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September 21, 2000

David L. Meyer, Chief
Rules Review and Directives Branch
Division of Freedom of Information and Publications Services
Office of Administration, Mail Stop T-6D-59
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Docket No. 72-22

Supplemental State of Nevada Comments on the "Draft Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Toole County, Utah" (NUREG-1714), hereinafter referred to as "DEIS"

Dear Mr. Meyer:

In July, 2000, the State of Nevada provided preliminary comments on the above-referenced draft EIS (see attached). The comments which follow are intended to supplement the earlier submission.

Inappropriate assumption about a permanent repository

Nevada reiterates its comment from our June 27, 2000 letter (attached) that the DEIS inappropriately assumes a Yucca Mountain repository will be available to permit the eventual removal of SNF from the PFS facility. Since our July letter, there have been new revelations about serious flaws in the U.S. Department of Energy's designs for the waste disposal package needed to make Yucca Mountain viable. Overall, the proposed Yucca Mountain project faces an array of major, potentially insurmountable, obstacles before it could be developed as a repository. Apart from problems with the waste package, the site itself has serious technical flaws that will likely make it unlicensable. In addition, DOE has yet to make a recommendation to go forward with the project. If such a decision were made, it would face strong and aggressive State of Nevada opposition at every step of the way, with extensive and lengthy litigation a certainty.

The DEIS, in evaluating the Proposed Action, can not assume that a repository will be available within the 20 year term of the proposed license (or even 40 years, assuming a 20 year

extension). The DEIS analyses must consider the likelihood that there will be no permanent repository during the license lifetime of the PFS facility and evaluate the impacts of very long-term (100 years or more) above ground storage at the Skull Valley location. Alternately, the DEIS should evaluate the costs and impacts associated with returning the SNF (all or part of the inventory) to reactor sites and/or alternative locations in the very real circumstance that Yucca Mountain is deemed unsuitable as a repository location.

The No-Action Alternative

The DEIS acknowledges that continuing to store spent nuclear fuel either at existing at-reactor storage facilities or in new or expanded at-reactor SNF storage facilities would not result in significant environmental impacts. In fact, the DEIS fails to demonstrate that the Proposed Action is preferable to the No-Action Alternative in terms of impacts - or that it is needed at all. If anything, the No-Action Alternative can be seen as significantly less impacting because it does not require the transportation of SNF through numerous states and hundreds of communities, with all of the risks and costs such an unprecedented transportation campaign entails (risks and costs, by the way, which are not identified and assessed in the DEIS).

Nevada contends that there is no compelling need (nor has such need been demonstrated in the DEIS) that justifies selecting the Preferred Action contained in the DEIS (i.e., construction of the proposed PFS independent spent fuel storage facility and transportation of SNF to that facility from participating power reactors). To the contrary, the DEIS supports selection of the No-Action Alternative (continued at-reactor storage) as the preferred approach for storing spent nuclear fuel in the interim until a permanent solution is found.

Unsupported assumption - Potential early shutdown of reactors

In several different instances, the DEIS makes reference to the assertion, sometimes attributed to PFS and other times unattributed, that some (unidentified) commercial power reactors would be forced to terminate operations prior to the expiration of their reactor licenses if their available SNF storage capacity is filled. There is no basis for this assertion, and no supporting data is provided for it in the DEIS. While it is reasonable to assume that a few operating reactors could be required to make alternative arrangements for some of their SNF due to lack of space for expansion (i.e., intra- or inter-utility transfers to other storage facilities that have extra space), it is unlikely that ANY reactor will be forced to shut down prematurely as a result of the lack of SNF storage capacity.

Failure to disclose probable rail routes for shipments to PFS

The DEIS fails to identify and analyze the probable cross-country rail routes for SNF shipments to PFS from specific reactor sites. The DEIS instead identifies one purportedly representative route (Maine Yankee to PFS) [page C-2] and five regional connector routes [pages C-5 to C-7].

The DEIS approach to routing is unacceptable for two reasons. First, failure to disclose the probable routes denies potentially affected individuals and government jurisdictions along these routes an opportunity to review and comment on the Proposed Action, as required under NEPA. Second, failure to use reactor-specific shipment numbers and route-specific inputs results in a technically indefensible and legally deficient transportation risk analysis.

PFS proposes to receive SNF shipments from the 12 reactor sites identified in Table 1.1. These 12 sites currently account for about 17% of the civilian SNF inventory (see attached Nevada Table 1). PFS also proposes to receive SNF shipments from all 72 U.S. civilian reactor sites, in amounts limited only by the storage limitation of its NRC license. Under this circumstance, the DEIS should have identified and analyzed the probable rail routes from all 72 reactor sites, using an accepted routing model such as INTERLINE. The DEIS should then have used a bounding scenario approach to transportation risk analysis, using reactor-specific and route-specific data for minimum (12 site) and maximum (72 site) national transportation scenarios.

Based on previous routing analyses using the INTERLINE model, the State of Nevada has identified probable cross-country rail routes from the 12 member-owned sites to the proposed rail connection at Skunk Ridge, Utah (see attached Nevada Table 2). These routes demonstrate the nation-wide extent of transportation impacts which will result from the proposed action. Nevada has further identified the corridor states traversed by these routes and estimated the number of route-miles in each state (see attached Nevada Table 3). Twenty-four states will be affected by rail shipments from the 12 member-owned sites to PFS. Nineteen states have at least 100 miles of probable rail routes. Fifteen states have at least 200 miles of probable rail routes. Ten states have at least 300 miles of probable rail routes.

As Nevada has demonstrated, it is not an overly burdensome task to clearly identify likely shipping routes between reactor locations and the proposed PFS facility. Such an analysis could have and should have been done and included in the DEIS. Absent the identification of routes, people and communities in states that would be affected by the major and unprecedented spent nuclear fuel shipping campaign are deprived of the opportunity - and their right under NEPA - to (1) recognize that the PFS project will affect them, and (2) to be able to review and comment on the adequacy of the assessment of those impacts in the DEIS. The failure to include an adequate analysis of potential national transportation routes is, of itself, sufficient to require that this DEIS be withdrawn, redone, and reissued for an additional public comment period.

Nevada is especially concerned that the DEIS fails to assess the potential impacts of spent fuel shipments from the San Onofre reactor in southern California. Rail shipments from San Onofre, using default INTERLINE routes, would pass through metropolitan Las Vegas and other communities in southern Nevada. Nevada has done extensive research that demonstrates convincingly that such shipments can have a negative, stigmatizing effect on an area like Las Vegas. For example, even without an accident or incident, studies done for the State of Nevada as well as studies by DOE researchers have shown that property values along spent fuel shipping

routes can be negatively and significantly impacted. In the event of a serious accident or terrorist incident involving a spent fuel shipment in the Las Vegas area, apart from the serious health and safety consequences, there could be significant and long-lasting negative economic impacts to the State of Nevada's tourism-dependent economy. There would also be major impacts to local governments. The DEIS contains no analyses of these impacts.

Failure to consider potential truck shipments to PFS

While the DEIS assumes that all shipments to the PFS facility will be made by rail, at least 3 participating reactors (Indian Point, Monticello, and La Crosse) and possible others are not rail capable, and it would be extraordinarily difficult for geographic and other reasons to move the SNF by truck from these reactor sites to an intermodal transfer point for on-loading to trains. In fact, even if all of the SNF arrives at PFS by rail, there will be truck transport, either legal weight or heavy-haul, needed at various points in the transportation system. This may involve heavy-haul shipments from reactor to rail heads or legal weight truck shipments from reactors that do not have the capability to handle large rail casks. At a minimum, the DEIS should have clearly identified and then evaluated the routes to be used for truck shipments from reactors to rail heads. Such an analysis should have included an assessment of impacts on the communities that would be affected by such shipments.

Failure to consider lack of direct rail access to Yucca Mountain

The DEIS assumes that all SNF will be shipped by rail from PFS to a repository. [Pp. 1-5 to 1-6; 2-22; 5-39; 5-50;] The DEIS ignores the current lack of rail access to Yucca Mountain and underestimates the difficulty of constructing a new rail line to Yucca Mountain. Three of the potential access routes identified by DOE (Carlin, Caliente, or Caliente-Chalk Mountain) would constitute the longest new rail construction project in the United States since the World War I era.. Construction of the shorter Jean or Valley modified routes would be the second longest U.S. new rail construction project in the past 70 years. Construction of 100 to 360 miles of new rail bed and track along any of the routes will be challenged by difficult terrain, environmental sensitivity, and high probability that previously unidentified Native American cultural resources will be discovered only after construction activities begin. Construction will require environmental reviews and approvals, acquisition of rights of way across both public and private lands, and unresolved Native American rights issues regarding ceded treaty lands. Cost estimates range from \$800 million to \$1.5 billion.

The DEIS, therefore, cannot assume that loaded dual-purpose canisters can be shipped from PFS to Yucca Mountain directly by rail. The DEIS must consider an alternative mode of transportation such as legal weight truck.

Failure to consider difficulty of rail access to Yucca Mountain via a proposed intermodal transfer facility and heavy-haul truck (HHT) transport

The DEIS correctly acknowledges that heavy haul-truck (HHT) transport “is not considered a viable option for cross-country transportation to the proposed PSFS and is not analyzed in detail.” [page 2-34] Likewise, HHT transport of dual-purpose canisters from PFS to a potential repository at Yucca Mountain would not be viable because of the number of shipments, the shipment distance (more than 400 miles), and likely route characteristics (mountainous terrain and highly populated areas).

The DEIS incorrectly ignores the difficulty of moving large rail casks from an intermodal transfer station in Nevada to the proposed repository. DOE has identified three potential IMF sites in Nevada and 5 potential HHT routes ranging in length from 114 to 330 miles. In the United States, there is no experience with such long-distance HHT transportation of SNF or HLW, and only limited experience moving smaller rail casks (70 tons loaded weight) short distances by truck. There is only limited experience in Europe with short HHT movements of large rail casks. There is no experience anywhere moving SNF hundreds of miles by HHT through mountainous terrain and/or highly populated areas such as the Las Vegas Valley. According to the Nevada Department of Transportation (NDOT), Nevada has permitted only two comparable HHT movements of any cargo during the past three years, both large mining autoclaves.

The DEIS therefore cannot assume that loaded dual-purpose canisters can be shipped from PFS to Yucca Mountain either directly by HHT or via rail to an intermodal transfer facility and HHT transport. The DEIS must consider an alternative mode of transportation to a repository, such as legal weight truck. Absent this analysis, the DEIS is deficient.

Failure to consider emergency response and recovery implications of using very large shipping casks

The DEIS assumes that SNF will be shipped to and from PFS in very large rail casks weighing up to 160 metric tons (180 tons) when loaded with the SNF and the canister. [page 2-16] The DEIS fails to consider the availability of trained personnel and special equipment necessary for recovery and reshipment of large casks damaged in severe rail accidents. In particular, the DEIS has failed to demonstrate the economic and technical feasibility of recovering and reshipping such large rail casks in the event of significant loss of shielding and/or containment as a result of a severe accident or terrorist attack. The DEIS must further consider the possibility of such incidents occurring in difficult terrain comparable to that found along potential rail routes identified in the DEIS, such as the Union Pacific railroad between Granger, WY and Ogden, UT, between Carlin, NV and Wendover, UT, and between Elgin, NV, and Black Rock, UT.

Reliance upon the Modal Study for Transportation Accident Analysis

The DEIS uses transportation accident probabilities and release fractions “based on the Modal Study.” [page 5-44] The State of Nevada has previously criticized the use of the Modal

Study for transportation accident analyses, especially regarding the performance of large rail casks in severe accidents. Nevada is submitting a critique prepared by Lindsay Audin as Attachment I.

The entire discussion of the Modal Study must be revised to address both the technical and procedural implications of the Modal Study reassessment currently being conducted by the U.S. Nuclear Regulatory Commission (NRC). In November, 1999, the NRC began taking public comments on a proposed study assessing the risks of spent nuclear fuel transportation. The proposed study, to be conducted by Sandia National Laboratories, is intended to update the Modal Study with specific reference to the increased number of shipments, changes in shipping cask designs, and the changing transportation environment in which shipments to a storage facility and/or a repository would take place. The NRC will almost certainly not complete its Modal Study update until after NRC action on the PFS license application.

Failure to disclose consequences of the maximum severe rail accident

While acknowledging the possibility of a severity category 6 accident, which would result in release of radioactive materials from a shipping cask, the DEIS fails to disclose the consequences (human health effects and economic impacts) of the maximum credible accident purportedly analyzed in Section 5.7.2 and in Appendix D.

The State of Nevada has evaluated the radiological health consequences of a similar severe accident involving a similar large rail cask. Under contract with the State of Nevada, Radioactive Waste Management Associates (RWMA) prepared a bounding scenario analysis of a severe accident involving a similar large rail rail cask, using the RADTRAN and RISKIND models and a range of credible alternative assumptions about SNF age and radiological characteristics, atmospheric dispersion, and population densities. The RWMA analysis found that the release from a severe rail accident in an urban area could produce a collective population dose of 144,000 - 1,080,000 person-rem and result in 72 - 540 latent cancer fatalities. Nevada is submitting the RWMA analysis as Attachment II (also attached as "Accident_econ.doc" as a MS Word File).

The DEIS also fails to provide any estimate of the economic impacts of the maximum severe rail accident reported in Section 5.7.2 and in Appendix D. RWMA prepared an estimate of the economic impacts of a similar accident involving a similar large rail cask, using the RADTRAN 4 & 5 models and a range of credible alternative assumptions about cleanup levels, SNF age and radiological characteristics, atmospheric dispersion, and population densities. RWMA concluded that the economic impacts of cleanup and other post-accident costs in a urban area would range between \$9.4 billion and \$145 billion (2000\$) for a rail cask loaded with 26-year-old PWR SNF . For a rail cask loaded with 10-year-old PWR SNF, economic impacts could be as high as \$270 billion (2000\$).

Failure to consider consequences of successful acts of radiological sabotage against

shipments to PFS

The DEIS states that sabotage events are “extremely unlikely” and that “if a sabotage event that results in releases did occur, *it is the judgement of the NRC staff that the consequences would not be unacceptably large*”[p. 5-53] (emphasis added).

The DEIS cites no references in support of its assertions about the probability and consequences of radiological sabotage. The DEIS ignores recent reports documenting changes in the nature of the terrorist threat and the increased vulnerability of SNF shipping casks to attacks utilizing current antitank weapons, commercial shaped charges, and other high-energy explosive devices. The DEIS ignores the Commission’s decision to publish for public comment the State of Nevada’s petition for rulemaking on SNF transportation safeguards [Docket PRM-73-10].

The State of Nevada has evaluated the consequences of a successful terrorist attack against a similar large rail cask loaded with similar PWR SNF. Under contract with the State of Nevada, RWMA prepared a bounding scenario analysis of a successful terrorist attack on a similar large rail rail cask, using the RADTRAN and RISKIND models and a range of credible alternative assumptions about SNF age and radiological characteristics, atmospheric dispersion, and population densities. The RWMA analysis found that the release from a successful terrorist attack, assuming 90% and 100% penetration of the cask, could produce a collective population dose of 4,430 - 51,500 person-rem and result in 2.3 to 26.7 latent cancer fatalities. The RWMA analysis used the constrained attack scenario specified in the Sandia analysis prepared for DOE [Luna, Neuhauser, and Vigil, 1999]. Nevada believes even more severe attack scenarios and even greater health consequences are credible. Nevada is submitting the RWMA analysis as Attachment III (also attached as “RailSab.doc” in MS Word format).

The DEIS also fails to provide any estimate of the economic impacts of a successful terrorist attack. RWMA prepared an estimate of the economic impacts of a successful terrorist attack on a large rail cask, using the RADTRAN and RISKIND models and a range of credible alternative assumptions about cleanup levels, SNF age and radiological characteristics, atmospheric dispersion, and population densities. RWMA estimated cleanup costs and other post-incident economic impacts ranging from \$500 million to \$2 billion (2000\$) using RADTRAN 4, and \$2 billion to \$7 billion (2000\$) using RADTRAN 5.

Inadequate Environmental Justice Analysis

The discussion of potential environmental justice impacts associated with the Proposed Action is entirely inadequate in that it avoids the single most important environmental justice issue altogether. The question that should have been addressed is whether or not the PFS proposal, by its very nature, targets a vulnerable and susceptible low-income, minority population and unethically attempts to exploit their poverty and past history of discrimination as a way of shifting unwanted costs and risks onto that population from other, more prosperous sectors.

The entire approach by PFS in targeting the Skull Valley Goshute tribe can be seen as a significant environmental injustice. The analysis in the DEIS should have examined whether PFS intentionally sought out a particularly vulnerable minority population in order to unburden wealthy commercial utility companies of highly dangerous waste materials and the attendant risks and expenses of managing these materials at reactor locations. Such an assessment is especially germane given the manner in which Native peoples have been historically treated in this country.

Concluding Comment

Nevada's review of the DEIS for PFS project finds that the document is substantively deficient in its analysis of impacts to the human environment, especially the superficial and inadequate analysis of transportation impacts associated with what would be the largest, most intensive spent nuclear fuel shipping campaign ever attempted. This issue alone is, we believe, sufficient to find the DEIS legally deficient under the requirements of the National Environmental Policy Act.

Sincerely,

Joseph C. Strolin
Administrator, Planning Division

JCS/js
Attachments

TABLE 1
MEMBER UTILITIES SNF AVAILABLE FOR SHIPMENT TO PFS (MTHM)
BASED ON DOE YM DEIS, Table A-7

Reactor/Storage Site (State)	Actual Inventory (Through 1995)	Projected Inventory (Through 2011)	Projected Inventory (Through 2046)
Farley(AL)	644	1174	1869
San Onofre(CA)	722	1423	2043
Hatch(GA)	755	1446	2272
Vogtle(GA)	335	1080	2458
Clinton(IL)	174	477	1084
D.C. Cook(MI)	777	1,433	2,155
Monticello (MN)	147	426	537
Prairie Island(MN)	518	866	1210
Oyster Creek (NJ)	374	699	844
Indian Pt (NY)	678	1,164	1,683
Three Mile Island(PA)	311	548	825
Lacrosse (WI)	38	38	38
Total	5473	10774	17018
Percentage Civilian SNF	17.10%	17.10%	16.10%

TABLE 2
 PROBABLE RAIL ROUTES TO PFS
 BASED ON DOE INTERLINE 5.0 ANALYSIS, REACTORS TO BEOWAWE, NV

Reactor/Storage Site (State)	Probable Rail Route to PFS, Skull Valley
Farley(AL)	NS: Atlanta, Birmingham, Cairo, Centralia, Kansas City; UP: Gibbon, Cheyenne, Granger, Ogden, SLC, Skunk Ridge
San Onofre(CA)	BNSF: San Bernardino, Daggett; UP: Las Vegas, Uvada, Black Rock, Garfield, Skunk Ridge
Hatch(GA)	NS: Atlanta, Birmingham, Cairo, Centralia, Kansas City; UP: Gibbon, Cheyenne, Granger, Ogden, SLC, Skunk Ridge
Vogtle(GA)	NS: Atlanta, Birmingham, Cairo, Centralia, Kansas City; UP: Gibbon, Cheyenne, Granger, Ogden, SLC, Skunk Ridge
Clinton(IL)	IC: Peoria UP: Ames, Fremont, Granger, Ogden, SLC, Skunk Ridge
DC COOK (MI)	CPRS: Hammond, Blue Island IHB: Proviso UP: Ames, Fremont, Granger, Ogden, SLC, Skunk Ridge
Monticello (MN)	BNSF: MPS, Sioux City, Fremont, Lincoln, Denver, Grand Junction, Provo, SLC, Garfield, Skunk Ridge
Prairie Island(MN)	CPRS: St Paul UP: Northfield, Mason City Ames, Fremont, Granger, Ogden, SLC, Skunk Ridge
Oyster Creek (NJ)	CR: Lakehurst, Trenton, Harrisburg, Pittsburgh, Cleveland, Toledo, South Bend, Chicago UP: Ames, Fremont, Granger, Ogden, SLC, Skunk Ridge
Indian Pt (NY)	CR: Croton-on-Hudson, Poughkeepsie, Syracuse, Rochester, Buffalo, Erie, Cleveland, Toledo, South Bend, Chicago UP: Ames, Fremont, Granger, Ogden, SLC, Skunk Ridge
Three Mile Island(PA)	CR: Harrisburg, Pittsburgh, Cleveland, Toledo, South Bend, Chicago UP: Ames, Fremont, Granger, Ogden, SLC, Skunk Ridge
Lacrosse (WI)	BNSF: St Paul, MPS, Sioux City, Fremont, Lincoln, Denver, Grand Junction, Provo, SLC, Garfield, Skunk Ridge

TABLE 3												
STATES TRAVERSED BY PROBABLE RAIL ROUTES TO PFS (Miles)												
BASED ON DOE INTERLINE 5.0 ANALYSIS, REACTORS TO BEOWAWE, NV												
	Farley	San Onofre	Hatch	Vogtle	Clinton	Cook	Monticello	Prairie Is	Oyster Cr	Indian Pt	TMI	La Crosse
State												
AL	263.8		259.3	259.3								
CA		293.7										
CO	10		10	10	10	10	479.2	10	10	10	10	479.2
GA	320.9		267.9	303								
IA					336.2	336.2	76	268.8	336.2	336.2	336.2	76
IL	179		179	179	195.7	152.9			150.9	150.9	150.9	
IN						42.7			148.4	148.4	148.4	
KS	172.8		172.8	172.8								
KY	49		49	49								
MI						23						
MN							265.1	144.2				264.1
MO	273.7		273.7	273.7								
MS	30		30	30								
NE	403.5		403.5	403.5	451.5	451.5	460.4	451.5	451.5	451.5	451.5	460.4
NJ									61.8			
NY										466.5		
NV		213.5										
OH									267.5	246.9	267.5	
PA									434.8	46.5	319.5	
SD							12					12
TN	113		113	113								
UT	115.5	308.7	115.5	115.5	115.5	115.5	292.8	115.5	115.5	115.5	115.5	292.8
WI												110
WY	438.6		438.6	438.6	438.6	438.6		438.6	438.6	438.6	438.6	