia rail yard, but not close enough. Stranded again, a van driver dumped him at the motel at 2:15

THURSDAY, DEC. 25 – FRIDAY, DEC. 26

5:45 P.M. Dispatcher calls

8:45 P.M. Vehicle due to pick up Mr. Murphy at Houston railyard for ride to Lafayette.

10:00 P.M. Driver arrives.

2:00 A.M. Arrives Lafayette. Spends night at motel.

9:30 A.M. Dispatcher calls.

11:30 A.M. Boards train in Lafayette for Houston.

11:30 P.M. Twelve-hour shift ends with train in Beaumont. Vehicle picks him up for trip back to Houston.

SATURDAY, DEC. 27– SUNDAY, DEC. 28

1:30 A.M. Arrives Houston.

9 A.M. Dispatcher calls.

Noon Boards train in Houston.

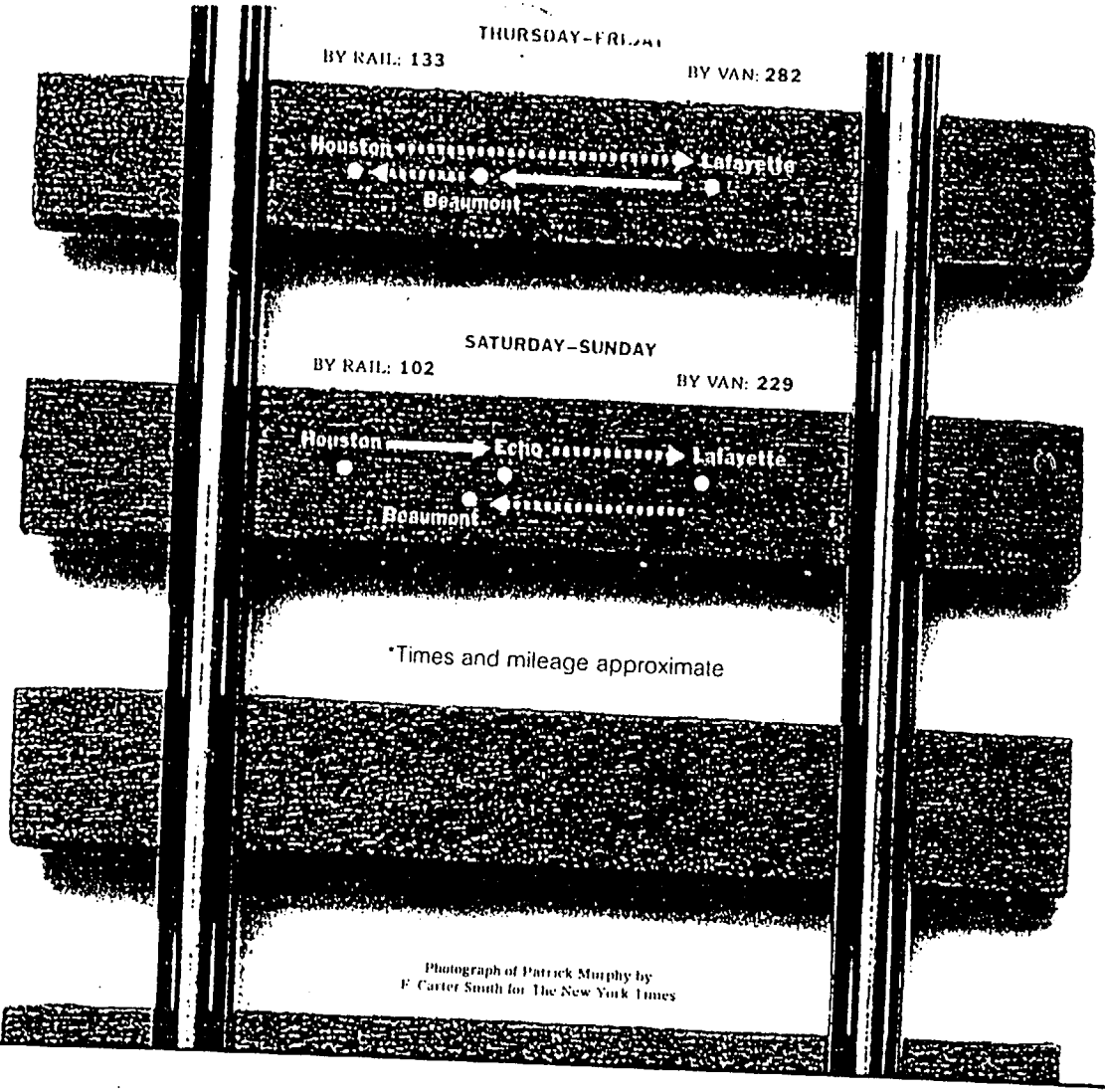
Midnight Shift ends in Echo.

About 2 A.M. Vehicle picks him up for trip to Lafayette.

4:10 A.M. Arrives Lafayette. Spends night in motel.

9:30 P.M. Dispatcher calls.

11:30 P.M. Vehicle takes him to Beaumont, where he will take a stranded train toward Lafayette.



*Times and mileage approximate

Photograph of Patrick Murphy by F. Carter Smith for The New York Times

A.M. Monday.

Even in normal times, to work on the railroad is to enter a world apart. Its schedules, culture and grimy, clangorous locales, where a slip or stumble can end a career or a life, make conductors and engineers a hidden brotherhood. It is an existence that outsiders, especially families, often cannot understand.

But at the Union Pacific — the line established by Congress and Abraham Lincoln to span the continent — these are not normal times. A 1996 merger with Southern Pacific to form the nation's largest railroad caused what regulators call an unprecedented breakdown in rail traffic through the heart of America that has lasted more than 10 months.

In recent weeks, Union Pacific made enough progress in clearing out its Houston rail yards that schedules for many of this area's crews improved from impossible to merely exhausting. But then clogged traffic at the Laredo, Tex., gateway to Mexico backed up trains all the way to Kansas, forcing an embargo on many shipments and extra-long days for other crews.

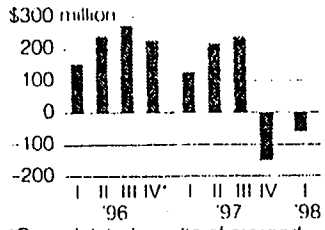
Now that trains are rolling more smoothly through Laredo — the embargo ended on Tuesday — Gridlock Central has moved again. Today it's in the railroad's busiest region, around North Platte, Neb., where coal trains bound for steel mills,

Continued on Page 10

Bumpy Ride

The collapse of service on the merged Union Pacific and Southern Pacific railroads is taking a huge toll on the company and the economy.

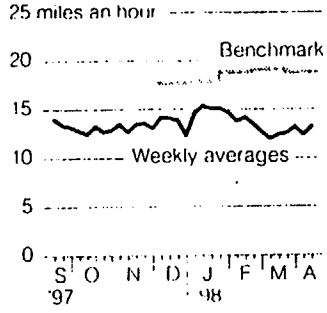
Net Income



*Consolidated results of merged company

Congestion

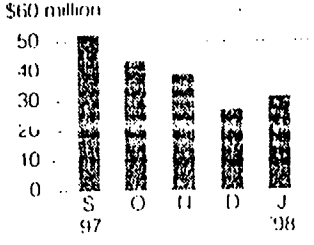
Train speeds consistently have fallen below the railroad's benchmarks.*



Affected Industries

Chemicals

The cost of lost sales, higher freight charges and other expenses for 55 chemical manufacturers surveyed



Weary Hands at the Throttle:

Continued From Page 1

chemical plants and power stations are jamming the tracks. Maintenance improvements are under way, but a needed set of extra rails is not even scheduled to be completed until next year.

Economists say the losses for the nation total billions of dollars, and some customers, like Dow Chemical, have sued the railroad. Richard K. Davidson, Union Pacific's chairman and chief executive, had predicted prompt recoveries so often that he no longer dares to set any date.

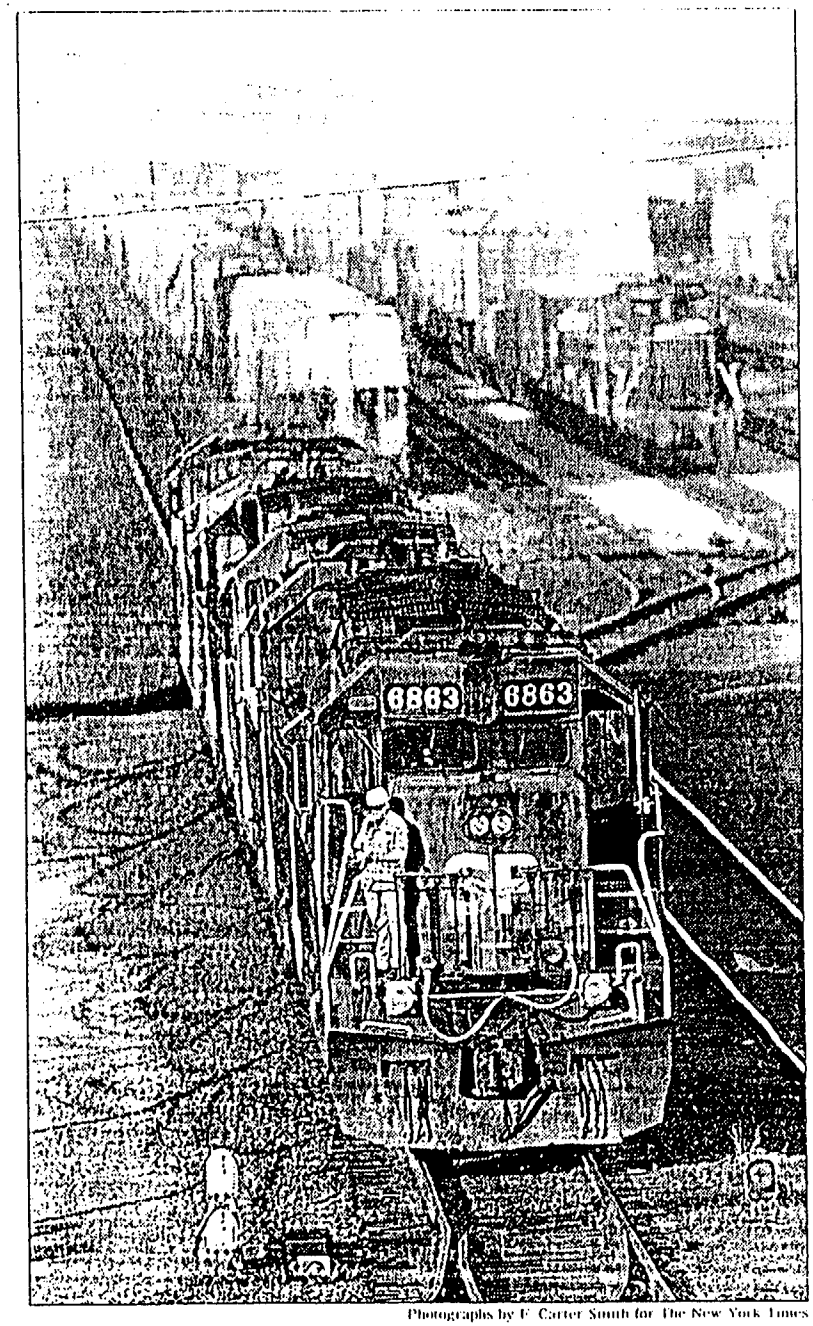
But for Union Pacific workers, the costs are immediate and personal. Wives and children become strangers. During brief visits home, no plans can be firm. And Federal investigators, in findings that the railroad disputes, list mismanagement and worker fatigue among the prime causes of crashes that killed nine workers last year.

Seeing how the merger went so wrong takes no M.B.A., no fancy title, only the recent experience of trying to run a Union Pacific train. Engineers and conductors say they watched the railroad's managers try to squeeze the deal for every possible economy and efficiency. But when a brisk economy kept freight traffic rising, there were far too few supervisors, locomotives or crews.

"There are too few of everybody for what they're trying to do," said an engineer at the Oak Tree Inn, the motel here. "They're trying to put 10 pounds of taters into a five-pound sack."

THE company acknowledges as much. "I am acutely embarrassed, and our company is embarrassed, at the time it has taken to recover from our congestion crisis," Mr. Davidson told the Surface Transportation Board, a regulatory agency, earlier this month. "Decades of prior experience told us that our projections were correct. But reality has been telling us something else."

Mr. Davidson took a two-thirds



Photographs by F. Carter Smith for The New York Times

The merger of Union Pacific and Southern Pacific has left trains stacked at the Englewood switching yard and delayed shipments in Houston.

(4)

Union Pacific's Strains

The chairman, Richard K. Davidson, right, meeting with Dave Keffler, a repair supervisor, says the traffic crisis has embarrassed Union Pacific.

akes a day off.

For all the bread they put on the able, conductors and engineers are arely there to break it, even in bet- er times. "I lost my first wife be- cause of the railroad," said an engi- neer with 27 years' service. He stepped behind the counter at the Livonia diner to pour his own coffee. "This is my home away from home," he explained. It was past 11 on a Sunday night, but with no days off his year, he often lost track.

"We see more of them than their wives," said a waitress, sliding in to one of the diner's booths for a break. The engineer poured her a cup, too. He told how he raised his daughter, 6 years old when her parents split, by hiring a niece who was just graduat- ing from high school.

"I stayed divorced for 10 years," he continued. "I remarried, but it isn't working out either. She just doesn't understand."

Last year, workers in the Houston region, which stretches into much of Arkansas and Louisiana, reached their limits. They won their union's backing for a regional walkout, but a court ruled that safety and fatigue were not issues over which they could strike. In the railroad tradition of wearing company caps, they made up caps of their own with the red, white and blue Union Pacific crest — and this motto: "Hello Houston. We Have a Problem."

If railroad workers only recently began to feel like the endangered crew of Apollo 13, their ranks had long been notorious for featherbed- ding. Well into the 1980's, freight trains had five men on board. Be- sides the engineer, at the controls, and the conductor, a co-pilot who manages the train and the paper- work, there were brakemen and switchmen. Women were, and still are, rare.

Union Pacific led the way in using technology to direct and monitor trains, lessening the need for large crews and eliminating cabooses. By the early 1990's, labor pacts had reduced the crews on long-distance trains to just two. Nationally, rail- road employment fell to 256,000 by 1996 from more than twice that in 1980, as freight increased by nearly half.

Still, wimps need not apply. From Mr. Davidson, a 6-foot-4 former brakeman, on down, railroad work- ers are sized like their trains. When a train breaks in two — it happens once or twice a day on the system — the conductor must be ready to lug an 80-pound joint, called a knuckle, perhaps a mile or more.

Besides muscle, the work takes attentiveness and skill. Though long hauls across the open West can turn monotonous, engineers and conduc- tors on other routes are busy every minute. Unlike jets, trains have no auto-pilot.

On a recent run through the humid dark from Lake Charles, La., to Houston, Alfred Deloach, the engi- neer, kept his thick hands on the throttle, horn or brakes. Mr. Murphy, his conductor, shouted to be heard above the roar of two engines and 6,000 horsepower.

Over a crackling radio, dispatch- ers relayed the conditions ahead and granted permission to proceed. Com- puterized track-side monitors beamed in their own cautions in the monotone of synthesized speech. Mr. Deloach, who also lives in Houston, adjusted his speed through curves, grades, bridges and patches where maintenance, delayed because of the congestion, forced him to go as slow- ly as 10 miles an hour. At his top speed of almost 50 miles an hour, stopping a train with 2 locomotives and 96 cars, weighing a total of more than 6,200 tons, would have taken at least a mile.

UNION PACIFIC doesn't own the Oak Tree Inn, but it might as well. Most nights, it re- serves at least 34 rooms for its crews and fills the other eight, too. With its spartan but tidy rooms, the Oak Tree offers some of the company's better lodgings. Elsewhere, Federal inves- tigators found dormitories the rail- road owns in dangerous neighbor- hoods where workers were prey to thieves and vandals. One lodging in Arizona was so infested with insects that several crew members were treated for spider bites.

In talks with the Federal Railroad Administration, which enforces safe- ty codes, Union Pacific has agreed to shut its worst dormitories.

On an inspection tour of Fort Worth and Dallas operations last week in a Chevrolet Suburban rebuilt to ride on tracks, Mr. Davidson re- called that when he began in 1960, the life was even tougher. The railroad provided no lodging, so he stayed at a Y.M.C.A. in Kansas, where weeds poked up through the wooden slats of the shower stall, or a 50-cent-a-night hotel. Other workers simply dug pits, covered them with tarps and crawled in.

Mr. Davidson, now 56, won rapid promotions, finishing a stint as su- pervisor of the Fort Worth yard in 1971. Last week, he found many older but familiar faces still around, with some younger faces familiar for their resemblance to their fathers.

FOR all the dislocation suffered by his company, tradition re- mains a common bond. "We've got a piece of track in Omaha, Neb., built in 1902," Mr. Davidson said in the inspection car. "They still call it 'the new cutoff.' "

While acknowledging the need for more modern labor conditions and manageable schedules, Mr. David- son says none of the employee deaths last year resulted from overwork. In one, he said, an engineer fell asleep despite having had two weeks of va- cation, and in another an engineer failed an alcohol test.

But among the crews here in Livo- nia, exhaustion shows. At dawn one recent Monday, conductors and engi- neers who had finished long over- night shifts paced the sidewalk be- side the motel. They calculated and recalculated the odds of having a room open up sooner than vans could arrive to take them to another motel 45 minutes away.

The drivers of the vans and sport utilities — carryalls, the vehicles are called — are themselves so exhaust- ed at times that their passengers choose the most alert among them to take the wheel. After his van driver repeatedly swerved across a yellow line a few weeks ago, an engineer based in Houston said, passengers ordered him to pull over and nap.

Rested or not, engineers and con- ductors can find themselves on unfa- miliar routes without the necessary training. One engineer, waiting out- side the Oak Tree Inn for a room after 17 hours of work — counting 3 hours of waiting for a ride, then a 2½- hour van trip — told how he was trained on the Beaumont-Houston route by three managers who had never been there.

One was from Texas, at least; the others were from Wisconsin and Utah. They insistently enforced the rules on proper footwear and the proper timing, loudness and se- quence of horn signals. "He didn't know where we were," the engineer said of the manager from Utah. "But he knew how loud to blow the horn."

The engineer, wearing a striped Casey Jones cap, recounted how he complained about the untrained trainers on a new safety hot line to the executive offices.

"Did you bring it up with your supervisor?" he was asked.

"I don't know who my supervisor is anymore," he answered. "I don't even have a phone number."

"Did you bring it up in a safety meeting?" he was asked.

"I haven't had a safety meeting since 1994," he said.

The woman who took his call promised to investigate and call back. She never did, the engineer said. Mr. Davidson said he had heard of no such lapses regarding safety complaints, which he said were fol- lowed up with local managers.

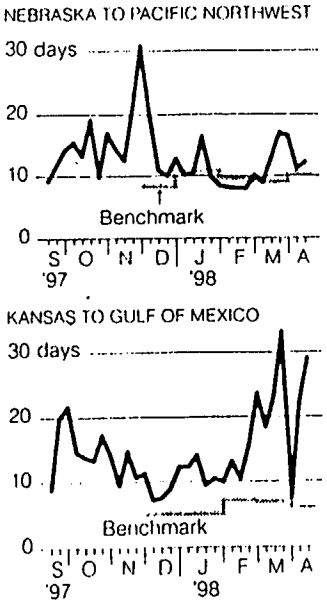
His employees, however, are fight- ing back with humor that, as in the old Soviet Union and now Russia, contrasts with cheery pronounce- ments from above. They speak of guiding trains by the calendar, not the clock. And they joke that the Ringling Brothers circus wanted to buy the company — "not for the railroad; they wanted the clowns running it."

To fix what went wrong, many workers have the same answer as their customers. "I got a solution to this merger," said one engineer, waiting on the motel sidewalk for a room or a lift. "Just go back to the way it was."

EARNING IT

Agriculture

Grain shipments in key corridors are often taking much longer than the benchmark.*



*Monthly average. Not available before December 1997.

Sources: Bloomberg Financial Markets, Union Pacific, Chemical Manufacturers Association

The New York Times

pay cut last year, to $961,000, as profits dropped 41 percent.

Like other railroad executives, he resists most demands from rail customers, unions and members of Congress for renewed Government oversight. Since the railroads were deregulated almost two decades ago, critics say they have won unquestioning approval for mergers that have reduced competition and increased costs.

"The figures show that 90 percent of the shippers in the United States are now captive," said Charles R. Matthews, chairman of the Texas Railroad Commission. "That's why we're pushing the Surface Transportation Board for some policies that will encourage competition."

Union Pacific has responded to complaints over safety and service by agreeing to recruit thousands of new workers, though veterans say the inexperience of the new hires will present new risks. The railroad has also begun allowing workers to take a full 24 hours of rest after at least seven consecutive days of 12-hour-plus shifts. (Though Federal rules limit them to 12 hours operating a train, they are paid "limbo time" for any extra hours they are stuck away from home or from a motel.) Another breakthrough: a company test, in the St. Louis area, of whether letting workers nap on idle trains might help them avoid nodding off when they are moving.

For Union Pacific, to bend at all is unusual. With systems modeled on the military, the company has seemingly endless rule books, infraction codes and penalties, governing everything from the appropriate choreography for jumping down from a train to how closely workers can approach a running or stopped engine before inserting their earplugs. "Insubordination," or refusing a direct order, is grounds for dismissal.

In Livonia, a glorified rail crossing with two traffic lights, workers must sign out from the motel so dispatchers can always reach them. Their listed destinations are seldom farther than the 24-hour diner that shares the parking lot — or its only competition, which operates from a kitchen at the gas station next door.

Yet Patrick Murphy, a conductor for a year and a half, swears by the need for rules. As the saying among his comrades goes, they are written in blood. He told of a fellow conductor who stepped off a moving train with the wrong foot first and paid for it with both legs.

"If you have an accident, it isn't a little accident," said Mr. Murphy, 28, a Houston resident who served seven years in the Navy before joining the Union Pacific.

Those rules make the rails a demanding mistress. Mr. Murphy explains that when his pager buzzes, he has 10 minutes to check in or face discipline. Whether at a restaurant, the movies or wherever, he said, "you've got to throw your date to the side and make that phone call." Once he explains that he is due at work at, say, 1 A.M., his dates are often ready to throw him to the side.

For all these rigors, conductors and engineers get two rewards. First is membership in a fraternity of those who can guide mighty chains of steel a mile or two long. "Like my dad says, 'The railroad is not a job; it's a way of life,' " said Cory Gravouia, a conductor and the son of a railroad engineer, as he finished a Sunday shift at the Livonia rail yard.

Second is pay that is about as good as blue-collar gets: usually $55,000 to $90,000 a year, including overtime, but $70,000 to more than $100,000 last year with all the extended shifts.

"Compared to jobs outside, the pay here is astronomical," said Terry Van Epps, an engineer, as he signed out — or tied up, as railroaders say — by computer at the Livonia rail yard office. With "limbo time," Mr. Van Epps's 12¾-hour shift earned him $338.90. And he rarely

State of Utah
DEPARTMENT OF NATURAL RESOURCES
UTAH GEOLOGICAL SURVEY

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

M. Lee Allison
State Geologist

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EXHIBIT B
Comments from the State of Utah
EIS Scoping, Docket No. 72-22
June 19, 1998

CONFIDENTIAL ATTORNEY-CLIENT PRIVILEGE WORK PRODUCT

April 16, 1998

TO: Connie Nakahara, DEQ Office of High Level Nuclear Waste Opposition

FROM: M. Lee Allison, Director, UGS

RE: Earthquake hazards in Skull Valley

Summary:

1. In addition to the potential for earthquakes that we previously recognized from the PFS data, we also believe that faults under the Skull Valley site may be 'capable' because of their geologic relationship to the known capable Stansbury fault.

2. Data from a statewide strong-motion seismic instrumentation network should be collected that could be used to improve the design of the facility or retrofit it, should it be permitted.

3. The PFS site overlies a broad zone of faulting where any of the different fault strands may break the surface or new faults might rupture during earthquakes, as occurs in other seismically active areas. It may be impossible to site a facility that would be set back the required distance from potential fault rupture zones because surface rupture might occur anywhere on the site.

Discussion:

Capable faults: The Utah Geological Survey previously advised you that faults under the proposed Skull Valley high-level nuclear waste storage site may be younger than claimed by PFS but that data were absent to ascertain the most recent age of earthquake activity. Further review leads us to conclude that the site faults may be 'capable' because of their geologic relationship to the nearby Stansbury Fault. The Stansbury fault is clearly capable under NRC guidelines. A large earthquake on the Stansbury Fault may result in significant aftershocks and surface rupture on the parallel, adjacent faults under the PFS site. The transfer of seismic activity from a main fault to subsidiary faults has occurred in other geologically similar areas, including Idaho in 1983. Therefore, whether or not the site faults are demonstrated to be recently active, we believe they must be considered capable for purposes of design of the storage facility. Additional data may help determine whether the site faults are independently capable of large earthquakes on their own.

Ground shaking: Under NRC guidelines, a storage site can be constructed over a capable fault if the facility is properly designed for the seismic environment. The theoretical design criteria calculated

by PFS may turn out to be inadequate or in error. Strong-motion seismic instruments should be deployed to gather ground shaking data that could be used to determine if the PFS design is appropriate. If contrary evidence is found, it could be used to retrofit or re-design the facility.

In 1989, a blue-ribbon commission of national seismic experts concluded that a statewide network of at least 108 strong-motion instruments was needed to minimally characterize the earthquake hazard in Utah by recording frequency contents of large or nearby moderate earthquakes. In 1996, the UGS installed 7 such instruments, broadly distributed across the state. There are also a handful of federally maintained instruments for specific dams and buildings. There are as yet, no data from these strong motion instruments to use in evaluating whether design criteria used by PFS will provide sufficient safety from earthquakes hazards.

We recommend that the NRC require PFS to install and maintain a statewide strong-motion instrumentation network to better quantify the nature of the ground-shaking hazard in the Skull Valley, and that any permit granted to PFS be conditional on their facility meeting the best design criteria that becomes available during the life of the facility.

Surface rupture: We characterize the geologic environment under the entire proposed Skull Valley storage site as a broad fault zone or zone of deformation in which the rocks are broken and offset by a number of faults. Additional information is needed to determine whether any of the faults may have the potential to rupture the surface. In other areas that have been more intensely studied such as the Wasatch and San Andreas faults, surface-rupturing earthquakes have been shown to occur on any of the fault strands in the zone or a new fault strand may be produced with each new earthquake. That means the entire PFS site might be subject to surface-rupture by existing or newly created faults in the fault zone. The NRC requires that a facility be set back from a potential surface rupture hazard which in this case might not be possible.

EXHIBIT C
Comments from the State of Utah
EIS Scoping, Docket No. 72-22
June 19, 1998

Department of Community & Economic Development
Division of State History
Utah State Historical Society

Michael O. Leavitt
Governor
Max J. Evans
Director

300 Rio Grande
Salt Lake City, Utah 84101-1182
(801) 533-3500 • FAX: 533-3503 • TDD: 533-3502
cehistry.ushs@email.state.ut.us

April 30, 1997

Nuri T. Georges, Program Manager
Stone & Webster Environmental Technology & Services
245 Summer Street
Boston Massachusetts 92210

RE: Proposed Industrial Development, Tooele County, Utah

In Reply Please Refer to Case No. 97-0013

Dear Nuri T. Georges:

The Utah State Historic Preservation Office received the above referenced request on March 17, 1997. Your firm requested information about any known historic or archaeological sites within the proposed study area in order to begin Section 106 consultation. As you know, Section 106 of the National Historic Preservation Act requests the lead federal agency to consult with the SHPO. When that agency is designated, formal consultation can begin. In the meantime, we are able to provide the following information.

1. Known cultural resources: our records indicate that nine archaeological sites are located in the potential area of effect.

2. About five percent of the area of potential effect has been surveyed for historic properties as outlined by Secretary of Interior Guidelines. Based on that information and other data, the project area appears to have a high potential for location of other historic properties. Areas of high potential include: Antelope Canyon, Indian Hickman Canyon, springs in Section 34, Salt Mountain, Ranch Knoll, Horse Shoe Spring, Muskrat Canyon, Lone Rock and the historic community of Iosepa.

3. The Utah Preservation Office also notes historic use by Goshute and other groups.

If you have questions, contact me at (801) 533-3555. My email address is: jdykman@history.state.ut.us

As ever,

James L. Dykmann
Compliance Archaeologist

JLD:97-0013 OFR

F:\CULTURALUIM\97-0013.WPD

Fire Name	Date	Town	Dir	Rn	Dir	Section	Cause	Acres Burned
AQUIDUCT	8/19/92	3.00	S	8.00	W	34,35	LT	30.00
BARLOW CREEK	6/9/94	5.00	S	7.00	W	33 SE CORNE	MC	0.25
BIG HOLLOW COMPLEX	8/9/90	5.00	S	7.00	W	13	LT	7,090.00
BROAD CANYON	9/19/92	2.00	S	7.00	W	12	LT	0.10
BROAD CANYON	10/4/92	2.00	S	7.00	W	7,12	EQ	30.00
CAMPFIRE	7/24/88	2.00	S	7.00	W	30	CF	4.00
CHEM FIRE	8/15/89	1.00	S	7.00	W	27	LT	10.00
CHIP	6/10/90	1.00	S	7.00	W	31	DB	1.50
CONFUSION	8/25/91	3.00	S	8.00	W	4,8	LT	750.00
CONTACT	8/29/91	2.00	S	7.00	W	1	LT	150.00
DEADMAN	7/25/89	5.00	S	7.00	W	8;	LT	3.00
DEEP SAND	6/12/91	5.00	S	7.00	W	28	LT	0.10
DEL RANCH	6/23/89	3.00	S	8.00	W	33	DB	0.50
FINGER	6/26/92	1.00	S	7.00	W	23	MC	10.00
HATCH	7/21/89	7.00	S	7.00	W	22	LT	0.20
HATCH WELL	6/7/94	5.00	S	9.00	W	20-28-29	MC	750.00
HAYSTACK	7/23/89	4.00	S	8.00	W	9	LT	0.10
HICKMAN	8/2/89	7.00	S	7.00	W	28	LT	0.40
LONE ROCK	9/16/95	1.00	S	8.00	W	16	MC	10.00
LOOOKOUT	8/30/91	7.00	S	7.00	W	11,12	LT	10.00
MACK CANYON FIRE	8/7/95	2.00	S	7.00	W	25 NW 1/4	LT	8.00
MP 72/I-80	7/4/88	1.00	S	7.00	W	9	EQ	0.01
MUSKRAT CANYON	7/22/94	2.00	S	7.00	W	16	LT	0.25
MUSKRAT FIRE	9/1/95	2.00	S	7.00	W	5	LT	1.00
NORTH WILLOW	8/20/89	3.00	S	7.00	W	35	SM	0.01
PACK SPRING	7/21/95	6.00	S	7.00	W	4	LT	0.50
POST HOLLOW	9/20/87	6.00	S	9.00	W	1,2,11,12,14	EQ	4,500.00
ROCKET	7/2/90	1.00	S	10.00	W	5	IN	25.00
SAGE	7/23/89	4.00	S	8.00	W	28	LT	0.10
SERVICEBERRY	7/31/88	6.00	S	7.00	W	1	LT	10.00
SERVICEBERRY #2	8/1/88	6.00	S	7.00	W	1	LT	0.01
SKULL VALLEY	6/27/88	2.00	S	7.00	W	7	IN	0.25
SOUTH WILLOW	10/10/87	4.00	S	7.00	W	1	IN	0.10
TAILDRAGON	7/21/90	1.00	S	10.00	W	5	EQ	0.10
TERRA	7/2/94	5.00	S	7.00	W	33	LT	2,294.00
TERRA # 1	7/27/94	6.00	S	7.00	W	13	LT	1.00
TERRA # 2	7/27/94	5.00	S	7.00	W	15	LT	0.10
TERRA #1	7/25/89	6.00	S	7.00	W	12	LT	0.01
TERRA #2	7/25/89	6.00	S	7.00	W	24	LT	0.01
TERRA DUMP	6/26/87	6.00	S	7.00	W	4	DB	3.00
TERRA DUMP	8/29/88	6.00	S	7.00	W	4	DB	0.07
TERRA DUMP #2	10/26/88	6.00	S	7.00	W	4	MC	0.04
TERRA DUMP #2	7/9/92	5.00	S	7.00	W	4	DB	0.20
TIE	7/2/87	1.00	S	8.00	W	6	IN	0.01
TIMPIE	6/10/93	1.00	S	7.00	W	9	MC	8.00
WEST STANSBURY	8/23/91	2.00	S	7.00	W	26	MC	430.00
WHITE ROCK	10/11/89	4.00	S	8.00	W	4, 5, 8, 9	DB	1,500.00
WHITE ROCKS	7/23/92	6.00	S	9.00	W	4	MC	270.00

LT - Lightning
MC - Man Caused
EQ - Equipment
CF - Camp Fire
DB - Debris Burning
SM - Smoking
IN - Incendiary

EXHIBIT D
Comments from the State of Utah
EIS Scoping, Docket No. 72-22
June 19, 1998

Enrolled Copy **S.B. 196**

HIGH LEVEL NUCLEAR WASTE DISPOSAL

1998 GENERAL SESSION

STATE OF UTAH

Sponsor: Craig A. Peterson

AN ACT RELATING TO THE ENVIRONMENT AND HEALTH; PROVIDING LEGISLATIVE INTENT; ESTABLISHING PROCEDURES, REQUIREMENTS, AND FEES FOR LICENSURE TO OPERATE A HIGH LEVEL NUCLEAR WASTE FACILITY OR A GREATER THAN CLASS C RADIOACTIVE WASTE FACILITY IN THE STATE; REQUIRING CERTAIN SAFETY ASSURANCES IN ORDER TO TRANSPORT THESE WASTES WITHIN THE STATE; AND SPECIFYING REQUIREMENTS REGARDING TRANSPORTATION, SURETY FOR MAINTENANCE OF A FACILITY, AND FINANCIAL RESPONSIBILITY FOR ANY RELEASES OF THE NUCLEAR WASTE.

This act affects sections of Utah Code Annotated 1953 as follows:

AMENDS:

19-3-301, as last amended by Chapter 227, Laws of Utah 1993

ENACTS:

19-3-302, Utah Code Annotated 1953

19-3-303, Utah Code Annotated 1953

19-3-304, Utah Code Annotated 1953

19-3-305, Utah Code Annotated 1953

19-3-306, Utah Code Annotated 1953

19-3-307, Utah Code Annotated 1953

19-3-308, Utah Code Annotated 1953

19-3-309, Utah Code Annotated 1953

19-3-310, Utah Code Annotated 1953

19-3-311, Utah Code Annotated 1953

19-3-312, Utah Code Annotated 1953

19-3-313, Utah Code Annotated 1953

19-3-314, Utah Code Annotated 1953

19-3-315, Utah Code Annotated 1953

19-3-316, Utah Code Annotated 1953

19-3-317, Utah Code Annotated 1953

Be it enacted by the Legislature of the state of Utah:

Section 1. Section **19-3-301** is amended to read:

19-3-301. Restrictions on nuclear waste placement in state.

The state [~~shall~~] may not approve the placement, including transfer, storage, decay in storage, treatment, or disposal, in Utah of high level nuclear waste or greater than class C radioactive waste unless the governor, after consultation with the county executive and county legislative body of the affected county and with concurrence of the Legislature, specifically approves [~~such~~] the placement as provided in this part.

Section 2. Section **19-3-302** is enacted to read:

19-3-302. Legislative intent.

(1) The state of Utah enacts this part to regulate transportation, transfer, storage, decay in storage, treatment, and disposal of any high level nuclear waste and greater than class C radioactive waste in Utah, thereby asserting and protecting the state's interests in environmental and economic resources consistent with 42 U.S.C.A. 2011 et seq., Atomic Energy Act and 42 U.S.C.A. 10101 et seq., Nuclear Waste Policy Act.

(2) Neither the Atomic Energy Act nor the Nuclear Waste Policy Act provides for siting a large privately owned high level nuclear waste transfer, storage, decay in storage, or treatment facility away from the vicinity of the reactors. The Atomic Energy Act and the Nuclear Waste Policy Act specifically define authorized storage and disposal programs and activities. The state of Utah in enacting this part is not preempted by federal law, since any proposed facilities that would be sited in Utah are not contemplated or authorized by federal law and, in any circumstance, this part is not contrary to or inconsistent with federal law or Congressional intent.

(3) The state of Utah has environmental and economic interests which do not involve nuclear safety regulation, and which must be considered and complied with in siting a high level nuclear waste or greater than Class C radioactive waste transfer, storage, decay in storage, treatment, or

disposal facility and in transporting these wastes in the state.

(4) An additional primary purpose of this part is to ensure protection of the state from nonradiological hazards associated with any waste transportation, transfer, storage, decay in storage, treatment, or disposal.

(5) The state recognizes the sovereign rights of Indian tribes within the state of Utah. However, any proposed transfer, storage, decay in storage, treatment, or disposal facility located on a reservation which directly affects and impacts state interests by creating off-reservation effects such as potential or actual degradation of soils and groundwater, potential or actual contamination of surface water, pollution of the ambient air, emergency planning costs, impacts on development, agriculture, and ranching, and increased transportation activity, is subject to state jurisdiction.

(6) There is no tradition of regulation by the Indian tribes in Utah of high level nuclear waste or higher than class C radioactive waste. The state does have a long history of regulation of radioactive sources and natural resources and in the transfer, storage, treatment, and transportation of materials and wastes throughout the state. The state finds that its interests are even greater when nonmembers of an Indian tribe propose to locate a facility on tribal trust lands primarily to avoid state regulation and state authorities under federal law.

(7) (a) This part is not intended to modify existing state requirements for obtaining environmental approvals, permits, and licenses, including surface and groundwater permits and air quality permits, when the permits are necessary under state and federal law to construct and operate a high level nuclear waste or greater than class C radioactive waste transfer, storage, decay in storage, treatment, or disposal facility.

(b) Any source of air pollution proposed to be located within the state, including sources located within the boundaries of an Indian reservation, which will potentially or actually have a direct and significant impact on ambient air within the state, is required to obtain an approval order and permit from the state under Section 19-2-108.

(c) Any facility which will potentially or actually have a significant impact on the state's surface or groundwater resources is required to obtain a permit under Section 19-5-107 even if located within the boundaries of an Indian reservation.

(8) The state finds that the transportation, transfer, storage, decay in storage, treatment, and disposal of high level nuclear waste and greater than class C radioactive waste within the state is an ultra-hazardous activity which carries with it the risk that any release of waste may result in enormous economic and human injury.

Section 3. Section **19-3-303** is enacted to read:

19-3-303. Definitions.

As used in this part:

(1) "Greater than class C radioactive waste" means low-level radioactive waste that has higher concentrations of specific radionuclides than allowed for class C waste.

(2) "High level nuclear waste" has the same meaning as in Section 19-3-102.

(3) "Rule" means a rule made by the department under Title 63, Chapter 46a, Utah Administrative Rulemaking Act.

(4) "Storage facility" means any facility which stores, holds, or otherwise provides for the emplacement of waste regardless of the intent to recover that waste for subsequent use, processing, or disposal.

(5) "Transfer facility" means any facility which transfers waste from and between transportation modes, vehicles, cars, or other units, and includes rail terminals and intermodal transfer points.

(6) "Waste" or "wastes" means high level nuclear waste and greater than class C radioactive waste.

Section 4. Section **19-3-304** is enacted to read:

19-3-304. Licensing and approval by governor and Legislature -- Powers and duties of the department.

(1) (a) A person may not construct or operate a waste transfer, storage, decay in storage, treatment, or disposal facility within the exterior boundaries of the state without applying for and receiving a construction and operating license from the state Department of Environmental Quality and also obtaining approval from the Legislature and the governor.

(b) The Department of Environmental Quality may issue the license, and the Legislature and

the governor may approve the license, only upon finding the requirements and standards of this part have been met.

(2) The department shall by rule establish the procedures and forms required to submit an application for a construction and operating license under this part.

(3) The department may make rules implementing this part as necessary for the protection of the public health and the environment, including:

(a) rules for safe and proper construction, installation, repair, use, and operation of waste transfer, storage, decay in storage, treatment, and disposal facilities;

(b) rules governing prevention of and responsibility for costs incurred regarding accidents that may occur in conjunction with the operation of the facilities; and

(c) rules providing for disciplinary action against the license upon violation of any of the licensure requirements under this part or rules made under this part.

Section 5. Section **19-3-305** is enacted to read:

19-3-305. Application for license.

The application for a construction and operating license shall contain information required by department rules, which shall include:

(1) results of studies adequate to:

(a) identify the presence of any groundwater aquifers in the area of the proposed site;

(b) assess the quality of the groundwater of all aquifers identified in the area of the proposed site;

(c) provide reports on the monitoring of vadose zone and other near surface groundwater;

(d) provide reports on hydraulic conductivity tests; and

(e) provide any other information necessary to estimate adequately the groundwater travel distance;

(2) identification of transportation routes and transportation plans within the state and demonstration of compliance with federal, state, and local transportation requirements;

(3) estimates of the composition, quantities, and concentrations of waste to be generated by the activities covered by the license;

(4) the environmental, social, and economic impact of the facility in the area of the proposed facility and on the state as a whole;

(5) detailed engineering plans and specifications for the construction and operation of the facility and for the closure of the facility;

(6) detailed cost estimates and funding sources for construction, operation, and closure of the facility;

(7) a security plan that includes a detailed description of security measures that would be installed in and around the facility;

(8) a detailed description of site suitability, including a description of the geologic, geochemical, geotechnical, hydrologic, ecologic, archaeologic, meteorologic, climatologic, and biotic features of the site and vicinity;

(9) specific identification of:

(a) the applicant, the wastes to be accepted, the sources of waste, and the owners and operators of the facility; and

(b) the persons or entities having legal responsibility for the facility and wastes;

(10) quantitative and qualitative environmental and health risk assessments for all proposed activities, including transfer, storage, and transportation of wastes;

(11) technical qualifications, including training and experience of the applicant, staff, and personnel who are to engage in the proposed activities;

(12) a quality assurance program, radiation safety program, and environmental monitoring program;

(13) a regional emergency plan for an area surrounding the facility having at least a 75 mile radius, but which may be greater, if required by department rule; and

(14) any other information and monitoring the department determines necessary to insure the protection of the public health and the environment.

Section 6. Section **19-3-306** is enacted to read:

19-3-306. Information and findings required for approval by the department.

The department may not issue a construction and operating license unless information in the

application:

(1) demonstrates the availability and adequacy of emergency services, including medical, security, and fire response, and environmental cleanup capabilities both at and in the region of the proposed site and for areas involved in the transport of wastes within the state;

(2) establishes financial assurance for operation and closure of the facility and for responding to emergency conditions in transportation and at the facility as required by department rules, including proof the applicant:

(a) possesses substantial resources that are sufficient to respond to any reasonably foreseeable injury or loss resulting from operation of the facility; and

(b) will maintain these resources throughout the term of the facility;

(3) provides evidence the wastes will not cause or contribute to an increase in mortality, an increase in illness, or pose a present or potential hazard to human health or the environment;

(4) provides evidence the personnel employed at the facility have appropriate and sufficient education and training for the safe and adequate handling of the wastes;

(5) demonstrates the public benefits of the proposed facility, including the lack of other available sites or methods for the management of the waste that would be less detrimental to the public health or safety or to the quality of the environment;

(6) demonstrates the technical feasibility of the proposed waste management technology;

(7) demonstrates conformance with federal laws, regulations, and guidelines for a waste facility;

(8) demonstrates conclusively that any facility is temporary and provides identified plans and alternatives for closure of the facility with an enforceable schedule and identified dates for closure, including evidence that:

(a) an identified party has irrevocably agreed to accept the waste at the end of the temporary storage period; and

(b) the waste will be moved to another facility;

(9) demonstrates that:

(a) the applicant is not a limited liability company, limited partnership, or other entity with

limited liability; and

(b) the applicant and its officers and directors and those principals or other entities that are participating in and associated with the applicant regarding the facility are willing to accept unlimited strict liability, consistent with federal law, for any financial losses or human losses or injuries resulting from operation of any proposed facility;

(10) provides evidence the applicant has posted a cash bond in the amount of at least two billion dollars or in a greater amount as determined by department rule to be necessary to adequately respond to any reasonably foreseeable releases or losses, or the closure of the facility;

(11) provides evidence the applicant and its officers and directors, the owners or entities responsible for the generation of the waste, principals, and any other entities participating in or associated with the applicant, including landowners, lessors, and contractors, consent in writing to the jurisdiction of the state courts of Utah for any claims, damages, private rights of action, state enforcement actions, or other proceedings relating to the construction, operation, and compliance of the proposed facility; and

(12) demonstrates that any person or entity which sends wastes to a facility shall remain the owner of and responsible for the waste and its ultimate disposal and is willing to accept unlimited, strict liability, consistent with federal law, for any financial or human losses, liabilities, or injuries resulting from the wastes for the entire time period the waste is at the facility.

Section 7. Section **19-3-307** is enacted to read:

19-3-307. Siting criteria.

(1) The department 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 under Subsection (2).

(2) The facility may not be located:

(a) within or underlain by:

(i) national, state, or county parks; monuments or recreation areas; designated wilderness or wilderness study areas; or wild and scenic river areas;

(ii) ecologically or scientifically significant natural areas, including wildlife management

areas and habitats for listed or proposed endangered species as designated by federal law;

(iii) 100-year flood plains;

(iv) areas 200 feet from Holocene faults;

(v) underground mines, salt domes, or salt beds;

(vi) dam failure flood areas;

(vii) areas subject to landslide, mud flow, or other earth movement, unless adverse impacts can be mitigated;

(viii) farmlands classified or evaluated as "prime," "unique," or of "statewide importance" by the U.S. Department of Agricultural Soil Conservation Service under the Prime Farmland Protection Act;

(ix) areas within five miles of existing permanent dwellings, residential areas, or other habitable structures, including schools, churches, or historic structures;

(x) areas within five miles of surface waters, including intermittent streams, perennial streams, rivers, lakes, reservoirs, and wetlands;

(xi) areas within 1,000 feet of archeological sites regarding which adverse impacts cannot reasonably be mitigated;

(xii) recharge zones of aquifers containing groundwater which has a total dissolved solids content of less than 10,000 mg/l; or

(xiii) drinking water source protection areas;

(b) in areas:

(i) above or underlain by aquifers that:

(A) contain groundwater which has a total dissolved solids content of less than 500 mg/l; and

(B) do not exceed state groundwater standards for pollutants;

(ii) above or underlain by aquifers containing groundwater which has a total dissolved solids content between 3,000 and 10,000 mg/l, when the distance from the surface to the groundwater is less than 100 feet;

(iii) of extensive withdrawal of water, gas, or oil;

(iv) above or underlain by weak and unstable soils, including soils that lose their ability to support foundations as a result of hydrocompaction, expansion, or shrinkage;

(v) above or underlain by karst terrains; or

(vi) where air space use and ground transportation routes present incompatible risks and uses; or

(c) within a distance to existing drinking water wells and watersheds for public water supplies of five years groundwater travel time plus 1,000 feet.

(3) An applicant for a license may request from the department an exemption from any of the siting criteria stated in this section upon demonstration that the modification would be protective of and have no adverse impacts on the public health and the environment.

Section 8. Section **19-3-308** is enacted to read:

19-3-308. Application fee and annual fees.

(1) (a) Any application for a waste transfer, storage, decay in storage, treatment, or disposal facility shall be accompanied by an initial fee of $5,000,000.

(b) The applicant shall subsequently pay an additional fee to cover the costs to the state associated with review of the application, including costs to the state and the state's contractors for permitting, technical, administrative, legal, safety, and emergency response reviews, planning, training, infrastructure, and other impact analyses, studies, and services required to evaluate a proposed facility.

(2) For the purpose of funding the state oversight and inspection of any waste transfer, storage, decay in storage, treatment, or disposal facility, and to establish state infrastructure, including, but not limited to providing for state Department of Environmental Quality, state Department of Transportation, state Department of Public Safety, and other state agencies' technical, administrative, legal, infrastructure, maintenance, training, safety, socio-economic, law enforcement, and emergency resources necessary to respond to these facilities, the owner or operator shall pay to the state a fee as established by department rule under Section 63-38-3.2, to be assessed:

(a) per ton of storage cask and high level nuclear waste per year for storage, decay in storage, treatment, or disposal of high level nuclear waste;

(b) per ton of transportation cask and high level nuclear waste for each transfer of high level nuclear waste;

(c) per ton of storage cask and greater than class C radioactive waste for the storage, decay in storage, treatment, or disposal of greater than class C radioactive waste; and

(d) per ton of transportation cask and greater than class C radioactive waste for each transfer of greater than class C radioactive waste.

(3) Funds collected under Subsection (2) shall be placed in the Nuclear Waste Facility Oversight Restricted Account, created in Section 19-3-309.

(4) The owner or operator of the facility shall pay the fees imposed under this section to the department on or before the 15th day of the month following the month in which the fee accrued.

(5) Annual fees due under this part accrue on July 1 of each year and shall be paid to the department by July 15 of that year.

Section 9. Section **19-3-309** is enacted to read:

19-3-309. Restricted account.

(1) There is created within the General Fund a restricted account known as the "Nuclear Waste Facility Oversight Account."

(2) (a) The account shall be funded from the fees imposed under this part.

(b) The department shall deposit all fees collected under this part in the account.

(c) The Legislature may appropriate the funds in this account to departments of state government as necessary for those departments to carry out their duties to implement this part.

(d) The account shall earn interest, which shall be deposited in the account.

Section 10. Section **19-3-310** is enacted to read:

19-3-310. Benefits agreement.

(1) The department may not issue a construction and operating license under this part unless the applicant has entered into a benefits agreement with the department 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.

(2) (a) The benefits agreement shall be attached to and made part of the terms of any license

for the facility.

(b) Failure to adhere to the benefits agreement is a ground for the department to take enforcement action against the license, including permanent revocation of the license.

(3) This part may not be construed or interpreted to affect the rights of any person or entity to brings claims against or reach agreements with the applicant for impacts from the facility independent of the benefits agreement.

Section 11. Section **19-3-311** is enacted to read:

19-3-311. Length of license.

(1) Any construction and operating license shall be issued for a term established by department rule, but the term may not be longer than 20 years.

(2) The term of the license may be extended beyond 20 years only by approval of the department, the Legislature, and the governor.

Section 12. Section **19-3-312** is enacted to read:

19-3-312. Enforcement -- Penalties.

(1) When the department or the governor has probable cause to believe a person is violating or is about to violate any provision of this part, the department or the governor shall direct the state attorney general to apply to the appropriate court for an order enjoining the person from engaging in or continuing to engage in the activity.

(2) In addition to being subject to injunctive relief, any person who violates any provision of this part is subject to a civil penalty of up to $10,000 per day for each violation.

(3) Any person who knowingly violates a provision of this part is guilty of a class A misdemeanor and subject to a fine of up to $10,000 per day.

Section 13. Section **19-3-313** is enacted to read:

19-3-313. Reciprocity.

Waste may not be transported into and transferred, stored, decayed in storage, treated, or disposed of in the state if the state of origin of the waste or the state in which the waste was generated prohibits or limits similar actions within its own boundaries.

Section 14. Section **19-3-314** is enacted to read:

19-3-314. Local jurisdiction.

This part does not preclude any political subdivision of the state from establishing additional requirements under applicable state and federal law.

Section 15. Section **19-3-315** is enacted to read:

19-3-315. Transportation requirements.

(1) A person may not transport wastes in the state, including on highways, roads, rail, by air, or otherwise, without:

(a) having received approval from the state Department of Transportation; and

(b) having demonstrated compliance with rules of the state Department of Transportation.

(2) The Department of Transportation may:

(a) make rules requiring a transport and route approval permit, weight restrictions, tracking systems, and state escort; and

(b) assess appropriate fees as established under Section 63-38-3.2 for each shipment of waste, consistent with the requirements and limitations of federal law.

(3) The Department of Environmental Quality shall establish any other transportation rules as necessary to protect the public health, safety, and environment.

Section 16. Section **19-3-316** is enacted to read:

19-3-316. Cost recovery.

The owner or transporter or any person in possession of waste is liable, consistent with the provisions of federal law, for any expense, damages, or injury incurred by the state, its political subdivisions, or any person as a result of a release of the waste.

Section 17. Section **19-3-317** is enacted to read:

19-3-317. Severability.

If any provision of this part is held to be invalid, unconstitutional, or otherwise held to be inconsistent with law, the remainder of this part is not affected and remains in full force.

98-00005

EXHIBIT E (Part 1 of 2)
Comments from the State of Utah
EIS Scoping, Docket No. 72-22
June 19, 1998

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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

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.[1] 42 USC § 10,151. Congress directed the NRC and other

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[1] 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 apprize 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[2] 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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[2] 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.[3]

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[3] 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.[4] 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 complication 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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[4] 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 though 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 a 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.[5]

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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[5] 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 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 4E-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 E-7, which is a factor of almost 3,000 smaller than the release of 3 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.[6] 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 rems. 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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[6] Respirable particles have a diameter of less than 10 μm.

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.[7]

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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[7] 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.[8]

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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[8] 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.[9]

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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[9] 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 then 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.[10]

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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[10] 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.[11]

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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[11] 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.[12]

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

[12] 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.[13]

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

[13] 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.[14]

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 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 preparation for storage, SSSC transfer to storage, fuel or high-level

[14] 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.[15]

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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[15] 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, <u>there must be provisions for periodic inspection and surveillance of critical components.</u>

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.[16] 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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[16] "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.[17]

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, <u>as well as facilities at greater distances, as appropriate to their significance</u>. For each facility, a description of the products or materials produced, <u>stored or transported</u> should be provided, along with a discussion of potential hazards to the ISFSI from activities or materials at the facilities.

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[17] 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),[18] 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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[18] 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.[19]

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

[19] 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)[20] 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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[20] 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 underlaid 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[21] 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

[21] 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 SWECO 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 form 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 at2.5-5. 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.[22]

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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[22] 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.[23]

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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[23] 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 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.[24]

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, at2-1. This excuse is invalid. An applicant

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[24] 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 ISISI 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.[25] 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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[25] 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 Intervenors, 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 <u>assumes</u> 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.[26] 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

[26] 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.[27] 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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[27] 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,[28] 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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[28] *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 its 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.[29]

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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[29] 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.[30]

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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[30] 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 UO_2 had oxidized into U_3O_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.[31] The population exposures ranged up to 63,000 person-rems in the most severe rural accident. PFS does not mention a study by Sandia National Laboratory of

[31] 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.[32] 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.[33] 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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[32] 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.

[33] 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,[34] out of over 100,000 discharged assemblies to date.[35] 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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[34] 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.

[35] 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 5×10^{-5} 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.[36] 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

[36] 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.[37] For example the one way mileage from Boston

[37] 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.[38] 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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[38] 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.[39]

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.[40] 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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[39] This contention is supported by the Declaration of Lawrence A. White, attached hereto as Exhibit 1.

[40] *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 by physically possible but economically disadvantageous.[41]

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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[41] 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.[42]

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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[42] 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.[43]

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

[43] 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.[44]

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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[44] 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.[45] 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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[45] 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 discusses 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 and 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.[46] The Presidential Order further directs agencies to conduct their activities without

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[46] 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.

3 CFR at 859.

discriminating against low income and minority populations.[47] 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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[47] 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 contaminates 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 <u>known</u> 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 it 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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Dated this 23rd 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

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 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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Dated this 23rd 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

In the Matter of:	)	Docket No. 72-22-ISFSI
PRIVATE FUEL STORAGE, LLC (Independent Spent Fuel Storage Installation)	)	ASLBP No. 97-732-02-ISFSI
	)	January 16, 1998

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[1] 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."[2] The NRC ignored the State's petitions [3] 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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[1] *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.

[2] *See* State of Utah's Motion to Suspend Licensing Proceedings . . . dated October 1, 1997, Exhibit 4 at 1.

[3] 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 transhipment 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,[4] 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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[4] *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),[5] 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,

[5] 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)[6]

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 <u>materials license to possess spent fuel at an "installation</u>." Notice of Hearing, 62 Fed. Reg. 41,099 (1997). Part 72 defines

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[6] 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.[7] 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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[7] 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)[8]

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

[8] 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 the same or worse since storage casks have much less metal than transporation 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 <u>is</u> 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.*, $< 10\ \mu m$ 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)[9]

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

[9] 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.*[10]
>
> 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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[10] 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, <u>before</u> 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.[11] 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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[11] 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.*, cased 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)[12]

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

[12] 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)[13]

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

[13] 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[14]

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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[14] 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 <u>in isolation</u>, 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)[15]

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

[15] 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)[16]

[16] This Reply is supported by the Reply Declaration of Dr. Marvin Resnikoff (January 15, 1998). The original Contention J was is 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).[17]

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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[17] 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.[18] *See* news reports, Salt Lake Tribune, attached hereto as Exhibit 4. A cruise

[18] 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.[19] *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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[19] 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 <u>is</u> 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[20] 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 does 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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[20]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 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 it's 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.[21] 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

[21] 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 in not applicable here.[22] 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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[22] "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)[23]

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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[23] 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 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.[24] 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[.][25]

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[24] 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).

[25] 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,"[26] 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."[27] In connection with such a preemption analysis, "any applicable regulatory interest of the state must be given weight."[28]

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).

[26] White Mountain Apache Tribe v. Bracker, 448 U.S. 136, 142, 65 L.Ed.2d 665, 100 S.Ct. 2578 (1980).

[27] Id. at 145.

[28] 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.[29] 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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[29] 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.[30] 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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[30]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 not 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)[31]

[31] 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 in10 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 <u>no</u> 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 <u>is</u> 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 though 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,

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Fred G Nelson
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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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Office of the Commission Appellate
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Washington, DC 20555
(*United States mail first class only*)

Dated this 16th day of January, 1998.

Denise Chancellor
Assistant Attorney General
State of Utah

EXHIBIT 1

UNITED STATES OF AMERICA

BEFORE THE U.S. NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
PRIVATE FUEL STORAGE, L.L.C.)	)	Docket No. 72-22-ISFSI
	)	
(Independent Spent Fuel Storage Installation)	)	January 14, 1998
	)	

DECLARATION OF LAWRENCE A. WHITE, PE

I, Lawrence A. White, PE declare under penalty of perjury that:

1. I am an Executive Vice President of Versar, Inc., an engineering and consulting firm headquartered in Springfield, Virginia. I have extensive experience in the areas of nuclear licensing, radioactive waste management, including the siting, design construction, operation, and decommissioning of nuclear facilities, the National Environmental Policy Act (NEPA), NRC regulations and licensing procedures, and the Nuclear Waste Policy Act of 1982. Copies of my resume and a description of Versar, Inc. are attached as Exhibit 1 to the contentions filed by the State of Utah in this proceeding on November 23, 1997.

2. I am familiar with Private Fuel Storage's ("PFS's") License Application, Safety Analysis Report and Environmental Report in this proceeding, as well as the storage and transportation casks PFS plans to use. I am also familiar with NRC regulations, NRC guidance documents, and with NEPA documentation requirements and environmental, scientific, and engineering studies relating to the transportation, storage and disposal of spent nuclear fuel. I also have reviewed the PFS's and NRC Staff's responses to the State of Utah's Contentions A through DD.

3. I assisted in the preparation of, and have reviewed, the State of Utah's Reply to PFS's and NRC Staff's Responses to Utah Contentions A through DD dealing with general NEPA issues, the intermodal transfer site, geotechnical, financial assurance, ISFSI design, and emergency planning requirements. The technical facts presented in those contentions are true and correct to the best of my knowledge, and the conclusions drawn from those facts are based on my best professional judgment.

Lawrence A. White

Lawrence A. White, PE

January 14, 1998

Date

EXHIBIT 2

UNITED STATES OF AMERICA

BEFORE THE U.S. NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
PRIVATE FUEL STORAGE, L.L.C.	)	
(Independent Spent Fuel	)	Docket No. 72-22-ISFSI
Storage Installation)	)	
	)	January 16, 1998
	)	

REPLY DECLARATION OF DR. MARVIN RESNIKOFF

I, Dr. Marvin Resnikoff, declare under penalty of perjury that:

1. I am the Senior Associate at Radioactive Waste Management Associates, a private consulting firm based in New York City. On November 20, 1997, I prepared a declaration which was submitted to the Licensing Board by the State of Utah in support of its contentions regarding Private Fuel Storage, L.L.C.'s proposed Independent Fuel Storage Installation. A statement of my qualifications is attached to that declaration.

2. I am familiar with Private fuel Storage's ("PFS's") license application and Safety Analysis Report in this proceeding, as well as the nonproprietary versions of applications for the storage and transportation casks PFS plans to use. I am also familiar with NRC regulations, guidance documents, and environmental studies relating to he transportation, storage, and disposal of spent nuclear power plant fuel, and with NRC decommissioning requirements.

3. I assisted in the preparation of, and have reviewed, the State of Utah's Reply to PFS's and NRC Staff's Responses to Utah Contentions A through DD, 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; inadequate consideration of credible accidents, 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. The technical facts presented in the State's Reply regarding those contentions are true and correct to the best of my knowledge, and the conclusions drawn from those facts are based on my best professional judgment.

Marvin Resnikoff

Dr. Marvin Resnikoff

EXHIBIT 3

Certificate of Compliance

FOR DRY SPENT FUEL STORAGE CASKS

10 CFR PART 72

1. a. CERTIFICATE NUMBER: 1007
   b. REVISION NUMBER: 0
   c. PACKAGE IDENTIFICATION NUMBER: USA/72-1007
   d. PAGE NUMBER: 1
   e. TOTAL NUMBER OF PAGES: 4

---

2. PREAMBLE This certificate is issued to certify that the cask and contents, described in item 5 below, meet the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Wastes."

---

3. THIS CERTIFICATE is issued on the basis of a safety analyses report of the cask design, Model No.: Ventilated Storage Cask VSC-24

a. PREPARED BY (Name and Address)	b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION
Pacific Sierra Nuclear Associates 5619 Scotts Valley Drive Scotts Valley, CA 95066	Pacific Sierra Nuclear Associates Safety Analysis Report for the Ventilated Storage Cask System

c. DOCKET NUMBER 72-1007

---

4. CONDITIONS This certificate is conditional upon fulfilling the requirements of 10 CFR Part 72, as applicable, and the conditions specified below.

FOR THE NUCLEAR REGULATORY COMMISSION

Effective Date:
May 7, 1993
Expiration Date:
May 31, 2013

Charles J. Haughney, Chief
Source Containment and
Devices Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

1.0 INTRODUCTION

This section presents the conditions that a potential user (licensee) of the Ventilated Storage Cask (VSC-24) system must comply with, in order to use the system under a general license issued according to the provisions of 10 CFR 72.210 and 72.212. These conditions have either been proposed by the system vendor, imposed by the Nuclear Regulatory Commission staff as a result of the review of the Safety Analysis Report (SAR), or are part of the regulatory requirements expressed in 10 CFR 72.212.

1.1 General Requirements and Conditions

1.1.1 Regulatory Requirements

Regulatory requirements define a number of technical and administrative conditions for system use. Technical regulatory requirements for the licensee (user of the VSC-24 system) are contained in 10 CFR 72.212(b).

10 CFR 72.212(b) requires that the licensee perform written evaluations, before use, that establish that: (1) conditions set forth in the Certificate of Compliance have been met; (2) cask storage paths and areas have been designed to adequately support the static load of the stored casks; and (3) the requirements of 10 CFR 72.104, "Criteria for radioactive materials in effluents and direct radiation from an ISFSI or MRS," have been met. It also requires that the licensee review the SAR and the associated SER, before use of the general license, to determine whether or not the reactor site parameters (including earthquake intensity and tornado missiles), are encompassed in the cask design bases considered in these reports.

Site-specific parameters and analyses, identified in the SER, that need verification by the system user, are as follows:

1. The temperature of 75° F as the maximum average yearly temperature, without solar incidence. (Reference SER Section 2.5);

2. The steady state temperature extremes of 100° F, (average daily temperature) with incident solar radiation, and -40° F, with no solar incidence. (Reference SER Section 2.5);

3. The "accident" short-term temperature extreme of 125° F with incident solar radiation. (Reference SER Section 2.5);

4. The horizontal and vertical seismic acceleration levels of 0.25g and 0.17g, respectively. (Reference SER Section 2.5);

5. The analyzed flood condition of 25 fps water velocity and full submergence of the loaded ventilated concrete cask (VCC). (Reference SER Section 2.5); and

6. The potential for fire and explosion should be addressed, based on site-specific considerations. (Reference SER Section 2.6).

According to 10 CFR 72.212(b), a record of the written evaluations must be retained by the licensee until spent fuel is no longer stored under the general license issued under 10 CFR 72.210.

1.1.2 Operating Procedures

Written operating procedures shall be prepared for cask handling, loading, movement, surveillance, and maintenance. The operating procedures suggested generically in the SAR are considered appropriate, as discussed in Section 11.0 of the SER, and should provide the basis for the user's written operating procedures. The following additional written procedures shall also be developed as part of the user operating procedures:

1. A procedure shall be developed for cask unloading, assuming damaged fuel. If fuel needs to be removed from the multi-assembly sealed basket (MSB), either at the end of service life or for inspection after an accident, precautions must be taken against the potential for the presence of oxidized fuel and to prevent radiological exposure to personnel during

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this operation. This activity can be achieved by the use of the Swagelok valves, which permit a determination of the atmosphere within the MSB before the removal of the structural and shield lids. If the atmosphere within the MSB is helium, then operations should proceed normally, with fuel removal, either via the transfer cask or in the pool. However, if air is present within the MSB, then appropriate filters should be in place to permit the flushing of any potential airborne radioactive particulate from the MSB, via the Swagelok valves. This action will protect both personnel and the operations area from potential contamination. For the accident case, personnel protection in the form of respirators or supplied air should be considered in accordance with the licensee's Radiation Protection Program.

2. A procedure shall be developed for the documentation of the characterizations performed to select spent fuel to be stored in the MSB. This procedure shall include a requirement for independent verification of each fuel assembly selection.

3. A procedure shall be developed for two independent determinations (two samples analyzed by different individuals) of the boron concentration in the water of the spent fuel pool and that used to fill the MSB cavity.

4. In preparing written operating procedures for handling the MSB over the VCC, the user shall include a consideration for reducing the likelihood of fracturing the ceramic tiles at the bottom of the VCC, as the MSB is lowered into position.

1.1.3 Quality Assurance

Activities at the independent spent fuel storage installation (ISFSI) shall be conducted in accordance with the requirements of 10 CFR Part 50 , Appendix B.

1.1.4 Heavy Loads Requirements

Lifts of the MSB in the multi-assembly transfer cask (MTC) must be made

EXHIBIT 4

MISSILE TAKES WRONG TURN AT DU ... 12/11/97

Salt Lake Tribune

Types: Nation-World

Published: 12/11/97

Page: A1

Keywords: Military; UT; Weapons; Accidents General

Caption: Jump pg A10: Steve Baker/The Salt Lake Tribune graphic: missile Runs Amok (map)

Missile Takes Wrong Turn At Dugway; Accident Wrecks Controls For Japanese Telescopes; Missile Wrecks Trailers In Western Utah

Byline: BY JOHN HEILPRIN and LEE SIEGEL THE SALT LAKE TRIBUNE

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An Air Force cruise missile flew out of control and crashed during a test Wednesday, wrecking two unoccupied trailers containing computers that control Japanese cosmic-ray telescopes at the Army's Dugway Proving Ground.
``Both of them [trailers] were essentially destroyed or received extensive damage as a result of the impact," said Lt. James Wilson, spokesman for the 388th Fighter Wing at Hill Air Force Base, which operates the Utah Test and Training Range at Dugway.
He said there were no injuries.
The 20-foot-long advanced cruise missile was launched from a B-52 bomber that had taken off from Minot Air Force Base, N.D., Wilson said. After failing to make a turn as planned over Dugway, the missile crash-landed at 2:46 p.m. in a remote area two miles from its intended target. Wilson said the missile's payload was an unarmed dummy warhead.
Air Force officials weren't immediately sure if the missile hit the two trailers or simply wrecked them by crashing nearby, Wilson said.
``We've already begun our investigation to figure out what went wrong with this test, and obviously we'll use that to prevent a future mishap," he said.
Hill spokesman Bill Orndorff said the trailers were ``leased to the University of Tokyo, and the computers inside were their equipment."
Pierre Sokolsky, a University of Utah physicist, said seven Japanese telescopes, which operate only at night, are located on the southwest edge of the Cedar Mountains, approximately 18 miles northwest of base facilities at English Village.
The missile ``was activated and tumbled and lost control" but did not damage the telescopes near the trailers, said Richard Koehn, vice president for research at the U., which helps run the Japanese project.
``Does the Air Force have a means of compensating us for our losses?" Koehn wondered.
Cruise missiles can be fired from ships, ground launchers or planes. They are

computer-controlled and follow land contours to avoid detection.
Sokolsky said U. physicists had been unable by Wednesday night to locate Japanese physicists who run the telescopes, so they ``are at the moment unaware that this transpired."
The accident ``is certainly a setback" for the Japanese cosmic-ray project, said Craig Taylor, physics chairman at the U.
He said the computers are ``the brains for running the telescopes, and they [Japanese scientists] will have to reconstitute the computers that were lost in order to get the system up and running again."
The Japanese project is one of three existing or planned cosmic-ray observatories in Utah.
The U.'s Fly's Eye cosmic-ray observatory was built at Dugway in the early 1980s and is undergoing a $10 million upgrade. The seven Japanese telescopes at Dugway initially were meant to be prototypes for a $50 million set of 100 telescopes named the Telescope Array. A third cosmic-ray observatory, the $50 million Pierre Auger Project, has been proposed in central Utah's Millard County.
But funding problems in the United States and Japan have prompted physicists to consider merging Japan's Telescope Array and a proposed second upgrade to the Fly's Eye into a single project named the Snake Array, which would make observations jointly with the Auger Project.
The Snake Array would include sets of cosmic-ray telescopes on 11 hills stretching 140 miles in a snake-like path from Dugway south to Millard County.
Sokolsky said the Snake Array would not be built for several years, so the mishap's implications for the project remain uncertain.
However, ``this clearly shows that accidents do happen out there," he said. ``We'll have to evaluate what that means long-term and make sure the safety of life and limb is preserved."
All three projects are aimed at finding the mysterious source of ultrahigh-energy cosmic rays, which bombard Earth and are the most energetic particles in the universe. A single subatomic cosmic-ray particle carries the force of a fast-pitched baseball. In 1991, the Fly's Eye detected the highest-energy cosmic ray discovered to date.
Scientists believe ultrahigh-energy cosmic rays might be generated by supermassive black holes, the centers of active galaxies, the mysterious ``dark matter" that may make up much of the universe, or perhaps the breakdown of theorized ``cosmic strings" left over from the birth of the universe.

EXHIBIT 5

The Salt Lake Tribune

Thursday, January 8, 1998

Pilots Safe After Midair Collision

BY JOHN HEILPRIN
THE SALT LAKE TRIBUNE

Two Air Force F-16C fighter jets collided in midair during a training run Wednesday, injuring both pilots and destroying one of the $20 million aircraft.

Pilots Paul Hertzberg and Scott Hufford were treated for minor injuries from the 1:30 p.m. collision over the Utah Test and Training Range, 105 miles west of Hill Air Force Base, officials said.

Hertzberg safely ejected from his crippled jet, which crashed in a fireball. Hufford managed to land his damaged single-engine fighter at Michael Army Airfield at Dugway Proving Ground. Both pilots are with the 421st Fighter Squadron.

Hertzberg was picked up by a Utah Army National Guard helicopter about 17 miles from where the planes collided, and was flown to a hospital at the base for treatment. Hufford was treated at the scene.

CLICK HERE
Visit the U.S. Air Force Web page for more details.

The collision, which occurred over the remote area of western Utah desert, was the first midair collision for active-duty jets stationed at Hill since the base opened in 1940. The base oversees maintenance for more than 3,900 F-16s for the United States and 17 other nations.

``Luckily in this crash, since it happened on the range, there was nothing in the way," said Air Force spokesman Rob Koon, speaking from the Pentagon.

It wasn't the first midair crash in Utah. In 1987, a SkyWest Metroliner and Mooney aircraft crashed over Kearns, killing 12 people.

Wednesday's collision took place while six F-16Cs were training for air-to-air combat. Four jets in a fanlike formation were acting as the ``blue air," or good guys. Two others, side-by-side, were taking the offensive as the ``red air," or bad guys.

Hufford, on the red team, hit Hertzberg, on the blue team, while playing a supersonic game of hide-and-seek, according to Air Force officials. That much is known, though investigators likely will take months to figure out exactly what happened.

``Unfortunately, we can't be sure who collided with who," said Dennis Mehring, spokesman for the 388th Fighter Wing. ``Fortunately, there were no reports of any serious injuries."

The F-16Cs were carrying inert AIM9 Sidewinder missiles bolted to the jets. During training, the missiles are used only for the electronic eye that pilots see through for targeting.

Fuel from Hertzberg's jet -- one of 70 active-duty F-16s belonging to the 388th and 419th fighter wings at Hill -- apparently caused the explosion.

``I don't know how much is left of it. Presumably not much," Mehring said. ``We believe it to be a total loss."

An interim safety investigation board has been formed to probe the cause of the incident, officials said, while a convoy of military personnel was dispatched to the scene Wednesday night.

The Air Force has 809 F-16s in use, including those at Hill. There are four types: A and C are single-seaters, while B and D are two-seaters.

Last year, during more than 369,000 collective flying hours, there were 11 major accidents in the United States and one death involving the jets.

Hill was the first base to have an operational wing for F-16s. It also is the nation's only major maintenance base for F-16s, which can travel faster than twice the speed of sound, or more than 1,200 mph.

Since the fighters arrived at Hill in 1979, there have been 37 F-16 crashes -- and no deaths.

Last February, for example, two Hill pilots were injured when their two-seater F-16 was struck by a bird. Midair crashes by U.S. military planes are rare, however.

There have been three recent ones outside Utah. Last March, two F-16s collided over the Gulf of Mexico on a training run.

Then in September, two more midair collisions occurred. A U.S. C-141 and a German TU-154 struck each other off the coast of Africa, killing nine Americans and 24 Germans.

Just three days later, two F-16s collided in midair during routine training at New Jersey.

In those F-16 crashes -- as in Wednesday's collision in Utah -- one pilot ejected safely while the other landed the plane.

Hill spokesman Bruce Collins said it takes months for the military to determine the cause of a crash or collision.

``Usually we're not going to find a single cause," Collins said, ``since most accidents are caused by number of factors that all come together at the wrong time."

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EXHIBIT 6

Air Force News
News Service

Hill F-16s collide, pilots safe

Released: Jan 7, 1998

HILL AIR FORCE BASE, Utah (AFNS) - Two 388th Fighter Wing F-16s collided in mid-air about 1:30 p.m. today over the Utah Test and Training Range, located 105 miles west of Hill AFB.

One aircraft impacted the range and the pilot ejected safely. The pilot was located and transported to a hospital where his condition will be evaluated.

The other aircraft sustained damage and landed safely at Michael's Army Air Field at Dugway Proving Grounds. There was one person on board each aircraft.

An accident board is being formed to investigate the incident. (Courtesy ACC News Service)

Air Force News
News Service

Another F-16 crashes at Hill Air Force Base

Released: Jan 9, 1998

HILL AIR FORCE BASE, Utah (AFNS) - A 388th Fighter Wing F-16C crashed Jan. 8 while flying a simulated bombing mission over the Utah Test and Training Range near Bonneville Salt Flats, Utah, about 100 miles west of Hill AFB.

The pilot, Lt. Col. Judd Kelley, from the 34th Fighter Squadron, ejected safely from the single-seat aircraft. He was transported to the Hill AFB hospital by a Utah Army National Guard HH-60 Blackhawk helicopter.

Following the accident, the 388th FW cancelled flying for the remainder of the day and Jan. 9.

An accident board is being formed to investigate the accident.

EXHIBIT 7

State of Utah
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

Michael O. Leavitt
Governor
Dianne R. Nielson, Ph.D.
Executive Director
Don A. Ostler, P.E.
Director

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Water Quality Board
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Chairman
Lynn F. Pett
Vice Chairman
Robert G. Adams
R. Rex Ausburn, P.E.
David S. Bowles, Ph.D., P.E.
Nan Bunker
Leonard Ferguson
Dianne R. Nielson, Ph.D.
K.C. Shaw, P.E.
J. Ann Wechsler
Don A. Ostler, P.E.
Executive Secretary

July 8, 1997

John D. Parkyn
Chairman of the Board
Private Fuel Storage L.L.C.
PO Box C4010
La Crosse WI 54602-4010

Dear Mr. Parkyn:

This letter is to notify you that Private Fuel Storage (PFS) will be required to obtain state approvals and permits to insure protection of the state resources of surface water and ground water for the proposed high level nuclear waste storage facility on the Goshute Reservation and for any proposed transfer facility.

Attached is a copy of the state water quality rules.

Sincerely,

Utah Water Quality Board

Don A. Ostler

Don A. Ostler, P.E.
Executive Secretary

DAO:mhf

Enclosure

cc: Mark Delligatti, Nuclear Regulatory Commission

E:\WQ\DIRECTOR\OSTLER\WP\PARKYN.LTR
FILE:PRIVATE FUEL STORAGE LLC

EXHIBIT 8

UTAH TRANSPORTATION COMMISSION

December 4, 1997
Salt Lake City, Utah

The regular meeting of the Utah Transportation Commission, held at 4501 South 2700 West, Salt Lake City, Utah, was called to order at 2:11 p.m. by Commission Chairman Glen E. Brown. He welcomed those in attendance, and recognized elected officials attending. Commissioner Griffith was excused from the meeting. The following Commissioners, staff members and others were in attendance:

Glen E. Brown, Chairman
James G. Larkin, Vice-Chairman
Ted D. Lewis, Commissioner
Hal M. Clyde, Commissioner
Dan R. Eastman, Commissioner
Stephen M. Bodily, Commissioner
LeAnn G. Abegglen, Commission Secretary
Thomas R. Warne, Executive Director
Clinton D Topham, Deputy Director
Linda Toy, Program Development Director
John Quick, Program Development
Jan Yeckes, Program Development
Kim Schvaneveldt, Project Development Engineer
P.K. Mohanty, Preconstruction
Ken Berg, Research
John Neil, Materials
David Miles, Engineer for Operations
Mack Christensen, Traffic and Safety
L. Robert Fox, Chief, Right of Way
Max Ditlevsen, Comptroller
Larry Mitchell, Motor Carriers/Ports of Entry
Randy Hunter, Risk Management
Melanie Buck, Community Relations
Tim Buntrock, Region One
Jim McMinimee, Region Two Director
Tracy Conti, Region Two
David Alvarez, Region Two
Lisa Wilson, Region Two
Carolyn Prickett, Region Two
Alan W. Mecham, Region Three Director
Merrell Jolley, Region Three
Gerald Robinson, Region Three
David Downs, I-15 Team
Brian Wilkinson, I-15 Team
Byron Parker, Legacy Highway Project
Carlos Braceras, Legacy Highway Project
John Baxter, FHWA
Steve Alder, Attorney General's Office

Dee Larsen, Leg. Research & General Counsel
Ben Christensen, Leg. Research
Representative Duane Bordeaux
Representative Brad King
Representative Glenn Way
Mayor Marie Huff, Spanish Fork
Representative Jim Gowans
Teryl Hunsaker, Tooele County Commission
Lois McArthur, Tooele County Commission
Gary M. Griffith, Tooele County Commission
Leon Bear, Chairman, Skull Valley Goshute Indians
Russell Allen, Skull Valley Goshutes
Kenneth Neal, Rose Park Community Council
Marc Heileson, Sierra Club
Mike Hegarty, Michael Baker Jr., Inc.
Pat Winmill, Parsons Brinckerhoff
John Thomas, Sear Brown
Michael Long, DMJM
Beverly Slack, Japai Project Office
Necia Christensen, CHAD Group
Ben Christensen, CHAD Group
Kathy DeJong, CHAD Group
Mary Jane Emrazian, CHAD Group
Carl Stuart, KSL

APPROVAL OF MINUTES

Commissioner Clyde moved to approve the minutes of the November 12, 1997 Commission meeting held in Salt Lake City, Utah. It was seconded by Commissioner Larkin and passed unanimously.

SR 6 THROUGH SPANISH FORK CANYON

Representative Glenn Way thanked the Commission for putting this item on the agenda. He said that he has driven SR 6 from I-15 to Helper many times, and knows the traffic problems associated with the road. He mentioned an article in the Deseret News which said that approximately 50% of all deaths in canyons and along the Wasatch front have happened in Spanish Fork Canyon. And, many times, accidents are caused by people that aren't involved in the accidents. People cutting in and out and passing in oncoming traffic create a lot of problems. Rep. Way also mentioned the backup of cars that occurs on I-15 that are trying to exit onto SR 6.

Mayor Marie Huff of Spanish Fork briefly addressed the Commission. She also spoke about the current conditions that exist on SR 6 and in Spanish Fork Canyon. She said the increase in traffic has been tremendous. There is a need for a wider traffic lane. There have been 33 fatalities in the canyon, including October, this year. And although some widening has been done, a lot of work is still needed on the canyon road. She would appreciate the Commission looking very seriously at something being done

to improve the conditions and make it easier for the traffic that is on the road. The discussion then focused on SR 6 and the I-15 exit.

Commissioner Clyde asked Mayor Huff where she would recommend the department start on SR 6. She replied at the mouth of Spanish Fork Canyon, through the red narrows. It's really bad there. Commissioner Clyde asked Rep. Way the same question. Rep. Way said he recognizes that it would cost over $300 million if there were to be four lanes all the way. He said he would first look at putting in dividers in some areas, but not in areas where there is a passing opportunity.

Representative Brad King spoke. He said he drives the canyon nearly every day in the fall. He talked about the fatalities on the road, and said that Senator Dmitrich is putting together a map that will show exactly where the fatalities are. Rep. King suggested starting with the most dangerous parts of the highway, where it will save the most lives. It's a safety issue, not just a convenience issue that the people in Eastern Utah are concerned about. People don't know where the passing lanes are and take chances when they get tired of following behind a truck. Most of the fatal accidents that happen are head-on accidents. There would be fewer head-on accidents if it was a divided highway. He referred to the STIP program and the funds that have been allocated to widening the road from Price to Wellington to four lanes. He said that he's never heard anyone complain about that road.

Alan Mecham made a few remarks. He said that in his mind, the backup on I-15 occurs southbound with cars trying to get off on Spanish Fork Main Street in the evening, not necessarily on SR 6. It's a free flow ramp all the way to the new signal that was put in on 10th North. Also, there is a $15 million project in the STIP that goes from I-15 to the Moark Junction area, which is the mouth of Spanish Fork Canyon. Mr. Mecham said they just had a concept meeting and they talked about some of these issues through the urbanized section of the road, widening it to four lanes and taking care of some of the traffic increases there. There is also an ongoing future project to put in some passing lanes and some safety features up the canyon. It is part of the Centennial Highway Fund. That is being pursued with passing lane studies and feasibility studies, and the department has about $1 million in the coming year to start the design of that project.

12300 SOUTH IN DRAPER

Tracy Conti explained that since they talked the last time about possibly doing a change order and extending the project to 265 West, Draper City has come back and given a best and final offer, which is to purchase or acquire the right of way. Mr. Conti said he is asking the Commission if the department should proceed with the $1.25 million available for P.E. in the 1998 year, use that for construction, and add this as a change order to the project that was just let last month. Clarification was given as to the exact location of the project. Director Warne said $1.25 million is programmed in FY 98 for the design, or engineering work from the project on 12300 South that was supposed to end at the railroad. He asked Mr. Conti how much money is being requested. Mr. Conti said about $700,000, which leaves about $550,000 to continue the engineering effort on 12300 South. Director Warne said he believes it is a good move to extend the project to 265 West. It makes sense. Draper has been working a long time to make this happen, and right of way was an important part of that.

Commissioner Clyde expressed concern about taking money from design further west where it's still imperative in getting that road done. It seems to be cutting this up into short sections rather than

getting the whole thing further west. The bottleneck is just being moved somewhere else. Director Warne said that the department is particularly concerned with the conditions to relieve the truck traffic, with much of that coming out of Coca Cola. This does resolve that particular issue. The future funding to improve 12300 South to the west would likely come from the Centennial Fund, and that's not programmed at this time. So, it seems prudent to take care of this particular problem at 265 West and leave enough money in there for the engineering work.

Commissioner Lewis moved to adopt the recommendation of the department to move $700,000 of FY 98 planning and engineering money to the project on 12300 South, extending construction to 265 West, and leaving a portion of money for further consideration for the next phase of planning and engineering. Also, Draper City will provide the right of way to accommodate the construction project. It was seconded by Commissioner Clyde and passed unanimously.

I-15 AWARD FEE FOR APRIL THROUGH OCTOBER 1997

Clint Topham explained that the I-15 contract had a provision where the department could pay the contractor up to $50 million in award fees depending on timeliness of performance and quality that was built into the project. That was to be considered in six month periods over the life of the project. The first six month period has come to an end, and they are working on establishing exactly what that fee will be. A process of determining the fee has been put together, and the governor and legislative leadership appointed an oversight committee which included some legislators, some legislative and governor's staff, and some private citizens. Considerable time has been spent in developing the process. There are between 60 and 100 people who are involved in monitoring and evaluating the project. Mr. Topham said that he, Mr. Downs and two of the principals from Wasatch Constructors make up a committee who will review the information that's provided, and will make a recommendation to Director Warne who will then make the final decision on the award that is made. Mr. Topham turned the time over to David Downs for further explanation.

Mr. Downs said that this process is very rigorous and is somewhat complicated. He distributed a handout to the Commission that provides a quick overview of what the award fee is about, and said the award fee is a part of Wasatch Constructor's profit. It was always intended to be a tool used to focus the design builder's attention to some very important areas on the project. The performance is tied to not only their schedule, which is a little over $21 million, but also in three other areas. Those areas are quality, management, and how they deal with maintenance of traffic and informing the public of issues associated with that. This process is not a substitute for the more traditional processes used to assure quality on the job. Just as the department does on any other project, they assure that the project is built to contract standards and specifications. So, the award fee is an effort focused on the processes and systems that Wasatch is putting in place to assure quality, and in essence it's a system to oversee some of the activities of work the department would normally be involved with that have now been turned over to the design builder, such as the quality control/quality assurance program. That's one of the systems that is reviewed as part of the award fee process.

Mr. Downs continued by saying that actual evaluations are performed on a monthly basis, and in actuality, they're performed on a day to day basis. Wasatch Constructors is provided with monthly feedback associated with their performance, and they're involved in these evaluations. Leading up to this

six month determination, to date, they have been meeting on a monthly basis discussing and reviewing performance associated with the award fee. And, as was previously mentioned, there are 60 plus individuals involved in monitoring and evaluating performance. Mr. Downs went into further detail on how performance is assessed. Once the evaluations are completed, they're all put together and given to the award fee oversight committee. Again, a review is done to assure that all of the information is very detailed, thorough, and meets the procedures. Any disagreement in the process between what the contractor is seeing and what the department is seeing, is elevated and discussed to reach a common understanding, and what the expectations and resulting scores are. The executive director of UDOT is where the award fee amount is determined. So, all the efforts of evaluating and scoring really is one big report or recommendation which is forwarded to Director Warne for final determination. Director Warne stated that the department is very comfortable with the process. It's very rigorous and a lot of work, and they feel a significant responsibility in terms of public trust. There was general discussion on the fee amount.

RECOMMENDED CHANGES IN NOISE WALL PROCEDURES

Clint Topham said that two months ago, some decisions about the noise wall program in the Millcreek area were finalized. At that time, the department told the Commission that they would like to go back and take an internal look at the procedure and make some recommendations. Mr. Topham referred to the information under Tab 6 in the Commissioner's binders, and said they are the recommendations they've brought forward to date. He said the department feels that the process should be more inclusive of local governments. In looking at some of the issues that have come before the Commission recently, the department feels that the request should be made through local governments. Also, in regards to the petitioning of the department for noise walls, there is a list of requirements that would be looked at. The local government would look to see whether or not they should even come forward with a petition, whether or not it's adjacent to the right kind of highway, whether or not the receptors are close enough to the highway, and whether or not the people in the area are in favor of it. Then, when a request comes from a local government, UDOT will do a study on that area. The department thinks it's best to do the studies based on a request coming from a community. Then UDOT would study the whole area, take the readings needed, and give out the information based on the model and the number of homes it affects, and not just give individual readings to people along the area. Then, from that information a candidate project list could be developed. All of the areas that meet UDOT's standards would be included, and then presented to the Commission in order of the decibel level, with a recommendation around the decibel level.

Mr. Topham said that there have been some questions as to whether or not the department should just prioritize based on noise level alone, or whether or not the fact that an area has been on the list for a long time ought to come into play in that formula. That could be addressed in a couple of ways. Being able to do the correct studies and keep those studies up to date, that's one way the timeliness can be addressed. Also, the department could recommend to the Commission that a three year program be adopted off the candidate list of projects. And once the three year program has been adopted, to go ahead and build the noise walls on that program regardless of what happens. If a new area came in and had a higher decibel level, it wouldn't replace any projects on the three year program, but could replace some projects on the candidate list. In addition, the Commission doesn't have to prioritize based just on decibel level. The Commission could look at an area and say that particular area has been on the list a long time and something should be done now. The department would like to have a procedure adopted to go along

with the policy. Mr. Topham said that each of the regions have a little different way of going about doing these studies, and the department wants to make sure that it's standardized to a procedure.

Representative Duane Bordeaux briefly spoke. He said that he appreciates the opportunity to address the Commission. He represents District 23, and this has been an issue for some time. He said that he and Senator Suazo are looking at introducing legislation to address some of their concerns, one being that the present rating right now is based only on a decibel reading. They would like to see something in the policy to address how long people have been waiting on the list. The other issue of concern is the money available to build the sound walls.

Kenneth Neal, chair of the Rose Park Community Council, said he's interested in a project that runs along the east side of Victoria Drive, from 900 North to 1400 North. Their project keeps moving down the list because of the ruling that decibel readings only is considered, and some readings may only be .1, .5, or .6 above their project. They're asking for fair treatment, and time on the list ought to be considered on projects that actually get funded.

Commissioner Lewis asked about local governments that refuse to deal with the issue. What recourse is there for citizens who have a legitimate need? Mr. Topham responded that the local government is not being asked for funding, they are being asked to determine whether the community wants the noise wall, and to see if they have laws in place. They need to have a noise ordinance. Also, he said many cities have appreciated being involved and working with the department. Commissioner Lewis suggested that in addition to the amount of time on the list, there ought to be some sort of mechanism for citizens who don't have success with local governments. Commissioner Bodily said he assumed that the local government in an unincorporated area would be the county commission, and he could see situations arising in unincorporated areas where citizens might not get the response they might in a city by going to the local government. He also proposed that the department may want to set some kind of criteria where a project couldn't be bumped by another project unless the decibel level was at a certain degree above it. Commissioner Eastman said that before one group or neighborhood is allowed to go ahead of another, both groups would have to be studied on a concurrent basis. Mr. Topham said that the conclusions he's drawn from today's discussion are that the Commission would like to make sure that peoples needs can be addressed whether or not the local municipality brings something forward, and to look at the issue of length of time on the list, and to see if there's something the department could come up with that is acceptable to the Commission. Chairman Brown mentioned the importance of continuing to review alternative mitigation for noise, independent of walls themselves. Mr. Topham said that the department would like to bring back adjustments to the policy, and also a procedure, at the January meeting.

Commissioner Eastman made a motion to advise UDOT to pursue this concept to a final policy level, and bring it back for approval. It was seconded by Commissioner Lewis and passed unanimously.

RECOMMENDED PEDESTRIAN SAFETY PROGRAM

Clint Topham discussed the proposed pedestrian safety formula. He said that last month there were suggestions made that the department might want to look at, such as future ADT, looking at actual speed rather than posted speed, and looking at limited sight distances as different variables in that equation. He

stated that in regards to current safety issues, the most current data ought to be used and the department ought not to be projecting what it might be in the future. And with the current information on the posted speed in order to use the actual speed, additional studies would have to be done. Using the posted speed in this formula would give the kind of results needed. And, there was only one location where site distance was an issue, and that was at 3100 South, which has already been funded.

Mr. Topham stated that there was one significant change in the formula. One thing that was talked about at the last meeting was putting a denominator in the formula of the cost of the project, which put all of the overpasses at the bottom of the list. The department recommends taking the cost out of the denominator. Mr. Topham referred to the list of projects and said that the projects on the list have been identified by the regions, but it may not be all inclusive yet. The department's recommendation is to adopt the formula on the first page without the cost in it, to prioritize projects for safety, and to look at future enhancement funds that the department might get to fund the safety program. The Commission wouldn't necessarily have to adopt the list today. The department could add any additional projects and evaluate any areas the Commission wants. Mr. Topham said that the department would like the Commission to adopt the formula.

Mary Jane Emrazian from the CHAD Group asked about 4100 South and why it wasn't on the list. It was their next priority after 3100 South. Mr. Topham said it was probably just inadvertently left off, and it will be added to the list. There was additional discussion focusing on the list, the ranking of projects, and funding. Director Warne said that it's the department's recommendation for the Commission to approve the process, then have the department come back at the next Commission meeting, apply the process, and address which projects would be recommended for completion. It's anticipated that the highway bill will be renewed and there will be enhancement money.

Commissioner Lewis moved to approve the approach of using the proposed pedestrian safety formula, without the cost denominator. It was seconded by Commissioner Larkin and passed unanimously.

STIP REVIEW IN RESPONSE TO THE EXTENSION OF ISTEA

Linda Toy said that last month, Congress passed a six month extension of ISTEA rather than doing a multi-year bill. Out of that bill, the department ended up with $89 million in funding that can be spent through May 1, 1998, or it is lost. Based on that, the department went back to the STIP and looked at the program to see if there were any adjustments that needed to be made, and determined that for now there are no adjustments that need to be made. She said the bill does allow for flexibility to move funds from one type of program to another, but when the multi-year ISTEA comes along, those funds have to be restored back to their original category.

Chairman Brown asked about the enhancement money in the $89 million. Ms. Toy responded that there are enhancement projects that have been programmed, and those will proceed as they are already on the program. Clint Topham said that there is no new enhancement money, but the department is spending money out of the enhancement category on projects that have already been programmed and have been moving along through the process and now are ready to be advertised. Ms. Toy said that it is anticipated that the enhancement program will continue in the next ISTEA at least at the same level that it's at now. It's not guaranteed, but it is expected. There was some discussion regarding frozen funds.

I-15 NORTH/LEGACY -- WEST DAVIS HIGHWAY DISCUSSION

Carlos Braceras gave the Commission an update on both projects. He said that their project team is managing the Legacy -- West Davis Highway as well as the I-15 north project because the two projects are very related and they are analyzing those as a solution to the north corridor issue. Handouts were given to the Commission as part of the presentation. Mr. Braceras said that purpose in need for the Legacy project has been demonstrated and the outstanding issue now is alignment location. Right now, the cities support Plan C, which is a western alignment. The Corps of Engineers supports Alternative A, an eastern alignment. He then went into detail about the two alignments and the impacts. In regards to resolving the alignment location issue, Mr. Braceras said UDOT, the cities, the Army Corps of Engineers, the governors' office and members of the legislature have been meeting, attempting to resolve the issue. It has resulted in a coming together of the two alignments, but a complete consensus has not been reached yet. The Corps of Engineers can only permit the least damaging, practical alternative. Mr. Braceras also explained the 404 and NEPA processes and discussed the schedule implications if selection for a preferred alignment is postponed until after the formal public hearing. Chairman Brown talked about the Corps' control based on environmental laws of the country, and expressed concern that the public perceives that they get input, but in reality they don't. There was additional discussion on this topic, mitigation, and an MOA between the Corps and the EPA.

Mr. Braceras next discussed the I-15 North project. He referred to the binders that were given to the Commissioners. He said that the binders have information on the purpose of need for the road, the public involvement process to date, and includes some small pullout maps showing the types of improvements that are being talked about. The project is basically going to be a mirror image of what's being done on the I-15 South project. It will be a ten lane section with four general purpose lanes in each direction and an HOV lane. Both the Legacy and the I-15 North projects need to be moved through the process at the same time. And, if one project is pushed and changed it's going to affect the other project. Mr. Braceras said that they have been working really well with the cities on I-15 North, and feel that there is a general agreement with the local municipalities and the public. They have made several changes to the project due to public input. Interchanges have been eliminated or reconfigured at the public's request. He said the current issue is the HOV access into SLC from the north. SLC doesn't want another access point into the city. Traffic studies show that for HOV to work, there needs to be a separate HOV access from the north, just as there is from the south. That's a key component for the success of both projects. Further discussion ensued.

CONSIDERATION OF ADDING TO THE STATE HIGHWAY SYSTEM F.A. ROUTE 2652 FROM I-80 TO DUGWAY THROUGH THE SKULL VALLEY INDIAN RESERVATION

Director Warne said the Governor has asked that the department bring to the Commission, a proposal that the Commission adopt as a state highway, F.A. Route 2652, which is a county road in Tooele. There is clear compelling state interest involved. Ownership of the road would allow the department to establish regulations and standards regarding the transportation of high level nuclear waste.

Tooele County Commissioner Teryl Hunsaker spoke to the Commission. He said he appreciates the relationship they have had with the Transportation Commission, and the efforts that UDOT has placed in Tooele County. But, they are here today because they don't know what is going on, and they would

like to find out. They feel like they've been ambushed. They were not aware of the Governor's actions until late yesterday afternoon, and don't understand the motivations for this action. They would like to know why this was not discussed with Tooele County, as it's a Tooele County road. What are the financial impacts to both the State of Utah and Tooele County, and how does this affect Tooele County's road construction master plan. They have a lot of questions they want answered. They don't believe the Transportation Commission should take action at this time, but should give UDOT and Tooele County 60 to 90 days to discuss this issue and answer some of these questions.

Tooele County Commissioner Lois McArthur said she can only echo what Chairman Hunsaker has said. She wondered why, at a time when there may be discussions going on between the Utah Association of Counties and the League of Cities and Towns about the possibility of transferring some of the state roads to county jurisdiction, why this road would come up to be transferred back to the state. And, when the state already has so much money to spread so thinly through all their other roads, why they would even want to take on a county road at this time.

Gary Griffith, Tooele County Commissioner, echoed the concerns of the other County Commissioners. He made an analogy between President Clinton announcing a new national monument without any consultation, and Governor Leavitt taking a county road away from Tooele, and said the parallel is very similar. He stated that it is obvious that this was done for purely political reasons. There needs to be more than political ambition when a decision like this is made. If the department has money to upgrade the road, then he suggested that it be spent on SR 36. That's where they'd like to see the money go.

Representative James Gowans addressed the Commission. He said he too was a bit shocked with this. He finally talked to the Governor late yesterday afternoon and wondered if any of the Tooele County Commissioners knew about this. He was told by the Governor that they had been notified. When he called Commission Chairman Hunsaker, Chairman Hunsaker had not heard anything. Rep. Gowans expressed concern over the lack of communication. He then discussed the statute and designation of state highways. He asked if anyone had evaluated the Skull Valley Road, and does the highway meet the standards?

Leon Bear, Chief of the Skull Valley Band of Goshute Indians and Chairman of the Skull Valley Executive Committee expressed his concern about the right of way across the Indian reservation. He said they were given no notice of the intent of the state, and feel that the right of way might be violated on the agreements between the Indian tribe and the State of Utah. When the state didn't give them any notice of the proposal or that they were terminating the county's jurisdiction over the road, they felt that was not a courtesy extended to the band.

Chairman Brown said that there have been some legitimate concerns and issues raised by those who have spoken to us. Director Warne said that it's a matter of the storage of high level nuclear waste, and is an issue that is important to all Utahns, not just to Tooele County. It's in the broad interest of the state that caused the Governor to have this request before the Commission today. And, in order to protect the broader interest of the state, one of the things that is important to do is to have jurisdiction and the ability to control and regulate the trafficking of high level nuclear waste on this road. So, the Department of Transportation is asking the Transportation Commission for their favorable consideration.

Commissioner Eastman asked if this needed to be done today. Director Warne responded that it seems that this has progressed along, negotiations are occurring in Tooele County between the tribe and

the county, and it appears that in order for the state to preserve its rights and its ability to regulate this very critical activity, the action should take place today. There was additional discussion about the negotiations between the Goshute tribe and the PFS facilities and Tooele County and the PFS facilities, right of way across the reservation, and safety issues.

Commissioner Bodily asked for more specific information as to what authority the state would have to regulate what travels on state roads. He said he is a little nervous about taking on another road and then having an overrule made by the courts where they say that a route has to be provided for this, and by the way, the road isn't adequate. Director Warne said that by statute, the department has the authority to regulate, and in some ways control, what crosses a highway. There are issues related to interstate commerce that would have to be dealt with that are national in nature, but this being a state highway gives the department flexibility as it relates to the regulation of the transport of high level nuclear waste. Commissioner Bodily said that he's not sure the department is accomplishing what they think they're accomplishing if this is made a state highway. He's not convinced yet.

Commissioner Lewis expressed his concerns and said that there is no single road in the state that isn't affected by just about every other road in the state in one way or another. The suggestion that somehow there is no relationship with the rest of the roads and the Commission's duty as to what happens on the rest of the roads is somehow perceived as less than it is. He thought the Commission not only has the authority, but has the responsibility to deal with those things that go on all of the roads in the state. And there's no question about the fact that is being talked about today is protecting the ability, if it is determined necessary at some point, for the state to regulate what is on that road because it will affect what is on all of the rest of the roads.

Chairman Brown asked for confirmation in relation to the jurisdiction of the roads that if the Commission chooses to take an action today it would have to be ratified by the legislature. Clint Topham said that is correct. The master highway bill that goes before the legislature each year would have to be amended to include any action taken today, and the legislature would have to consider it during the session in January and February. Chairman Brown said that doesn't preclude the legislature from deleting this. If it's in their wisdom, they could amend it out in the legislative process. Mr. Topham said that if the Commission doesn't take an action today, the legislature could take that action during the session if they wanted to do so.

Commissioner Lewis moved that the Commission adopt the recommendation of the department to place F.A. 2652, from I-80 to Dugway, on the State Highway System, with the understanding of being in compliance with statute number 27-12-27. It was seconded by Commissioner Eastman and passed with one dissenting vote by Commissioner Bodily.

Rep. Hunsaker asked if the motion means that UDOT takes over the maintenance of the road tomorrow? Is Tooele County through with that road? He also mentioned that the county has put a lot of money into the road. It's one of the best roads in Tooele County. Is UDOT just going to take it, or will the department pay Tooele County for it? Director Warne responded that as of the action of the Commission, that is the effective time for the transfer of the road. Maintenance and responsibility of that road begins immediately. In terms of reimbursement for the cost of the road, as road jurisdictions have been transferred throughout the state over the years, there has been no compensation between jurisdictions, whether it comes to the state or goes from the state.

Chairman Brown said that the Commission will need to adjourn to discuss an item in an emergency executive session.

Commissioner Eastman moved to adjourn to an emergency executive session for consideration of a Highway 89 legal issue. It was seconded by Commissioner Larkin and passed unanimously.

The meeting adjourned at 4:54 for an emergency executive session.

The regular meeting was called back to order by Chairman Glen Brown at 5:30 p.m.

INFORMATIONAL ITEMS

Next Transportation Commission Meeting

Clint Topham informed the Commission that there may need to be a special Commission meeting called between now and January's meeting to discuss an issue relating to where Bangerter Highway ends at 13800 South.

The next Transportation Commission meeting will be held on Wednesday, January 14, 1998, 1:00 p.m., at the Rampton Complex in the Large Conference Room.

The meeting adjourned at 5:35 p.m.

LeAnn Abegglen, Commission Secretary

EXHIBIT 9

PRAIRIE ISLAND SPENT FUEL STORAGE FAQ
http://www.nspco.com/nsp/spntful.htm#q13
6/6/97

NSP has been safely storing used nuclear fuel in sealed steel containers outdoors at the Prairie Island nuclear power plant since May 1995. NSP is storing spent fuel outside the plant because the site's storage pool is full and the federal government has not yet provided either temporary storage or a permanent disposal site.

Radiation measurements made near the site show no measurable additional off-site radiation exposure from the loaded containers stored there.

The Minnesota Legislature authorized NSP to load and store up to 17 containers at the plant site as the company meets a number of requirements spelled out in the authorizing legislation.

Prairie Island Spent Fuel Storage Frequently Asked Questions

. . .

Why don't you just keep it in the plant? Why not build another pool or put more in the pool you already have? Why build a second site? Why not ship it somewhere else? Can't the fuel be reprocessed?

NSP and state regulators reviewed several ways to store additional used nuclear fuel at Prairie Island. They agreed outdoor dry storage in sealed steel containers was the best option for NSP and its customers. The current storage pool at the plant is full.

A new pool would be much more expensive than dry storage and offers no significant safety or environmental advantages. There are no commercially available storage pools to which NSP could ship spent fuel for storage. Also, while reprocessing is possible, there are no operating commercial reprocessing facilities in the United States, and shipping the fuel to a foreign country for reprocessing would be prohibitively expensive.

How much radiation does a storage site give off? Does water run-off from the facility become radioactive? Will the containers leak?

The amount of off-site radiation from the Prairie Island storage site will be so small it cannot even be measured by today's most sensitive instruments. The used fuel is a solid ceramic inside metal tubes. It is not a powder, liquid or gas. It does not readily "leak." If both lid seals were to fail, an alarm would go off and only inert, non-radioactive helium gas would escape. Water coming in contact with the containers does not become radioactive, so storage site run-off is not

radioactive.

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Why is NSP looking for a second site?

The Minnesota Legislature ordered NSP to seek a second storage site in Goodhue County. NSP has enough room at its existing on-site storage facility for all the storage containers the plant will need.

What is the reason for the second site?

It is unclear why the legislature ordered a second site. The existing site is more than large enough, and state and federal agencies have found it to be safe for area residents and the environment. Further, the existing site does not require off-site transportation of used reactor fuel, as the alternate site in Goodhue County would.

EXHIBIT F
Comments from the State of Utah
EIS Scoping, Docket No. 72-22
June 19, 1998

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FORESTRY, FIRE AND STATE LANDS

Michael O. Leavitt
Governor
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State Forester/Director

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MEMORANDUM

To: Jamie Dalton
Energy & Resource Planning

From: Dave Schen
Forestry, Fire & State Lands

Date: May 27, 1997

Subject: *Skull Valley - Fire Frequency Information*

The attachment lists wildland fires for which the division has reports for the last 10 years. A legal description for the point of origin is provided (township, range, section) as well as the cause and final size. One point of caution. This is by no means an all inclusive list. BLM, the principal Federal Land Management Agency in the area, protects adjacent National Forest Lands as well as the Goshute Reservation by agreement. Our records do not include fires on federal land or the reservation that did not involve private or state lands. In addition, there are many fires on the Dugway Proving Grounds that neither BLM or the division have reports on due to access restrictions. In other words, we may not be involved unless a Dugway fire moves off the military.

In so far as Public Safety's request is concerned, we do not track fire location in the way they have requested information. We do so by legal description. The fire data attached is for Skull Valley proper. It includes the area north from the Johnson Pass - Dugway road to I-80. The Stansbury Mountains form the eastern boundary and the Cedar Mountains form the western boundary. If Public Safety prefers to view this information in the context of 5, 25, & 50 mile radius' they can do so by plotting fire locations using the legal descriptions with the appropriate radius overlay. To be honest fires 25 to 50 miles away are not relevant.

Following are several statistics drawn from these reports.

Total reports last 10 years, Skull Valley	= 48 (state reports only)
Major cause	= lightning (24 of 48)
Average fires per year, last 10 years	= 4.8
Fire size, range	= .1 to 7,100 acres
Average size	= 373 acres

Historic fire return interval	= 5 to 15 years
Current fire return interval	= 1 to 3 years

Natural fire regimes have been altered in this landscape due to livestock grazing, the invasion of annuals (cheat grass), and fire suppression. Changes in plant communities now allow a much shorter fire return interval of 1-3 years.

Initial Attack Forces - typically are volunteer fire departments from Tooele County and BLM initial attack forces. Volunteer Fire Departments located at Tooele, Vernon, Stockton, Rush Valley, Wendover, Grantsville, Stansbury Park, and Terra. BLM has IA resources stationed at Vernon and occasionally at Muskrat Springs in the north end of Skull Valley. In addition Dugway has a military Fire Department which assists.

Extended Attack Forces - usually involve resources from the Division, BLM, and Forest Service via interagency agreement.

Fire Severity & Damage - The risk of wildfire is limited to June through October with most activity occurring in late June, July, August, and early September. Wildfires are typically fast moving wind driven events of moderate to high intensity and low to moderate severity. Many of the larger fires are lightning caused and originate in the south end of the valley. Spread is often to the north and is influenced by winds, fuel and terrain. Damage is usually limited to loss of forage for a season or two although there is a greater potential for loss of property in the community of Terra. The more frequent fire return intervals associated with the annual plants are making it difficult to reestablish native perennial communities.

Hazards to IA Forces - The principal hazard would involve volatilization of radio active materials. Given the proposed method of storage and fuel types, the greatest risk to IA forces will continue to be the fire itself. The fuel rods should not be combustible given they will be sealed in steel and concrete. Private lands north of the Goshute Reservation are largely irrigated and provide a natural barrier to the spread of fire across the valley and on the north side of the reservation.

Measures to Minimize Risk to Firefighters - Fuel breaks would provide an effective protective barrier to the principal storage site. Awareness training for firefighters. Heavy equipment access restrictions to the immediate storage site might also be appropriate.