### December 19, 2008

### United States Of America Nuclear Regulatory Commission High Level Waste Application

In the Matter of

U.S. DEPARTMENT OF ENERGY

Docket No. 63-001

(High-Level Waste Repository: High-Level Waste Application)

### NEVADA COUNTIES OF CHURCHILL, ESMERALDA, LANDER AND MINERAL

### PETITON TO INTERVENE

### I. Introduction to Petition

A. Introduction and Standing of Petitioner

Identification of Petitioner:

The Nevada Counties of Churchill, Esmeralda, Lander and Mineral

To the attention of:

Robert F. List, Esq. Jennifer Gores, Esq. Armstrong Teasdale, LLP 1975 Village Center Circle Suite 140 Las Vegas, NV 89134

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1. <u>Basis for Standing</u>:

The Nevada Counties of Churchill, Esmeralda, Lander and Mineral are Affected Units of Local Government (AULG) pursuant to the Nuclear Waste Policy Act, as amended. 42 U.S.C. §10247 et seq. Pursuant to Nuclear Regulatory Commission Federal Register Notice Vol. 73, No. 205, dated October 22, 2008, "any AULG seeking party status shall be considered a party to this proceeding, provided that it files at least one admissible contention in accordance with 10 CFR 2.309. An AULG need not address the standing requirements under that section."

### II. Designation of Joint Contentions

1. Contentions designated below in the Table of Contents as Contentions A. and B. are submitted jointly on behalf of the Nevada Counties of Churchill, Esmeralda, Lander and Mineral Counties. The parties will act by unanimous concurrence through Armstrong Teasdale, LLP.

2. The Nevada Counties of Churchill, Esmeralda, Lander and Mineral Counties are joining in the following contentions to be submitted by Nye County, Nevada, copies of which are submitted herewith:

a) NYE-JOINT-SAFETY-5 (Failure to include the requirements of the National Incident Management System (NIMS), dated March 1, 2008, and related documentation in Section 5.7 Emergency Planning of the Yucca Mountain Repository Safety Analysis Report (SAR).

b) NYE-JOINT-SAFETY-6 (The LA lacks any justification or basis for excluding potential aircraft crashes as a category 2 event sequence).

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Attachment 1: Affidavit of Engelbrecht von Tiesenhausen (Truck Transportation)

Attachment 2: Affidavit of Rex Massey.

Attachment3: Affidavit of Roger Patton, PE.

- Attachment 4: DOE- Office of Civilian Radioactive Waste Management, Office of Logistics Managements Transportation Program Review, Presented to Nuclear Waste Technical Review Boards (NWTRB) Fall Meeting, September 24, 2008.
- Attachment 5: Letter from Bradley W. Jones, Assistant General Counsel to Martin G. Malsch, March 20, 2008 (ADAMS ML080810175).
- Attachment 6: Notice of Hearing and Opportunity to Petition for Leave to Intervene, 73 Fed. Reg. 63029 (Oct. 22, 2008).

Attachment 7: Affidavit of Mary F. Nugent.

Attachment 8: Affidavit of Alan Kalt.

Attachment 9: Affidavit of Ken Elgan.

Attachment 10: Affidavit of Gene P. Etcheverry.

Attachment 11: Affidavit of Edward Smith.

- Attachment 12: Department of Energy Radiological Assistance Program Factsheet. <u>http://www.nv.doe.gov/library/factsheets/RAP.pdf</u>.
- Attachment 13: Occupational Risk Consequences of Department of Energy's Approach to Repository Design, Performance Assessment and Operation In the Yucca Mountain License Application. EPRI, Palo Alto, CA: 2008. 1018058
- Attachment 14: Western Interstate Energy Board, "Summary of the April 22-23, 2008 Meeting of the High-Level Radioactive Waste Committee, in Tempe Arizona."
- Attachment 15: Rod McCullum, Nuclear Energy Institute Nuclear Waste Technical Review Board September 24, 2008 Presentation "Integrated System Operations Industry Perspectives."
- Attachment 16: Affidavit of Engelbrecht von Tiesenhausen (Canisters)

## I. Joint Contention – The Nevada Counties of Churchill, Esmeralda, Lander, and Mineral (4NC-NEPA-1)

# II. Insufficient analysis in the Environmental Impact Statement of significant and substantial considerations of the environmental impacts of transportation by truck through the Four Nevada Counties.

### **III.** Contention

### 1. Statement of issue of law or fact 2.309(f)(1)(i)

Applicant failed to effectively address key issues in the Final Supplemental Environmental Impact Statements regarding the transportation by truck of Spent Nuclear Fuel (SNF) and High Level Radioactive Waste (HLW), as required by the National Environmental Policy Act (NEPA), as applied in the Nuclear Waste Policy Act. 42 U.S.C. § 4321 et seq. (2006) (setting out the requirements of NEPA); 42 U.S.C. § 10247 (2006) (applying NEPA to the NRC process). Because transportation by truck has the potential for significant and substantial effects on the human environment, DOE must provide an analysis of the proposed action and means to mitigate harmful impacts in the EIS. *See* 40 C.F.R. § 1502.1 (2008). In addition, the Nuclear Regulatory Commission may adopt the EIS only if the document is complete, meaning significant and substantial new considerations do not render the EIS inadequate. 10 C.F.R. §51.109(c)(2) (2008). Because the Final SEIS, as submitted by DOE, is inadequate with respect to the transportation of SNF and HLW by truck, NRC erred in adopting the Final SEIS.

### 2. Explanation of basis 2.309(f)(1)(ii)

The document simply does not contain a sufficient, complete analysis of the number of trucks or the environmental impacts of transporting SNF/HLW by truck through Churchill, Esmeralda, Lander and Mineral Counties (the Four Counties). DOE has a burden, under NEPA and applicable regulations, to analyze the proposed action, its alternatives and mitigation. Section 114 (f) Nuclear Waste Policy Act (2006). The purpose of such analysis is to provide a "full and fair discussion of significant environmental impacts" in order to ensure NRC and DOE have analyzed all of the environmental impacts, with a mind towards NEPA's goals, of DOE's proposed action before NRC grants a license. 40 C.F.R. § 1502.1 (2008). DOE failed to meet its burden of analysis regarding the proposed action, the alternatives and mitigation measures. These analyses are critical to NRC's decision to grant a license, as NRC needs to determine, based on the content of the EIS, whether it is practicable to adopt the EIS. 10 C.F.R. § 51.109(c) (2008). The only way NRC can correctly make this determination is to either mandate that DOE further supplement the EIS or to condition the granting of a license on appropriate measures resolving these issues. 10 C.F.R. § 51.109(e)(1)-(3) (2008).

### 3. Issue is within scope of proceeding 2.309(f)(1)(iii)

The purpose of the EIS component of the application process is to provide clarity and guidance, as required by NEPA, on the environmental impacts in the Four Counties of constructing the repository, delivering, and storing SNF/HLW at Yucca Mountain. *See* 40 C.F.R. § 1502.1 (2008); 10 C.F.R. § 1021.103 (2008) (adopting CEQ NEPA regulations for DOE actions). "Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects which cannot be avoided," is an understanding that the EIS will discuss the extent to which adverse effects can be avoided." <u>Robertson v. Methow Valley Citizens Council</u>, 109 S.Ct. 1835, 1847 (1989). Thus, NEPA requires DOE to consider the impacts of truck transportation and the mitigation of the "adverse effects" of transporting SNF/HLW by truck.

DOE itself demonstrated the issue is within the scope of the proceeding by including discussions of truck transport in the Final Environmental Impact Statement (FEIS). FEIS, Section S.13, Page S-90; Section 6.3, Page 6-54; Section 3.2, Page 3-118 et seq. This discussion goes so far as to select potential routes and specify upgrades to the roads that are necessary for safe transport (including widening of shoulders, upgrading pavement thickness, upgrading intersections and upgrading infrastructure). FEIS, Section 2.1.3.3.3.2, Page 2-57. Thus, DOE has acknowledged and opened the door for an analysis of the impacts & mitigation measures related to truck transportation. NRC should not allow DOE to subsequently deny the validity of this contention or ignore the environmental impacts which this contention addresses. Complete compliance with these statutory and regulatory mandates ensures that NRC will license the Repository only if DOE has comprehensive plans and procedures to transport SNF/HLW within the Four Counties in a manner that will not unduly harm the environment. See 40 C.F.R. § 1502.1 (2008) (stating that the primary purpose of the EIS is to serve as an action-forcing device to insure...policies and goals defined in the Act are infused into ongoing programs and actions of the Federal Government).

### 4. Issue is material to findings NRC must make 2.309(f)(1)(v)

Section 114 (f) of the Nuclear Waste Policy Act and 42 U.S.C. § 10247 (2006), applying the requirements of NEPA to the Yucca Mountain repository licensing process, require the Department of Energy to submit an Environmental Impact Statement, along with the License Application, to the Nuclear Regulatory Commission. NEPA and its implementing regulations require any agency proposing to undertake a "major federal action" to prepare an environmental impact statement considering both the impacts of the proposed action and the alternatives to the action. 42 U.S.C. § 4331 et seq. (2006). In addition, DOE is required by NEPA regulations to consider "means to mitigate adverse environmental impacts" in the EIS. 40 C.F.R. §1502.14 (2008).

Once DOE has prepared and submitted the EIS to the NRC, the NRC must determine whether to adopt the EIS or seek further supplementation of the EIS. 10 C.F.R. § 51.109(c)(1)-(2) (2008). Applicable regulations state that the NRC shall find it "practicable" to adopt any environmental impact statement unless significant and

substantial new information or new considerations render the environmental impact statement inadequate. <u>Id.</u>

# a. Department of Energy failed to provide a comprehensive analysis of the significant and substantial transportation impacts in the Final SEIS as required of the agency by NEPA and NWPA.

The Final SEIS, submitted by the DOE, does not meet the Agency's regulatory burden of analysis for an EIS. NEPA regulations require DOE to consider the impact of its actions, alternatives which would "avoid or minimize adverse impacts or enhance the quality of the human environment" and mitigation measures. 40 C.F.R. § 1502.1 (2008); 40 C.F.R. § 1502.14(f) (2008) (requiring DOE to include mitigation measures not already included in the proposed action or alternatives). However, the EIS document herein only provides an in-depth analysis of the rail component of the mostly-rail transportation proposal; it does not fully address all components of the action, alternatives or mitigation. As stated in attached affidavits, the potential number of shipments is much higher than the 2700 estimated shipments in the EIS and previous agreements to avoid traveling through the Las Vegas Valley with any radioactive waste shipments could exacerbate transportation impacts in the Four Counties, as all of the SNF/HLW shipments will be routed from the North via Highway 95. Attachment One, Paragraph 7; Attachment Two, Paragraph 7 and 8. The result of a higher than estimated number of shipments and routing to avoid Las Vegas will be significant and substantial impacts on roads and the human environment. See Attachment One, Two and Three.

The Final SEIS fails to address or analyze one of the major components of the mostly-rail action, the purported 2700 overweight truck shipments, which will supplement rail transportation. Due to a number of factors, there is the potential for a significantly higher volume of truck transportation than the 2700 trucks the Final SEIS estimates. Attachment One, Paragraph 7. The document also fails to fully address alternatives or variables to the mostly rail scenario, such as a no or limited rail line scenario or a higher than predicted use of truck transportation if DOE is unable to complete the rail line as assumed. Multiple factors go into the timely construction of the rail line, including appropriation of funds by Congress and approval of the rail line EIS. Should funding be delayed or approval of the EIS be postponed by litigation, DOE would have to resort to shipping SNF/HLW solely by truck until the rail line could be completed. Despite these potential sources of delay, DOE simply assumes they will be able to complete all the necessary steps for the rail line in conjunction with the opening of the Repository. Attachment One, Paragraph 7. The Final SEIS also assumes generator sites throughout the country shipping SNF/HLW will have the ability to ship by rail, but does not discuss any basis for concluding this is a valid assumption. In addition, the Final SEIS does not address whether DOE will agree to avoid shipping any SNF/HLW through Las Vegas, which DOE has done in the past with respect to low level waste. Attachment Two, Paragraph 7 and 8. Avoiding Las Vegas will cause all of the trucks to more frequently utilize other routes from the North, through the Four Counties. Finally, the Final SEIS does not adequately address the environmental impacts of using overweight trucks to transport SNF/HLW through the Four Counties or mitigation

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measures for this proposed action. The damage to roads will be significant and substantial, as will be the improvements necessary for environmentally safe transportation of overweight trucks on the non-interstate roads in Nevada. Attachment Three, Paragraph 13. While DOE is not required, by law, to formulate and adopt a complete mitigation plan, the US Supreme Court has stated that the "omission of a reasonably complete discussion of possible mitigation measures would undermine the…function of NEA." <u>Robertson</u>, 109 S.Ct. 1835, 1847 (1989). Regulations define "mitigation" as avoiding, minimizing, rectifying, reducing or compensating for impacts. 40 C.F.R. §1508.20(a)-(e) (2008).

In the Final SEIS, DOE discusses, analyzes and quantifies, in detail, the traffic adjacent to the Yucca Mountain site in Nye County, Nevada. Final SEIS, Section 3.2.3, Page 3-97. This discussion includes an analysis of the impacts on traffic congestion. In addition, the Final SEIS mentions a few major routes in Clark County, Nevada. Id. No explanation or discernable reason is present regarding why DOE would pick out these areas for analysis, but not any other Nevada counties. Focusing the transportation analysis on these select areas is especially illogical when one considers that the Four Counties will experience transportation impacts as great as or greater than the areas analyzed in the Final SEIS. See Attachment Three. The truck transportation plan will create a funneling effect, in which trucks arriving at Yucca Mountain from throughout the country will converge in Nevada. In the past, DOE has implemented a policy preventing DOE from transporting any Low Level Radioactive Waste through the Las Vegas Valley. Attachment Two, Paragraph 7 and 8. Because of this earlier DOE policy, it is predictable that DOE and implement the same policy with regard to SNF/HLW and, as a result, an even greater amount of SNF/HLW will be transported through the Four Counties from the North of the Repository (Highway 95 is the most likely route to be utilized in avoiding Las Vegas). See Attachment Two and Three, Paragraph 11 and 12. Due to these facts, the Four Counties will, collectively, see almost all of the trucks transporting SNF/HLW to Yucca Mountain travel through their counties.

DOE would not have included the analyses of traffic near the repository if they did not consider traffic impacts material to the EIS analysis. Given this, the Commission should not allow DOE to subsequently argue that transportation impacts in the Four Counties are not significant and substantial considerations. The EIS must address all of the aforementioned in a comprehensive manner in order to be a complete analysis of the impacts of the proposed actions, alternatives and mitigation. Thus far, DOE has not completed any analysis of transportation by overweight truck at the DOE predicted level of truck volume and DOE has not discussed alternatives to the predicted volume, such as a higher than estimated reliance on truck transport. DOE has not discussed the environmental impacts of overweight trucks or mitigation measures for protecting the human environment. In short, DOE has failed to meets its burden under NEPA of analyzing the significant and substantial environmental impacts, alternatives and mitigation measures to its proposed action of transporting a portion of the SNF and HLW by overweight truck to the Repository at Yucca Mountain.

## b. The NRC erred in deciding to adopt the Final SEIS under applicable regulations for licensing the repository.

The Final SEIS, as submitted by DOE, does not meet the regulatory standards for adoption by the NRC. In a proceeding for the issuance of authorization to construct the Repository, the Commission is required to adopt the environmental impact statement prepared and submitted by the Secretary of Energy to the extent "practicable." 10 C.F.R. § 51.109 (a)(1) (2008). The regulations state NRC shall find it "practicable" to adopt an environmental impact statement unless "significant and substantial.... new considerations render such EIS inadequate." 10 C.F.R. § 51.109(c)(2) (2008). Per the March 20, 2008 letter to Mr. Martin Malsch and the October 22, 2008 Federal Register Notice, "substantive claims challenging the FEIS will be considered "new considerations" in the context of §51.109(c)." Attachment Five; Attachment Six. In short, the Commission my not accept the Final SEIS, as submitted, because it did not address "significant and substantial considerations" with respect to truck transportation, which renders the document inadequate. Contrary to this regulatory standard, NRC adopted the Final SEIS provisions dealing with environmental impacts resulting from the transportation of SNF/HLW.

The Final SEIS, submitted by the Secretary of Energy, is not complete enough to meet the burden of acceptance the Commissioner has under this regulatory section. The document does not adequately address many issues regarding transportation of SNF/ HLW by truck. In the Final SEIS, DOE suddenly announces there will be 2700 overweight truck shipments of SNF/HLW, without providing any explanation or analysis of this number. Final SEIS, Section S.4.3, Page S-47. But, despite this new, revised transportation plan, DOE did not analyze transportation impacts of overweight trucks in its Final SEIS. Granting a license by the NRC will result in a high number of overweight trucks transporting SNF/HLW through the Nevada Counties. As is clear from the attached affidavits, the Final SEIS does not consider or discuss fully a number of impacts on the environment, such as impacts on roads, impacts on communities, traffic impacts, and road infrastructure improvements necessary for safe transportation. *See* Attachment Three. Clearly, this is an instance of both impacts resulting from the grant of a license not addressed by the DOE's EIS and a significant and substantial new consideration in the licensing process requiring analysis.

In summary, the Final SEIS, submitted by the DOE, is inadequate and, thus, the Nuclear Regulatory Commission's determination to adopt the Environmental Impact Statement with respect to transportation issues is incorrect. In order to comply with statutory and regulatory burdens of adoption, DOE or NRC must analyze the complex issues presented by transporting SNF/HLW by overweight trucks.

5. <u>Statement of alleged facts or opinions and references to be relied upon and references</u> to specific portions of application petitioner disputes 2.309(f)(1)(v)- (vi)

DOE has not fulfilled its NEPA obligations because it has not completed an analysis of the overweight truck transportation action, yet the Final SEIS states that overweight truck shipments will substitute for rail transport where commercial generating sites do not have the ability to load rail cars. Final SEIS, Section S.2.4, Page S-19. In order to comply with statutory and regulatory burdens of analysis, DOE must analyze the environmental impacts of shipping SNF/HLW by overweight truck and mitigation for shipping by overweight truck. Overweight truck shipments are a component of the "mostly rail" shipment plan and, as a component of a proposed action, need to be analyzed. In addition, due to various factors, there is the potential for a much higher volume of truck shipments than what DOE estimates in the Final SEIS and previous policy to route around Las Vegas are likely to be implemented again, resulting in an exacerbation of the impacts on the Four Counties. Attachment Two. As a result, there will be significant and substantial impacts on the environment, roads and human health. Due to the potentially enormous impacts on the environment when DOE transports SNF/HLW by overweight truck through the Nevada Counties, failing or shortchanging an analysis of transportation by truck is a gross oversight by both DOE and NRC.

## a. DOE has failed to analyze a significant and substantial component of the "Mostly Rail" transportation plan.

In the Final SEIS Comment Response Document, DOE claims the mostly rail transportation mode is the preferred mode of transportation and, therefore, the DOE does not need to consider or analyze in any EIS documents an overweight truck scenario. Final SEIS Comment Response Document Vol. 3 Section 1.4.1, Page CR-217. However, the Final SEIS also states that the DOE "can not use rail shipping exclusively because some commercial nuclear generating sites do not have the ability to load large capacity rail shipping cars. Those sites that are incapable of rail shipments would use overweight trucks to ship materials to the repository." Final SEIS, Section S.2.4, Page S-19 and Section 6.1.6, Page 6-5. However, DOE has not analyzed the environmental impacts of shipping via overweight trucks and claims there is no need to because "mostly-rail" is the selected mode of transportation. Yet, DOE plans to rely fully on overweight trucks whenever rail transport is not available. Rail transport may be the primary mode of transportation plan. Overweight truck transport must be evaluated as a part of the proposed action, just as DOE evaluated rail transport.

## b. DOE has not justified why its arbitrary assumptions regarding the volume of truck shipments are valid.

DOE has not explained how it reached its estimates of 2700 truck shipments based on the actual capacity of sites sending the waste to the Repository or why its is appropriate to assume, without question, the railroad will be constructed before shipping of SNF/HLW commences. In actuality, the volume of trucks could be much higher than 2700 overweight trucks because DOE's entire analysis of truck transportation impacts rests on a few critical, arbitrary assumptions about shipping by rail. *See* Attachment One.

The Final SEIS states that there will be approximately 2700 shipments by truck. However, DOE has not adequately explained why only certain sites will be shipping by truck or why it assumes all other sites will have the capacity to ship by rail. In fact, a National Academies study concluded that DOE based the transportation capability estimates in the EIS on a study published in 1992. National Academies, Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States 223 (National Academies Press 2006). Because DOE completed the study so long ago, it is quite likely that changes have occurred and "rail line abandonment was tending to curtail rail access to reactor sites." Id. In addition, DOE has absolutely no way of knowing or depending on the timely completion of a rail line. Attachment One, Paragraph 7(a)(i). To base the entire truck transportation impact analysis on the assumed construction of a rail line is arbitrary, capricious and indefensible. If the rail line was delayed or a generator shipped by truck rather than rail, the number of truck shipments could reach as high as 49,000 commercial SNF shipments, 8,315 HLW shipments and 3,470 DOE SNF shipments. Attachment One, Paragraph 7(a)(i). While this number is obviously a worst case scenario, given the aforementioned information, it is entirely possible that the number of overweight truck shipments will be much higher than the 2700 truck shipments estimated in the Final SEIS. DOE must provide more specificity and a wider range of analysis regarding the actual number of truck shipments so that the impacts of the proposed action, along with the necessary mitigation, can be clearly and accurately calculated.

### c. DOE has not addressed the likelihood of an agreement between Clark County and DOE regarding transporting SNF/HLW through Las Vegas.

Historically, DOE has avoided any shipment of low level waste through any portion of Las Vegas. Attachment Two, Paragraph 7 and 8. It is very likely that DOE will follow a similar policy for SNF/HLW. Assuming this comes to pass, the exacerbation of transportation impacts on the Four Counties will be apparent. In order to avoid Las Vegas in traveling to Yucca Mountain, DOE will have no choice but to route all of the shipments from the North, through the Four Counties, and down Highway 95.

## *d. DOE's FEIS and Final SEIS are an insufficient analysis of the significant and substantial impacts resulting from overweight truck transportation.*

DOE's assumption that a detailed analysis of overweight truck transport in the Final SEIS is not necessary is simply incorrect. First, the heavy haul analysis from 2002 does not address the issues presented by the updated, Final SEIS transportation plan relying on overweight trucks. Second, neither the initial 2002 analysis of truck transport, nor the Final SEIS addresses many of the issues related to environmental impacts and mitigation thereof. The 2002 and 2008 analyses, considered either in combination or separately, do not address the significant and substantial impacts on the human environment resulting from SNF/HLW truck transport, especially if one considers truck transportation within the context of the potential for higher than estimated number of trucks and the Las Vegas routing issues. *See* Attachment One through Three.

DOE analyzed a mostly legal-weight and mostly rail transportation scenario in the 2002 Yucca Mountain FEIS. FEIS Section, 2.1.3.3, Page 2-48. DOE also conducted an

analysis of a heavy-haul truck scenario, which included a limited analysis of routing, impacts and mitigation. FEIS Section, 2.1.3.3.3.2, Page 2-57. However, in the 2008 Final SEIS, DOE determined the trucks transporting SNF/HLW would be by overweight trucks. Final SEIS Section 6.1.6, Page 6-5. Heavy-haul versus overweight transportation scenarios involve a different set of regulatory and factual circumstances, which will cause different impacts. Despite DOE's admission in the Final SEIS that heavy-haul impacts "differ" from overweight impacts, DOE seems to assume that an analysis of heavy-haul or legal-weight trucks from 2002 can suffice as analysis of its decision to use overweight truck in 2008. Id. This, simply, is not an appropriate assumption and, more importantly, does not meet the NEPA burden of analysis. The two types of transportation involve different shipping containers, different rates of speed/travel, different travel time-frames, and different regulatory restrictions on travel. In addition, there are vastly different weights and anticipated routing between heavy-haul and overweight trucks. The 2002 heavy-haul analysis assumed that DOE would transfer the casks from rail cars to heavyhaul trucks at an intermodal side within Nevada (most likely at Caliente). FEIS Section 2.1.3.3.3., Page 2-54. Heavy-haul trucks would be starting from a specific location within Nevada and traveling one route repeatedly; overweight trucks will originate from outside the state and travel many different routes to reach the repository. The impacts of the heavy-haul plan are significant and substantially different from the overweight transport plan. In short, DOE is incorrect to assume that the impacts for a heavy-haul scenario are similar enough to the impacts of an overweight scenario that no new analysis is necessary for the new, overweight truck shipment plan.

The 2002 FEIS stated that some heavy-haul truck routes would need upgrades and improvements. Section 2.1.3.3.3.2, Page 2-57. Nevertheless, this analysis contained no detailed specificity with respect to critical matters of importance such as the feasibility, costs, funding, responsibility for, impacts of or timeline for construction of these road improvements. FEIS, Section 6.3.3 Page, 6-157; Section 6.3.3.1, Page 6-157; Section 2.1.3.3.2, Page 2-57. Additionally, a 2008 presentation by the Office of Logistics Management Transportation Program Review states that DOE "has no plans to provide funding for upgrades to transportation infrastructure to support shipments." Attachment Four, Page 3. Given this statement, one can only assume that DOE has no plans to provide funding for upgrades to transportation infrastructure relating to overweight trucks. The attempt to avoid responsibility for mitigation is contrary to the provisions of NEPA.

Road improvements are critical to providing safer transport along highways for DOE shipments and for the public traveling on the highways. *See* Attachment Three. Given that the number of trucks transporting SNF/HLW is likely to higher than 2700 trucks and that the trucks will be routed through the Four Counties in an effort to avoid the urban area of Las Vegas, the transportation impacts on roads will be significant and substantial. *See* Attachment Two and Three, Paragraph 13. Most of the roads an overweight truck transporting SNF/HLW would utilize in Nevada are not interstate highways. Instead, the trucks will be traveling on narrow, rolling two lane blacktop, which do not have the same design criteria and are not as well maintained as interstate highways. Attachment Three, Paragraph 13. Most of these roads lack shoulders or areas

to pull off in case of emergency. There can be many miles between service stations and only limited cell phone coverage. In addition, overweight trucks will travel at a lower rate of speed, which, on a two lane highway such as Highway 95, can cause traffic to queue up behind the truck and/or pass in the on-coming traffic lane. Id. Overweight trucks shorten pavement life. Id. Finally, overweight trucks may have to travel up to 675 miles within Nevada to reach the repository and may be restricted to daylight travel only. Trucks will need a secure location for over-night parking. Attachment Three, Paragraph 16. In summary, transportation of overweight trucks will have significant and substantial impacts on the roads of the Four Counties and on the citizens of the Four Counties, who utilize those roads every single day. See Attachment Three. The citizens of the Four Counties fully rely on these roads for safe transportation. Despite all these environmental impacts, the Final SEIS does not address the impacts and contains no mitigation necessary to address the same when shipping via overweight trucks. Given the condition of the roads in Nevada and DOE's own acknowledgment, in the 2002 FEIS, that improvements are necessary to safe transport, an impact and mitigation analysis addressing this issue, for trucks of any size, must be included in the EIS documents.

e. Suggested Mitigation Measures.

While DOE is not required to follow any specific mitigation plan, they are required to consider mitigation. An objective evaluation shows there are significant and substantial impacts and the suggested mitigation measures include constructing passing lanes, increasing shoulder width, upgrading roadside design features, constructing climbing lanes, improving signage, upgrading intersections and constructing night-time layover locations. Attachment Three, Paragraph 14.

In conclusion, the DOE has not met its EIS burden of analysis for the transportation of SNF/HLW under NEPA and its applicable regulations. DOE is required to analyze its proposed action, alternatives to the action and methods to mitigate impacts in their EIS. NRC should not adopt the Final SEIS because significant and substantial new considerations render the EIS inadequate.

### IV. Statement concerning whether the contention is a joint contention.

This a joint contention filed by Churchill, Esmeralda, Lander and Mineral Counties ("The Four Counties"). The parties will act by unanimous concurrence through Armstrong Teasdale, LLP.

- 1. Referenced Documents
  - 1. Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F).
  - 2. Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level

Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F-S1).

3. Nation Academies, Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States 223 (National Academies Press 2006.

## I. Joint Contention – The Nevada Counties of Churchill, Esmeralda, Lander, and Mineral (4NC-NEPA-2)

### II. Insufficient analysis in Environmental Impact Statement of significant and substantial new considerations related to emergency response capacity within the Four Nevada Counties

### **III.**Contention

1. <u>Statement of issue of law or fact</u> 2.309(f)(1)(i)

Applicant failed to adequately address significant and substantial considerations in the Final Supplemental Environmental Impact Statement (Final SEIS) regarding assessing local emergency response capacity related to the transportation of Spent Nuclear Fuel (SNF) and High Level Radioactive Waste (HLW), by truck, through the Nevada Counties of Churchill, Esmeralda, Lander and Mineral, as required by the National Environmental Policy Act (NEPA), as applied in the Nuclear Waste Policy Act (NWPA). 42 U.S.C. §4321 et seq. (2006) (setting out the requirements of NEPA); 42 U.S.C. §10247 (2006) (applying NEPA to the NRC process). A transportation incident involving SNF/HLW has the potential for significant and substantial effects on the human environment; DOE must provide an analysis of this proposed action and means to mitigate harmful impacts to the human environment in the EIS. See 40 C.F.R. § 1502.1 (2008). In addition, the Nuclear Regulatory Commission may adopt the EIS only if the document is complete and in compliance with NEPA and implementing regulations. 10 C.F.R. §51.109(a)(1)(2008). Because the Final SEIS, as submitted by DOE, is not complete with respect to the analysis of emergency response training, NRC erred in adopting these sections of the Final SEIS.

### 2. Explanation of basis 2.309(f)(1)(ii)

The document simply does not contain a sufficient, complete analysis of the potential actions and mitigation measures DOE should consider in order to make truck transport of SNF/HLW environmentally safe. DOE has a burden, under NEPA and applicable regulations, to analyze and consider both the proposed action and mitigation measures. Section 114 (f) Nuclear Waste Policy Act (2006). The purpose of the EIS is to provide a "full and fair discussion of environmental impacts" and mitigation measures, in order to ensure NRC and DOE have analyzed all of the environmental impacts of DOE's proposed action before NRC grants a license. 40 C.F.R. § 1502.1 (2008). DOE failed to meet its burden of analysis regarding both the proposed action and necessities for mitigation. These analyses are significant and substantial considerations to NRC's decision to grant a license, as NRC must determine, based on the content of the EIS, whether it is practicable to adopt the EIS. 10 C.F.R. § 51.109(c) (2008). The only way NRC can correctly make this determination is to either mandate that DOE further supplement the EIS or to condition the granting of a license on appropriate measures resolving these issues. 10 C.F.R. § 51.109(e)(1)-(3) (2008).

### 3. Issue is within scope of proceeding 2.309(f)(1)(iii)

The purpose of the EIS component of the application process is to provide clarity and guidance, as required by NEPA, on the environmental impacts of constructing the repository, delivering, and storing SNF/HLW at Yucca Mountain. *See* 40 C.F.R. § 1502.1 (2008); 10 C.F.R. § 1021.103 (adopting CEQ NEPA regulations for DOE actions). "Implicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided,' is an understanding that the EIS will discuss the extent to which adverse effects can be avoided." <u>Roberston v.</u> <u>Methow Valley Citizens Council</u>, 109 S.Ct. 1835, 1847 (1989). Thus, NEPA requires DOE to consider means to mitigate the "adverse effects" of transporting SNF/HLW by truck.

DOE has failed to meet the NEPA burden of analysis in the Final SEIS as the document does not include a substantial discussion of how DOE plans to mitigate the environmental impacts of an accident involving SNF/HLW being transported through Churchill, Esmeralda, Lander and Mineral Counties (the Four Counties). 42 U.S.C. §10175 (2006); Final SEIS Appendix H, Section H.6.1 and H.7, Page H-16 and H-18, 19. The truck transportation plan will create a funneling effect, in which trucks arriving at Yucca Mountain from throughout the country will converge in Nevada and through the Four Counties. In addition, it is likely that the number of trucks transporting SNF/HLW could be much higher than the 2700 trucks DOE estimated and, due to DOE's longstanding policy of precluding shipments of even low level waste through the Las Vegas Valley, there will be a concentration of overweight truck shipments through the Four Counties and a coinciding burden on emergency response resources. See Attachment One, Paragraph 7; Attachment Two, Paragraphs 7 and 8. Emergency responders, if properly trained, equipped and provided with operating budgets enabling them to respond to a SNF/HLW incident, have the potential to mitigate adverse environmental impacts flowing from an incident involving SNF/HLW traveling through their jurisdictions.

DOE itself stated, in the 2002 Final Environmental Impact Statement (FEIS), that DOE is responsible for developing policy and guidance for emergency planning, management, training, and <u>response</u> to an accident involving its shipments. FEIS, Appendix M, Section M.5.1, Page M-19. Thus, DOE has acknowledged, opened the door for and recognized the necessity of addressing mitigation measures, via full emergency response capability, including acquisition of equipment, hiring of and providing for the ongoing personnel and underwriting related costs concerning truck transportation. NRC should not allow DOE to subsequently deny the scope or materiality of this contention. Complete compliance with the NEPA statutory and regulatory mandates ensures that NRC will license the Repository only if DOE has comprehensive plans and procedures to transport SNF/HLW in a manner that will not unduly harm the human or natural environment. *See* 40 C.F.R. § 1502.1 (2008) (stating that the primary purpose of the EIS is to serve as an action-forcing device to insure... policies and goals defined in the Act are infused into ongoing programs and actions of the Federal Government).

### 4. Issue is material to findings NRC must make 2.309(f)(1)(v)

Section 114 (f) of the Nuclear Waste Policy Act and 42 U.S.C. § 10247, applying the requirements of NEPA to the Yucca Mountain repository licensing process, requires the Department of Energy to submit an Environmental Impact Statement, along with the License Application, to the Nuclear Regulatory Commission. NEPA and its implementing regulations require any agency proposing to undertake a "major federal action" to prepare an environmental impact statement considering both the impacts of the proposed action and the alternatives to the action. 42 U.S.C. § 4331 et seq. (2006). In addition, DOE is required by NEPA regulations to consider "means to mitigate adverse environmental impacts" in the EIS. 40 C.F.R. §1502.14 (2008).

Once DOE has prepared and submitted the EIS to the NRC, the NRC must determine whether to adopt the EIS or seek further supplementation of the EIS. 10 C.F.R. § 51.109(c)(1)-(2) (2008). Applicable regulations state that the NRC shall find it "practicable" to adopt any environmental impact statement unless significant and substantial new information or new considerations render the environmental impact statement inadequate. Id.

a. Department of Energy failed to provide a comprehensive analysis of mitigation in the form of emergency response availability in the Final SEIS as required of the agency by NEPA and NWPA.

NEPA regulations require DOE to consider the impact of its actions and alternatives, which would "avoid or minimize adverse impacts or enhance the quality of the human environment" and mitigation measures. 40 C.F.R. § 1502.1 (2008); 40 C.F.R. § 1502.14(f) (2008) (requiring DOE to include mitigation measures not already included in the proposed action or alternatives). DOE's proposed impact-causing action is to transport SNF/HLW by truck through the Four Counties. Based upon the aforementioned regulatory sections, DOE must address mitigation measures for this action.

DOE itself has demonstrated an acknowledgment of the importance and materiality of providing for emergency response training by including a limited discussion of providing funding for training in the Final SEIS. Final SEIS Appendix H, Section H.6 – H.7, Page H-16 – H-19. Obviously, DOE would not have included any information about emergency responder training and funding in the Final SEIS if the agency thought it immaterial to the EIS analysis. Unfortunately, the Final SEIS fails to analyze or provide enough information about emergency response planning to meet the NEPA burden of analysis. In the Final SEIS, DOE only discusses emergency responder training within the context and under the requirements of Section 180 (c) of the NWPA. Final SEIS Appendix H, Section H.7, Page H-19. Section 180 (c) is a very limited congressional mandate separate and apart from the burden of analysis DOE has under NEPA. *See* 42 U.S.C. § 10175 (2006).

The Final SEIS simply states the requirements of 180(c) and explains it plans to implement a limited training and technical assistance program, funneled through the

states, under this separate statute. Final SEIS Appendix H, Section H.7, Page H-19. NEPA requires DOE to perform a much fuller, more rigorous analysis. 40 C.F.R § 1502 et seq. (2008). While DOE is not required, by law, to formulate and adopt a complete mitigation plan, the U.S. Supreme Court has stated that the "omission of a reasonably complete discussion of possible mitigation measures would undermine the....function of NEPA." Robertson, 109 S.Ct. 1835, 1847 (1989). Regulations define "mitigation" as avoiding, minimizing, rectifying, reducing or compensating for impacts. 40 C.F.R. § 1508.20(a)-(e) (2008). DOE has stated it will provide some amount of technical assistance and training for counties, but that tribes and states have the "primary responsibility for the protection of the public and environment in their jurisdictions." Final SEIS Appendix H, Section H.6.1, Page H-16. DOE does not specify how it will distribute any funding or even whether DOE anticipates having sufficient funds to fully equip and train the Four Counties, through which DOE will transport SNF/HLW. DOE does not discuss how they will asses the needs of each county or how they will provide for communications interoperability between all of the departments responding to an incident. Given the plethora of issues related to mitigation DOE has not addressed, it is clear the mitigation analysis is inadequate.

The existing analysis is completely insufficient; NEPA requires concrete analysis and reasonably complete mitigation plans rather than nebulous statements of future intentions. DOE must explain its plans to assist and prepare local, Nevada county emergency responders for the likely occurrence that DOE experiences a transportation incident so that the impacts on the environment are limited.

## b. The NRC erred in deciding to adopt the Final SEIS under applicable regulations for licensing the repository.

The Final SEIS, as submitted by DOE, does not meet the regulatory standards for adoption by the NRC. In a proceeding for the issuance of authorization to construct the Repository, the Commission is required to adopt the EIS prepared and submitted by the Secretary of Energy to the extent "practicable." 10 C.F.R. § 51.109(a)(1) (2008). The regulations state NRC shall find it "practicable" to adopt an environmental impact statement unless "significant and substantial... new considerations render the environmental impact statement inadequate." 10 C.F.R. § 51.109(c)(2) (2008). Per the March 20, 2008 letter to Mr. Martin Malsch and the October 22, 2008 Federal Register Notice, "substantive claims challenging the FEIS will be considered "new considerations" in the context of §51.109(c)." Attachment Five; Attachment Six. In short, the Commission should only accept the Final SEIS, as submitted, if it is not missing any "significant and substantial considerations" with respect to emergency management, which renders the document inadequate. Contrary to this regulatory standard, NRC adopted the Final SEIS provisions dealing with emergency response during the transportation of SNF/HLW.

The Final SEIS is incomplete and fails to meet the Commissioner's standard of acceptance under this regulatory section. The document does not adequately address many significant and substantial issues regarding emergency response. DOE does not

analyze or explain at all how it will actually support local emergency responders in any specific, concrete manner. This is a glaring inadequacy in the Final SEIS. Granting a license by the NRC will result in a high number of overweight trucks and rail cars transporting SNF/HLW through the Four Counties, any of which could be involved in an accident harmful to the environment; DOE must give reasonable assurance, in the EIS documents, that the agency plans to mitigate the impacts of this proposed transportation action.

In summary, the Final SEIS is insufficient and, thus, the Nuclear Regulatory Commission's determination to adopt the Environmental Impact Statements with respect to emergency response issues is flawed. In order to comply with statutory and regulatory burdens of adoption, DOE or NRC must analyze the complex risks and impacts to the human environment by clearly addressing the obvious needs for adequate support and response capability of emergency responders.

## 5. <u>Statement of alleged facts or opinions and references to be relied upon and references</u> to specific portions of application petitioner disputes 2.309(f)(1)(v)-(vi)

DOE, in the Final SEIS, has not addressed the issue of readiness assessment and training for emergency responders in the counties through which DOE will transport SNF/HLW by truck shipment. DOE simply states that it will comply with 180 (c) requirements, which is wholly inadequate in terms of meeting their burden under NEPA. DOE must address this issue because the quick, capable performance of emergency responders will significantly effect the extent of an impact on the environment that will result from a DOE transportation incident.

The majority of the areas where DOE will be transporting SNF/HLW are rural and isolated. The roads in the Four Counties are almost exclusively windy, rolling, two lane highways with no shoulders and no areas to pull off the road in case of an emergency. In addition, most road areas have limited to no cell phone coverage. In short, the roads are not interstate highways. The road infrastructure itself in rural Nevada is quite limited, which means that alternative routes are not readily available. And, finally, the Four Counties have minimal to no voice or data interoperability amongst themselves or with any other government responders. Attachment Seven, Paragraph 5; Attachment Eight through Eleven, Paragraph 8. As a result of all of these factors, a simple traffic accident involving an overweight truck, let alone something more serious, such as an issue involving the security or radiological integrity of a canister, has the potential to cause a number of major logistical and environmental safety issue for emergency responders. However, if the emergency responders are provided with the necessary equipment, personnel and ongoing operating budgets, the impacts of a transportation accident may be less severe. See Attachment Seven, Paragraph 5 b. DOE must plan to equip police, fireman and EMTs because it not only protects the DOE shipments, but also mitigates harmful impacts on the environment and the public. DOE can and must address the burden of such mitigation, inasmuch as the Four Counties can not afford to do so.

DOE states that the primary responsibility for protection of public and the environment lies with the states and tribes along the shipping route. Final SEIS Appendix H, Section H.6.1, Page H-16. While DOE is accurate in saying that local jurisdictions will bear the burden of responding to a SNF/HLW transportation incident, DOE is not correct, in this instance, in saying that the "primary responsibility" lies with states and tribes." Final SEIS Appendix H, Section H.6.1, Page H-16. In reality, the individual counties and communities will bear the full burden and responsibility of responding to any emergency incident within their jurisdiction. DOE, as part of the NEPA component of the license application process, has the burden of analyzing its actions and mitigating impacts on the environment DOE may cause by its proposed action. 40 C.F.R. §1502 et seq. (2008). DOE itself stated, in the 2002 Final Environmental Impact Statement (FEIS), that DOE is "responsible for developing policy and guidance for emergency planning, management, training, and <u>response</u> to an accident involving its shipments." FEIS, Appendix M, Section M.5.1, Page M-19.

Currently, the Four Counties have no voice and data interoperability capability between emergency responders and their related facilities, between counties, between the state and counties, or between local emergency responders and any U.S. Government facilities. Attachment Seven, Paragraph 5; Attachment Eight through Eleven, Paragraph 8. The Nevada State Legislative Commissions Audit Subcommittee report and the Nevada Homeland Security Commission both found that there is presently minimal voice or data interoperability, but there is a need for a rapidly deployed interoperable communication system and, without this interoperable communication network, Nevada is not ready for shipments of hazardous materials. Attachment Seven, Paragraph 5. Voice and data interoperability is a vital, critical, necessary and required component of effective protection of the health and welfare of the public in connection with shipments. Attachments Eight through Eleven, Paragraph 8. While interoperability is a critical and necessary, the estimated cost (\$7 Million for implementation, \$2.5 to \$3 Million for maintenance) would pose an insurmountable financial and logistical burden on the Four Counties should they have to bear responsibility independent of DOE assistance. Attachment Eight through Eleven, Paragraphs 8 and 9. Mineral & Esmeralda Counties provide examples of why this is issue must be addressed by DOE. Mineral County has radiological detection equipment available, however, they have received no assistance on how to calibrate or use it and there is no program in place to check that such equipment is maintained in working order over the long term. "Preliminary Assessment of Emergency Response Capabilities for Proposed Shipments to Yucca Mountain," Page 5 (LSN MNE00000006). Esmeralda County, Nevada's fire protection and EMS is staffed solely by volunteers. "Esmeralda County Repository Oversight Program Baseline 2007," Page 33 (LSN ESM000000018). Due to a reduction in volunteers in emergency services and difficulties in scheduling training, Esmeralda County has experienced a decrease in ability to respond to Emergencies involving hazardous materials. Id. at 33-34.

The Four Counties have each estimated their needs in terms of providing for the additional personal, equipment, maintenance and operation due to the transportation of SNF/HLW through their counties. In total, the Four Counties will accrue an initial capital cost, in today's dollars, of \$15,963,500.00. Attachments Eight through Eleven, Paragraphs 5 through 7. In total, the annual operating costs for the required additional

personnel, in today's dollars, will be \$4,656,0000.00 <u>Id.</u> The total annual maintenance cost, in today's dollars, will be \$420,263.00. <u>Id.</u> The total, in today's dollars, annual operation cost will be \$463,000.00 and the total annual replacement cost will be \$1,680,705.00. <u>Id.</u>

As is obvious from these figures and attachments, preparation for and responding to a SNF/HLW accident will be extraordinarily burdensome to the Four Counties. It must be recognized that the Four Counties consist of small communities, with a struggling economy and limited tax base. They are unable to shoulder the costs associated with mitigation of the obvious environmental impacts of transporting HLW/SNF through their counties. One can see from these aforementioned representative examples and attachments, the counties in Nevada will encounter significant difficulties in adequately managing an emergency involving SNF/HLW without support from DOE. Despite local responders' present lack of preparation and fiscal wherewithal, DOE will, by their own acknowledgment, be depending on these same entities to manage any incident involving a truck loaded with SNF/HLW. Final SEIS Appendix H, Section H.6.1, Page H-16. DOE must consider a strategy to provide local emergency response training/support as part of its mitigation analysis.

DOE states that they would provide technical advice and assistance at the request of civil authorities. Final SEIS Appendix H, Section H.6.1, Page H-16. However, DOE provides only very limited details on how this will occur before or during an emergency. DOE plans to provide some assistance through the Radiological Assistance Program Regional Coordinator (RAP), which is available 24 hours a day, 365 days a year, with teams that can respond to an incident. Final SEIS Appendix H, Section H.6.1, Page H-16. However, the RAP normally arrives "within four to six hours after notification." Attachment Twelve, Page 3. This leaves four to six hours wherein Nevada emergency responders will have to rely on their own training, equipment and personnel to respond to any and every situation that may arise. While the support of the RAP is welcome, given their protracted response time, DOE can not substitute their services for identifying and considering the training, personnel and equipment needs of Nevada county emergency responders. To do otherwise will leave a large window of time wherein an improperly managed incident could cause severe damage to the environment, the health and the safety of the citizens of the Four Counties.

The Final SEIS also states that planning grants (established under Section 180 (c)) will only be available four years prior to the commencement of shipments through any jurisdiction in Nevada. Final SEIS Appendix H, Section H.7, Page H-19. DOE is proposing a very condensed time frame for the Four Counties to assess their needs, plan for training activities, procure resources and actually conduct all of the necessary training before the first shipments commence. The National Academies recommends providing "at least a base level of assistance at the earliest possible date." National Academies, <u>Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States</u>, 255 (National Academies Press 2006). While more than three to four years before the first shipments may be too early to train specific emergency responders, DOE could focus its efforts on "long-term activities such as planning for equipment procurements, calibrations, upgrades, and replacement of

radiation detection instruments used by emergency responders." <u>Id.</u> at 256. Starting early will also give DOE time to resolve any unanticipated issues such that DOE can transport SNF/HLW without unduly harming the environment in the case of an emergency. Commencing emergency planning as soon as possible is the best method of ensuring that DOE will have the time, with full assurances of necessary future funding, and have actually, adequately prepared all of the counties in Nevada before the first shipment occurs.

Finally, DOE must explain in greater, clearer detail how it plans to implement its emergency response assistance programs. DOE states that it will work with "states and tribes to evaluate current preparedness for safe routine transportation and emergency response and will provide funding as appropriate to ensure that state, tribal, and local officials are prepared for such shipments." Final SEIS Appendix H, Section H.7, Page H-19. One might infer that DOE intends to fund equipment and operating costs. DOE also states that it will provide the grants but, leave it to the "States and tribes" to coordinate with local public officials and describe how they (the States and tribes) would use the grants to provide training to local public safety officials. Final SEIS at H-19. This statement is not sufficient to fulfill DOE's burden of analysis and mitigation of the impacts of transporting SNF/HLW. Training is only one component of the NEPA burden of analysis for mitigation and DOE should be focusing their analysis on the needs of local and tribal governments, rather than merely providing a block grant to the state. A September 2008 report by the Nevada State Legislature Audit Subcommittee on the capabilities of Nevada's Department of Emergency Management Division (DEM) found that DEM "has not demonstrated adequate oversight of or coordination with other entities in preparation of their emergency operation plans or emergency response plans," DEM has a burden under Federal Homeland Security law to coordinate emergency plans among the state, political subdivisions and tribes, but could not locate plans for 53 of 95 entities, and DEM did not have a process to track emergency equipment that can minimize the impact of a disaster. Attachment Seven, Paragraph 4. Clearly, the state of Nevada is not capable or dependable in preparing emergency responders for SNF/HLW incidents. Regardless of the adequacy of state emergency response preparation, local responders, not states, will be the parties primarily responding to an incident. Yet, DOE has not provided any information or quality assurance that local responders will receive the technical support and training necessary to mitigate impacts of any accident. DOE, as the agency with experience handling and transporting SNF/HLW must take a pro-active role in this process in order to ensure local communities have a solid understanding of and the personnel and tools to fulfill their burdens and responsibilities in responding to a SNF/HLW incident are by augmenting the EIS in order to meet the requirements for a NEPA analysis. Implementing this mitigation tactic will limit the harmful environmental impacts flowing from a SNF/HLW transportation accident.

In summary, DOE clearly has not met its burden under NEPA to analyze its proposed action and provide mitigation. One very obvious way in which DOE must mitigate the impacts of its proposed action of transporting SNF/HLW through Nevada is to provide technical assistance and fully support local jurisdictions so that they can effectively respond and contain the harmful environmental impacts of any accidents. DOE's statement in the Final SEIS that it plans to comply with 180 (c) is insufficient because the discussion is limited to generalities of complying with a separate, very limited statutory provision, rather than providing concrete details and analysis required by NEPA. NRC should not adopt the Final SEIS, as currently written, because significant and substantial considerations regarding emergency responders render these portions of the Final SEIS inadequate.

### IV. Statement concerning whether the contention is a joint contention.

This is a joint contention filed by Churchill, Esmeralda, Lander and Mineral Counties (The Four Counties). The parties will act by unanimous concurrence through Armstrong Teasdale, LLP.

### 1. Referenced documents

- 1. Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F-S1).
- 2. Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F).
- 3. National Academies, Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States, 255 (National Academies Press 2006).
- 4. Mineral County Office of Nuclear Projects, "Preliminary Assessment of Emergency Response Capabilities for Proposed Shipments to Yucca Mountain," December 1, 2003, LSN Accession Number MNE00000006.
- Esmeralda Repository Oversight Program Office & NWOP Consulting, Inc., "Esmeralda County Repository Oversight Program Baseline 2007," 3/30/2008, LSN Accession Number ESM000000018.

## I. Joint Contention – The Nevada Counties of Churchill, Esmeralda, Lander, and Mineral (4NC-NEPA-3)

# II. Insufficient analysis in Environmental Impact Statement of significant & substantial new considerations related to selection of SNF transportation container, which renders Environmental Impact Statement inadequate.

### **III.** Contention

### 1. Statement of issue of law or fact 2.309(f)(1)(i)

Applicant failed to effectively address significant and substantial new considerations in the Final Supplemental Environmental Impact Statement (Final SEIS) related to the differing impacts of alternative types of transportation canisters used upon worker safety estimates at the Yucca Mountain Repository as required by the National Environmental Policy Act (NEPA), as applied in the Nuclear Waste Policy Act. 42 U.S.C. § 4321 et seq. (2006) (setting out the requirements of NEPA); 42 U.S.C. §10247 (2006) (applying NEPA to the NRC process). Because the type of shipping canisters selected by commercial generators affects whether fuel must be repackaged before emplacement and repackaging can increase exposure to radiation, the varying effects of the alternative containers on the human environment must be considered. DOE must provide an analysis of this variable and means to mitigate harmful impacts to the human environment in the EIS. See 40 C.F.R. § 1502.1 (2008). Furthermore, the Nuclear Regulatory commission may adopt the EIS only if the document is complete and in compliance with NEPA and its implementing regulations. 10 C.F.R. § 51.109(a)(1) (2008). Because the Final SEIS, as submitted by DOE, is not complete with respect to the impacts of differing Spent Nuclear Fuel (SNF) canister utilization estimates and correlating impacts on worker safety, NRC erred in adopting these sections of the Final SEIS.

### 2. Explanation of basis 2.309(f)(1)(ii)

The document does not contain a sufficiently complete analysis of the distinctly different exposure risks to Yucca Mountain Repository workers resulting from DOE's proposed action to transport SNF in TADs and DPCs because DOE does not correctly estimate the numbers of each of these two distinctly different canisters, which commercial generators will utilize in shipping SNF to Yucca Mountain. Specifically, the quantities of DPCs are substantially under-estimated in DOE's evaluation, which will result in higher worker radiation risks as a consequence of the necessary additional handling related to repackaging. DOE has a burden, under NEPA and applicable regulations, to correctly analyze the proposed action, alternatives and mitigation measures. Section 114 (f) Nuclear Waste Policy Act (2006); 40 C.F.R. § 1502.1 (2008). The purpose of this analysis is to provide a "full and fair discussion of environmental impacts," in order to ensure NRC and DOE have analyzed all of the environmental impacts of DOE's proposed action before NRC grants a license. § 1502.1 (2008). DOE failed to meet its burden of analysis regarding both the proposed action (the quantities of SNF to be placed, respectively, in TADs & DPCs) and the resulting impacts on worker

safety at the Repository. These analyses are significant and substantial considerations to NRC's decision to grant a license, as NRC must determine, based on the content of the EIS, whether it is practicable to adopt the EIS. 10 C.F.R. § 51.109(c) (2008). The only way NRC can correctly make this determination is to require that the EIS be complete and thorough with respect to the environmental and worker safety impacts resulting as a consequence of canister handling at the repository by either mandating that DOE further supplement the EIS, or conditioning the granting of a license on appropriate measures resolving these issues. 10 C.F.R. § 51.109(c)(2008).

### 3. Issue is within scope of proceeding 2.309(f)(1)(iii)

The purpose of the EIS component of the application process is to provide clarity, guidance and disclosure, as required by NEPA, on the environmental impacts of constructing the repository, delivering, storing and disposing of SNF/HLW at the Yucca Mountain Repository. *See* 40 C.F.R. §1502.1 (2008); 10 C.F.R. § 1021.103 (adopting CEQ NEPA regulations for DOE actions). "Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects which cannot be avoided," is an understanding that the EIS will discuss the extent to which adverse effects can be avoided." <u>Robertson v. Methow Valley Citizens Council</u>, 109 S.Ct. 1835, 1847 (1989). Thus, NEPA does require DOE to consider the impacts and alternatives to the "adverse effects" of an increased reliance on DPCs.

The type of canister DOE will receive at Yucca Mountain and the resulting impacts on the environment and workers at the site are clearly a "major process" of the repository, with significant and substantial impacts on the environment, requiring accurate analysis. In addition, this issue is within the scope of this proceeding; DOE included an inaccurate analysis of the percentage of both TADs and DPCs to be shipped to the Repository, as well as resulting estimates of health and safety impacts to workers and to members of the public for each repository analytical period in the Final SEIS. Final SEIS, Section S.2.3.1, Page S-13; Section S.4.1.7, Page S-34; Section 4.1.7.2.3, Page 4-64 & Table 4-23, Page 4-66. The impacts on worker safety are of particular concern to Churchill, Esmeralda, Mineral and Lander Counties (the Four Counties) because, by virtue of their proximity to the Repository, residents of each of the Four Counties are likely to be employed at the Repository during the operations period. These employees can reasonably be expected to handle SNF/HLW during the course of their employment and, therefore, be directly impacted in terms of both their personal health and that of the surrounding environment, by the aforementioned concerns resulting from what type of container DOE receives SNF in.

Complete compliance with the NEPA statutory and regulatory mandates ensures that NRC will license the Repository only if DOE has comprehensive plans and procedures to utilize SNF transport containers in a manner that will not unduly harm the human or natural environment. *See* 40 C.F.R. §1502.1 (2008) (stating that the primary purpose of the EIS is to serve as an action-forcing device to insure...policies and goals defined in the Act are infused into ongoing programs and actions of the Federal Government).

### 4. <u>Issue is material to findings NRC must make</u> 2.309(f)(1)(v)

Section 114 (f) of the Nuclear Waste Policy Act and 42 U.S.C. §10247 (2006), applying the requirements of NEPA to the Yucca Mountain repository licensing process, require the Department of Energy to submit an Environmental Impact Statement, along with the License Application, to the Nuclear Regulatory Commission. NEPA and its implementing regulations require any agency proposing to undertake a "major federal action" to prepare an environmental impact statement considering both the impacts of the proposed action and the alternatives to the action. 42 U.S.C. § 4331 et seq. (2006). In addition, DOE is required by NEPA regulations to consider "means to mitigate adverse environmental impacts" in the EIS. 40 C.F.R. § 1502.14 (2008).

Once DOE has prepared and submitted the EIS to the NRC, the NRC must determine whether to adopt the EIS or seek further supplementation of the EIS. 10 C.F.R. § 51.109(c)(1)-(2) (2008). Applicable regulations state that the NRC shall find it "practicable" to adopt any environmental impact statement unless "significant and substantial new considerations render such environmental impact statement inadequate." Id.

# a. Department of Energy failed to provide a comprehensive analysis of the impacts of the realistic proportions of differing TAD and DPC canister utilization in the Final SEIS, as required of the agency by NEPA and NWPA.

The Final SEIS, submitted by the DOE, does not meet the Agency's regulatory burden of analysis for an EIS. The document should contain a comprehensive analysis of both the proposed action and alternatives to the proposed action, as well as mitigation measures. 42 C.F.R. § 1502.1 (2008); 40 C.F.R. § 1502.14(f) (2008). The EIS fails to analyze or provide complete information about the proposed action of shipping SNF by TADs or how DOE will actually put TADs into use from the outset of repository operations. The percentage of SNF shipped in TADs versus DPCs will have a significant and substantial impact on worker safety/exposure and, correspondingly, the accuracy of DOE's estimated health impacts to workers during operations at the Repository.

The Final SEIS fails to fully address or analyze the repository transportation plan: the differing consequences of the types and numbers of containers DOE and commercial generators will utilize for shipments of SNF. The Final SEIS included an estimate of 307 DPCs and 6,499 TADs shipped to the Repository by generators under a 90% TAD utilization rate or 310 DPCs and 5,526 TADs under at 75% TAD utilization rate. Final SEIS Appendix A, Section A.2.1, Page A-3. This estimate of DPC usage is arbitrary and, in all likelihood, unrealistically low. DOE has reached no agreement related to the use of TADS with any of the commercial generators, including responsibility for purchasing or timeframe for utilization of TADs. Also, DOE has not addressed whether commercial generators will repackage SNF already packaged and in dry storage. Commercial Generators are much more likely to ship a significantly greater number of DPCs than DOE estimates in the Final SEIS. DOE needs to address an increased incidence of DPCs

usage in the Final SEIS since DOE will likely need to repackage DPCs at the repository, increasing environmental and worker radiation exposure. Attachment Sixteen. DOE does not address these issues separately or in conjunction with its scrutiny of worker safety.

DOE must provide an analysis of how selection of transportation containers by commercial generators and DOE will change or impact their worker safety/exposure estimates. Otherwise, the accuracy of EIS analysis of the environmental impacts is, due to arbitrary assumptions made by DOE, unreliable at best. In short, without this scrutiny of how DOE will ensure utilization of TADs at the 75 to 90% rate, DOE has not sufficiently analyzed the full range of impacts of their proposed action upon the Repository employees handling the material, including residents of the Four Counties.

## b. The NRC erred in deciding to adopt the Final SEIS under applicable regulations for licensing the repository.

The Final SEIS, as submitted by the DOE, does not meet the regulatory standards for adoption by the NRC. In a proceeding for the issuance of authorization to construct the Repository, the Commission is required to adopt the environmental impact statement prepared and submitted by the Secretary of Energy to the extent "practicable." 10 C.F.R. § 51.109(a)(1) (2008). The regulations state NRC shall find it "practicable" to adopt an environmental impact statement unless the action proposed to be taken by the Commission differs from the action proposed in the license application and the difference significantly affect the quality of the human environment or "significant and substantial new considerations render the environmental impact statement inadequate." 10 C.F.R. § 51.109(c)(1)-(2) (2008). Per the March 20, 2008 letter to Mr. Martin Malsch and the October 22, 2008 Federal Register Notice, "substantive claims challenging the FEIS will be considered "new considerations" in the context of § 51.109 (c)." Attachment Five; Attachment Six. In short, the Commission should only accept the Final SEIS, as submitted, if it is not missing any significant and substantial considerations with respect to impacts on worker safety and the environment flowing from transportation containers selected. Contrary to this regulatory standard, NRC adopted the Final SEIS provisions dealing with this issue.

The Final SEIS, submitted by the Secretary of Energy, is incomplete and fails to meet the Commissioner's standard of acceptance under this regulatory section. The document does not adequately address the environmental and worker safety impacts resulting from transportation container selection. In short, the Final SEIS submitted by the DOE is insufficient and, thus, the Nuclear Regulatory Commission's determination to adopt the Environmental Impact Statement with respect to this issue is incorrect. In order to comply with statutory and regulatory burdens of adoption, DOE or NRC must analyze the complex issues presented by receiving SNF at the Repository, in DPCs, at a more realistic number.

5. <u>Statement of alleged facts or opinions and references to be relied upon and references</u> to specific portions of application petitioner disputes 2.309(f)(1)(v)-(vi) DOE has not fulfilled its NEPA obligations because it has not completed an accurate and realistic analysis of the varying impacts resulting from differing container selection on worker safety and the environment. If DOE's predictions about TAD utilization by generators are inaccurate, than DOE's estimates on the environmental and worker safety impacts at the repository are also inaccurate. In order to comply with the statutory and regulatory burden of analysis, NRC must require that DOE include an analysis of the environmental impacts of repackaging waste due to significantly higher numbers of DPCs being sent to the Repository than the figures in the Final SEIS.

The Final SEIS states that DOE will ship approximately 90% of the shipments of SNF in TADs (although DOE also included an analysis of 75% TAD usage in Appendix A of the Final SEIS). Final SEIS Section S.2.3.1, Page S-13 and Section 2.1.1, Page 2-8. However, DOE does not include any specific information regarding how it reached this estimate or why 90% TAD is a reasonable estimate. DOE currently has no agreement in place with any SNF generators regarding who will pay for the TADs or requiring generators to utilize TADs when shipping SNF to the Repository. Attachment Sixteen, Paragraph 6 (a)(i); Attachment Fourteen. In fact, there is reliable information calling this 90% figure into question. Rod McCullum, of the Nuclear Energy Institute, stated at the WIEB meeting on April 23, 2008, that "while utilities generally support the TAD concept, they do not intend to purchase (and load) TADS until... 2017 or later. Meanwhile, SNF... will be placed in dual purpose canisters (DPCs), which utilities do not intend to reload to TADs for shipment." Id. In short, between present day and 2017, commercial generators will be loading DPCs and, by 2017, more than 25% of the SNF will already be loaded into DPCs. Because of the exorbitant expense of repacking, commercial generators are not likely to be willing to repackage all of the SNF already in DPCs before sending the SNF to the repository. Id. Thus, the actual number of DPCs that DOE will have to reload at the repository will probably be significantly and substantially higher than DOE's estimate of 307 DPCs. The industry estimates that by the year 2020 2100 DPCs will be loaded. Attachment Sixteen; Attachment Fifteen. EPRI estimates the number of DPCs requiring repackaging may be as high as 2,155 DPCs. Attachment Sixteen; Attachment Thirteen, Page 4-1. Based on the increase in DPC usage and repackaging, there will be a correlating underestimation of the worker/environmental safety hazards in the Final SEIS. Id.

DOE argues in Appendix A of the Final SEIS that an increase in the number of DPC containers received and repackaged at the repository will have no measureable impact on public health or worker safety. Final SEIS Appendix A, Section A.2.2, Page A-4. DOE states that a the reduction in the number of Canister Receipt and Closure facilities used to handle TADs would offset the external radiation impact to workers from the additional Wet Handling Facility used to handle DPCs. <u>Id.</u> This statement is misleading at best. *See* Attachment Sixteen, Paragraph 10. The total individual dose (rem) for a surface worker at the Wet Handling Facility is 9.3. Final SEIS Appendix D, Section D.4.3., Page D-22. The total individual dose (rem) for a surface worker at the Canister Receipt and Closure Facility is 6.8. <u>Id.</u> An increase in the number of DPCs received at the facility will result in an increase in the number of employees handling DPCs at the Wet Handling Facility, all of whom will be exposed to radiation at an increased level over that of a worker at the Canister Receipt and Closure Facility. *See* 

Attachment Sixteen, Paragraph 10. DOE must discuss this varying level of impact on worker safety as part of its NEPA analysis.

In Conclusion, DOE has not met its EIS burden of analysis for the impact of DPC containers on worker safety and the environment under NEPA and its applicable regulations. DOE is required to realistically analyze its proposed action, alternatives to the action and methods to mitigate impacts in their EIS. NRC should not adopt the EIS because significant and substantial considerations about whether TADs will actually be utilized in the percentage DOE assumes are in the Final SEIS are arbitrary and inaccurate and renders the document inadequate.

### IV. Statement concerning whether the contention is a joint contention.

This is a joint contention filed by Churchill, Esmeralda, Lander and Mineral Counties ("The Four Counties"). The parties will act by unanimous concurrence through Armstrong Teasdale, LLP.

### 1. Referenced Documents

1. Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F-S1).

## I. Joint Contention – Nevada Counties of Churchill, Esmeralda, Lander, and Mineral (4NC-SAFETY-1)

## II. Insufficient analysis in the License Application and SAR of transportation container usage and correlating impacts on worker safety.

### **III.**Contention

### 1. Statement of issue of law or fact 2.309(f)(1)(i)

The Department of Energy (DOE) is required to include, in the Safety Analysis Report (SAR), a description of the "processes" of the site that might affect the design of the geologic repository operations area and performance of the geologic repository. 10 C.F.R. § 63.21(c)(1) (2008). The type of container DOE will receive at the repository and the resulting impact of that shipping container selection on Repository worker safety is one such "process" DOE must analyze in the SAR. The Nuclear Regulatory Commission (NRC) may only authorize construction of the repository at Yucca Mountain if there is "reasonable assurance" that the radioactive material can be "received and possessed in a geologic repository operations area…without unreasonable risk to the health and safety of the public." 10 C.F.R. § 63.31(a)(3)(vi) (2008). In order to make such a conclusion, the Commission shall consider whether "DOE's proposed operating procedures to protect health and to minimize danger to life or property are adequate." 10 C.F.R. § 63.31(a)(3)(vi) (2008). Thus, NRC should consider the impacts on worker safety resulting from an accurate estimate of the type and number of canisters used to ship SNF to the repository.

### 2. Explanation of basis 2.309(f)(1)(ii)

DOE failed to effectively address key issues regarding the packaging of SNF in the Safety Analysis Report (SAR). The Department is required to address the issues critical to the safe operation of the repository under 10 C.F.R. § 63.21(c)(1)(2008) and NRC is required to consider these issues before granting authorization under 10 C.F.R. § 63.31(a)(3)(vi) (2008). One such issue critical to the safe operation of the repository is the canister design utilized in shipping SNF to Yucca Mountain. As DOE notes in the SAR, TADs "minimize handling of...SNF at the repository" because they do not need to be repackaged. Conversely, DPCs increase handling and worker exposure because DOE must repackage SNF received in DPCs at the repository. SAR Chapter 1, Section 1, Page 1-2. DOE proposes shipping 90% of SNF in TADs, but significant factors call into question whether this estimate is realistic or practical. In fact, it is more likely that Yucca Mountain will receive SNF in TADs at a significantly smaller percentage. The SAR does not address many of the issues related to the use of TADs, such as who will purchase the TADs and arbitrarily assumes that commercial generators will repackage significant quantities of fuel, currently held in DPCs and to be packaged in DPCs during future years, into TADs before shipping. Due to these uncertainties, DOE has failed to effectively address this key process.

### 3. <u>Issue is within scope of proceeding 2.309(f)(1)(iii)</u>

The NRC must make a determination that the repository can operate in a manner that does not cause unreasonable risk to the health and safety of the public. 10 C.F.R. § 63.31(a)(3)(vi) (2008). In order to make this determination, DOE has the responsibility of providing all the requisite information and fully analyzing all of the processes related to operating the Yucca Mountain Repository safely. DOE anticipates packaging and handling SNF received at the repository in a specific manner (90% TAD, 10% DPC). *See* SAR Chapter 1, Section 1.2.1, Page 1.2.1-3. Therefore, NRC must consider whether DOE has provided reasonable assurance on how the 90% TAD-based plan will likely come to fruition because, if it will not, than DOE has failed to meet their burden of analysis. 10 C.F.R. § 63.31(a)(3)(vi) (2008). Due to DOE's obvious failure to fully analyze this important aspect of its plan to transport SNF in TADs, with only a 10% supplementation by DPCs, neither NRC nor any interested parties can determine whether the DOE plan provides reasonable assurance of no unreasonable risk to health and safety of the public.

### 4. Issue is material to findings NRC must make 2.309(f)(1)(v)

The DOE must include, in the SAR, a description of the processes of the site that might affect the design of the geologic repository. 10 C.F.R. § 63.21(c)(1) (2008). In addition, before NRC can issue a license for construction of the repository, there must be "reasonable assurance" that radioactive material can be "received and possessed in a geological repository operation area...without unreasonable risk to health and safety to the public." 10 C.F.R. §63.31(a)(3)(vi) (2008). In short, DOE must write the SAR in a manner that provides assurance that DOE has analyzed all aspects of the Yucca Mountain Projects from a safety standpoint. Unfortunately, DOE has not done so. The SAR states that the repository "surface facilities are based on the concept of a 90% TAD canistered approach for handling commercial SNF." SAR Chapter 1, Section 1, Page 1-2. However, a number of uncertainties surround whether DOE will actually be able to follow through with their TAD-based plan. If DOE can not meet the 90% TAD target, the result will be DOE repackaging a significantly higher amount of SNF at the repository. If DOE does have to repackage a higher proportion of the SNF than the SAR anticipates, the impacts on worker safety would be significant. Due to the deficient analysis of the feasibility of implementing the use of TADs and DPCs, the Commission simply does not have "reasonable assurance" from DOE that the Repository can receive SNF in a manner that minimizes harm to workers at the repository, many of whom are likely to be citizens of the Four Counties.

5. <u>Statement of alleged facts or opinions and references to be relied upon and references</u> to specific portions of application petitioner disputes 2.309(f)(1)(v)-(vi)

DOE has not fulfilled its NEPA obligations because it has not completed an accurate analysis of the impact of the differing type and number of containers received at the repository on worker safety at the repository. If DOE's predictions as to the percentage of TAD utilization in shipping by commercial generators are

inaccurate, than DOE's estimates on the environmental and worker safety impacts from receipt of SNF at the repository will also be inaccurate. In order to comply with the statutory and regulatory burden of analysis, DOE and/or NRC must include an analysis of the safety impacts of repackaging waste at the repository under a scenario in which DOE receives significantly higher numbers of DPCs at the Repository than the 10% figure set out in the Final SEIS.

The SAR states that generators will package approximately 90% of the shipments of SNF in TADs. SAR Chapter 1, Section 1.2.1, Page 1.2.1-4. However, DOE does not include any specific information regarding how it reached this estimate or why 90% TAD is a reasonable estimate. DOE currently has no agreement in place with any SNF generators regarding who will pay for the TADs or whether generators plan to use TADs when shipping SNF to the Repository. Attachment Sixteen, Paragraph 6(a)(i). In fact, there is reliable information calling this 90% estimate into question. Rod McCullum of the Nuclear Energy Institute stated at the WIEB meeting on April 23, 2008 that "while utilities generally support the TAD concept, they do not intend to purchase (and load) TADS until... 2017 or later. Meanwhile...SNF will be placed in dual purpose canisters (DPCs), which utilities do not intend to reload to TADs for shipment." Attachment Sixteen, Paragraph 6(a)(i); Attachment Fourteen. In short, between present day and 2017, commercial generators will be loading DPCs and, by 2017, more than 10% of the SNF will already be loaded into DPCs. Because of the exorbitant expense of repacking, commercial generators are not likely to be willing to repackage all of the SNF already in DPCs before sending the SNF to the repository. Id. Thus, it is probable that the actual number of DPCs that DOE will have to handle and reload at the repository will be significantly and substantially higher than DOE's estimate of 307 DPCs. In fact, EPRI estimates the number of DPCs requiring repackaging may be as high as 2,155 DPCs. Attachment Sixteen; Attachment Thirteen, Page 4-1 Based on the increase in DPC usage and repackaging, there will be a correlating increase in the worker safety hazards, which is not fully or adequately addressed by the SAR. Attachment Sixteen, Paragraph 10.

In Conclusion, DOE has not met its burden of accurate analysis for the impact of DPC containers on worker safety and the environment under the applicable regulations at the repository. DOE is required to describe the "processes" of the site that affect the design and performance of the repository and the type of container DOE will receive at the repository is one such "process." And, NRC may only authorize construction if there is "reasonable assurance" that SNF can be received without unreasonable risk to health and safety of the public. NRC

### IV. Statement concerning whether the contention is a joint contention.

This a joint contention filed by Churchill, Esmeralda, Lander and Mineral Counties ("The Four Counties"). The parties will act by unanimous concurrence through Armstrong Teasdale, LLP.

### 1. <u>Referenced documents</u>

a. Yucca Mountain Repository License Application, Safety Analysis Report. DOE/RW-0573 REV 0. 2008.

### C. <u>CONCLUSION</u>

The Four Nevada Counties request that its petition to intervene be granted and that its specific contentions proposed herein be admitted for hearing.

Respectfully Submitted,

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Robert F. List

Senior Counsel Armstrong Teasdale LLP 1975 Village Center Circle Suite 140 Las Vegas, NV 89134

(702)733-6700

Dated in Las Vegas, Nevada This 19<sup>th</sup> day of December 2008

#### ATTACHMENT 1

### AFFIDAVIT OF ENGELBRECHT VON TIESENHAUSEN

I, Engelbrecht von Tiesenhausen, being first duly sworn, hereby depose and state as follows:

1. I am a citizen of the United States, and a resident of Las Vegas, Nevada.

2. My formal education consists of the following: A Bachelor of Applied Science from the University of British Columbia and a Master in Business Administration from Pepperdine University

3. My professional employment experience with respect to nuclear waste disposal, is as follows: For more than 18 years I was the technical advisor to Clark County on the Yucca Mountain Program

4. I have reviewed and am familiar with the applicable parts of the Yucca Mountain Repository License Application filed by the Department of Energy ("DOE") with the Nuclear Energy Commission ("NRC") in June, 2008 (the "LA") as they relate to this contention.

5. I have also reviewed and am familiar with the applicable parts of the Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F-SI) ("SEIS") and the Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F-SI) ("SEIS") as they relate to this contention.

6. It is not practicable for the NRC to adopt the DOE environmental impact statement (the FEIS), as it has been supplemented (in the SEIS), based upon the

significant and substantial new information and new considerations set forth below which render the FEIS and the SEIS (together, the "NEPA Analyses") inadequate.

7. The NEPA Analyses potentially substantially underestimates the number of shipments of truck casks of SNF and HLW which are likely to take place on highways within the Nevada Counties of Churchill, Esmeralda, Lander and Mineral Counties (the "Four Counties"), and fails to adequately quantify, analyze and consider the traffic volumes in the Four Counties, all as set forth below.

(a) The DOE in its SEIS assumes and states that the number of shipments of truck casks of SNF and HLW to the repository will be "approximately"
2700 (SEIS Sections 2.1.7.2, page 2-45, and 6.1.7, page 6-8). These assumptions are not bounding, as described in the following analysis:

(i) The DOE assumption of the number of truck shipments is based on yet to be concluded legal agreements with the utilities and the construction of a rail line to Yucca Mountain. It is arbitrary to premature make conclusions on contracts that may or may not be concluded, rail lines that may or may not be constructed in a timely manner, and may or may not ever be constructed. It is equally valid to assume that the agreements will not be finalized in a timely manner and/or that the rail line and/or the TAD's will not be available at the time currently assumed by the DOE. In anticipation of that case, an analysis of the impacts of increased truck shipments should have been made. Given that the preferred action is the disposal of 292,000 fuel assemblies (167,000 BWR and 125,000 PWR) and currently available truck casks have a capacity of 4 PWR or 9 BWR assemblies, the total number of truck shipments for commercial SNF could come close to 49,000. (LA Section 1.2.1, Page 1-15). the total number of truck shipments for DOE SNF could be as high as 3,470 (FEIS

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Table J-1, Page J-11) and the total number of truck shipments for HLW could be as high as 8,315. (FEIS Table J-1, Page J-11). Hence, the total number of truck shipments could be approximately 61,000. While this is admittedly a worst case scenario, DOE should analyze the effects of shipping more than 10% of the SNF and HLW by truck to the Yucca Mountain repository.

(b) The failure to estimate the effects the of such truck shipments as described in Paragraph 7(a)(i) above is a fatal flaw in the NEPA Analyses in that a valid estimate of the number of such shipments is vital to the determination of the environmental impacts and environmental effects upon the repository and its related processes, as reflected in the accompanying affidavit of Roger Patton, P.E. – Attachment 3 to this contention.

8. The absence of the data described in 7 above is a fatal flaw in the NEPA Analyses in that a valid estimate of the number of such shipments is vital to the determination of the environmental impacts and environmental effects of the repository and its related components.

DATED this  $18^{4}$  day of December, 2008.

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ENGELBRECHT VON TIESENHAUSEN

State of Nevada ) )ss. County of Clark )

Subscribed and sworn to before me this  $\underline{\mathbb{B}^*}$  day of December, 2008

Notary Public



### **ATTACHMENT 2**

#### **AFFIDAVIT OF REX J. MASSEY**

I, Rex J. Massey, being first duly sworn, hereby depose and state as follows:

1. I am a citizen of the United States, and a resident of Reno, Nevada.

2. I earned a MBA from the University of Nevada and received a BS from Willamette University in Salem, Oregon.

3. I am a principal in Research and Consulting Services, Inc., and on behalf thereof I have participated in evaluations of potential impacts of the Yucca Mountain since 1991 representing Lander and Churchill Counties in Nevada. My professional employment experience includes more than 20 years of experience in planning and management services to government agencies and private entities focusing on development related projects, planning, public financing, project feasibility and environmental analysis. I have completed a number of impact reports related to the Yucca Mountain project in the areas of transportation, risk and local emergency response.

4. My experience with respect to the Yucca Mountain Project consists of the functioning as the program manager for the Churchill and Lander County Yucca Mountain Oversight Programs for the last 15 years.

5. I have reviewed and am familiar with the contents of the Yucca Mountain Repository License Application filed by the Department of Energy ("DOE") with the Nuclear Energy Commission ("NRC") in June, 2008 (the "LA").

6. I have also reviewed and am familiar with the contents of the Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F-SI ("SEIS") and the Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F) ("FEIS") (collectively referred to herein as "the NEPA Documents").

7. From 2000 to 2004, I served as the Chairman of the Transportation Working Group established by the U.S. Department of Energy National Security Administration (NSA) Nevada Site Office in conjunction with the Nevada Test Site Waste Management program. The program's primary mission is to manage legacy radioactive waste generated by the U.S. Department of Energy and defense industry activities. The program is responsible for the proper acceptance and disposal of low-level and mixed low-level waste in compliance with applicable federal, state and local laws. Other program activities include management of transportation and coordination of rural county emergency response grants.

(a) In a related federal action, a Record of Decision was issued at Washington, DC, December 9, 1996, entitled Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada, DOE/EIS-0243 (the "NTS EIS"). Among other requirements, the NTS EIS mandated that DOE establish stakeholder interactions thus they formed the Transportation Working Group to address regional transportation concerns. DOE utilized the Transportation Working Group to fulfill the transportation requirements identified in the NTS EIS. Among its activities were the following:

- Coordinating, and determining the needs of local emergency-response actions and establishing financial requirements to meet those needs;
- Implementation of a policy whereby low-level radioactive waste, mixed low-level radioactive waste and transuranic waste to and from the Nevada Test Site avoided the Las Vegas Valley.

(b) The efforts of DOE and the Transportation Working Group to effectively require such shipments to avoid the Las Vegas Valley and more specifically Interstate 15 and U.S. Highway 95 through the Las Vegas area are well documented in the Annual Transportation Report for Radioactive Waste Shipments to and From the Nevada Test Site (FY 2000 to Current) prepared by the U.S. Department of Energy National Nuclear Security Administration Nevada Site Office, Las Vegas Nevada.

(c) The Nevada Test Site Waste Acceptance Criteria DOE/NV-325-Rev. 7, June 2008 specifically directs shippers to avoid Las Vegas. Page 6-6 of the Waste Acceptance Criteria states, "Generators shall ensure that a National Environmental Policy Act (NEPA analysis (Title 10 CFR 1021) of the potential waste transportation impacts is completed prior to waste shipment Transportation of waste to the NTS should conform to a supporting finding or decision based on the impact analysis. NNSA/NSO encourages approved generators and their carriers to review route selections. Transportation of LLW and MW to the NTS shall avoid Hoover Dam and Las Vegas. Routes selected are required to minimize radiological risk. Information on accident rates, time in transit, population density, construction activities, and time of day shall be considered when determining radiological risk."

8. Contrary to the assumption in the NEPA Documents that truck shipments will take place along U.S. 95 south of Yucca Mountain, it is highly unlikely that the such shipments will occur. Shipments of <u>high-level</u> waste through the Las Vegas Valley to the Yucca Mountain Repository would be totally inconsistent with and contrary to DOE's long-standing policy of precluding the shipment of even <u>low-level</u> waste through the Las Vegas Valley. Avoidance of the Las Vegas Valley by such shipments will inevitably lead to a concentration of overweight truck shipments on U.S. 95 through the Nevada Counties of Churchill, Esmeralda, and Mineral, and across Interstate 80 through Churchill and Lander County (the "Four Counties"), with consequential environmental impacts upon both the emergency response capacity and the impacts of transportation by truck as set forth in the contentions and described by the other accompanying affidavits. Furthermore, these impacts would be exponentially increased based upon the increased

volume of truck traffic as set forth in the Affidavit of Engelbrecht von Tiesenhausen, which is also attached to the contention addressed hereby.

9. It is my opinion that in stating that the number of shipments of truck casks of SNF and HLW to the repository will be "approximately" 2700 (SEIS Sections 2.1.7.2, page 2-45, and 6.1.7, page 6-8), the NEPA Documents fail to accurately quantify the number of shipments of truck casks of SNF and HLW which are likely to take place on highways within the Four Counties.

10. The failure to accurately estimate the number of such truck shipments within the Four Counties as described above is a fatal flaw in the NEPA Documents. A valid estimate of the number of such shipments is vital to the determination of the environmental impacts and environmental effects of the repository and its related components

11. It is not practicable for the NRC to adopt the DOE environmental impact statement (the FEIS), as it has been supplemented (in the SEIS), based upon the significant and substantial new information and new considerations set forth above which render the NEPA Documents inadequate.

DATED this day of December, 2008

Rex J. Massey

State of Nevada ) )ss. County of Washoe)

Subscribed and sworn to before me this <u>/6</u> day of December, 2008

Notary Public



### ATTACHMENT 3

### AFFIDAVIT OF ROGER PATTON, P.E.

I, Roger Patton, being first duly sworn, hereby depose and state as follows:

1. I am a citizen of the United States, and a resident of Las Vegas, Nevada.

2. My formal education consists of the following: Cornell University, Bachelor of Science in Civil Engineering, 1976; Cornell University, Master of Engineering (Civil), 1977.

3. A summary of my professional qualifications and experience are as follows: I am a Senior Vice President with the Louis Berger Group, a nationally and internationally recognized consulting firm specializing in providing professional transportation engineering services.

I am licensed by the States of Nevada and Arizona as a Professional Engineer.

I have been employed as a Transportation Engineer with the Louis Berger Group for 30 years. For the last 17 years I have directed and managed the firm's Nevada offices. During this period I have served as principal-in-charge for the planning and design of numerous highway projects in Nevada as a consultant to the Nevada Department of Transportation, Clark County, the Regional Transportation Commission of Southern Nevada and other agencies. These projects have included the Widening of I-15 in Las Vegas, the Widening of US-95 in Las Vegas, the Widening of I-515 in Las Vegas, the Las Vegas Beltway, the Carson City Freeway and Improvements to the I-80/US-395 Spaghetti Bowl Interchange in Reno.

In conjunction with these projects, I have served as Project Manager for the preparation of Environmental Impact Statements for the widening of the US-95 and I-515 Freeways in Las Vegas and for the construction of the Southern Segment of the Las Vegas Beltway.

4. In the course of this engagement and in the establishment of the conclusions reached herein, I have utilized the service of Frank Csiga Jr, P.E., Manager of the Northern Nevada operations of The Louis Berger Group, whose credentials include having served for 28 years with the Nevada Department of Transportation where he most recently held the position of Chief Road Design Engineer.

5. I am familiar with the provisions of the National Environmental Policy Act.

6. I have reviewed and am familiar with the applicable parts of the Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F-SI) ("SEIS") and the Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250F) ("FEIS") as they relate to the contention to which this affidavit applies.

7. It is not practicable for the NRC to adopt the DOE environmental impact statement (the FEIS), as it has been supplemented (in the SEIS), based upon the significant and substantial new information and new considerations set forth below which render the FEIS and the SEIS (together, the "NEPA Analyses") inadequate.

8. The NEPA Analyses fail to recognize, analyze, and consider the environmental impacts and environmental effects of the truck shipments of spent nuclear fuel ("SNF") and high level waste ("HLW") to be shipped to the Yucca Mountain repository upon and within the Nevada Counties of Churchill, Esmeralda, Lander and Mineral (the "Four Counties") as set forth below.

9. Shipment of SNF and HLW by truck using Nevada Highways: According to the SEIS "Under the Proposed Action, the Department would transport most spent nuclear fuel and high-level radioactive waste from 72 commercial and 4 DOE sites to the Repository in NRC-certified transportation casks or trains dedicated only to those shipments. However, DOE would transport some shipments to the Repository in transportation casks by truck over the nation's highways."<sup>1</sup> In addition to the shipment of

<sup>&</sup>lt;sup>1</sup> SEIS, page 2-1

approximately 9,500 rail casks by train in rail corridors<sup>2</sup> through Nevada, the SEIS analyzed the shipment of approximately 2,700 truck casks<sup>3</sup> of SNF and HLW on highways through Nevada to the Repository as a part of the Proposed Action. The SEIS makes it clear that the DOE's Proposed Action will include the transportation of SNF and HLW by truck using Nevada highways.

While 2,700 shipments of SNF and HLW will definitely be transported by truck through Nevada with the Proposed Action, the accompanying affidavit of Engelbrecht Von Tiesenhausen indicates that the actual number of truck shipments through Nevada could potentially increase to the neighborhood of 61,000 truck shipments under a worstcase scenario whereby the construction of proposed rail lines in Nevada are substantially delayed.

10. Overweight Trucks on Nevada Highways: According to the SEIS, "Trucks that carried transportation casks probably would be overweight rather than legal weight"<sup>4</sup>. Trucks with gross vehicle weights less than 36,000 kilograms (80,000 pounds) are defined as being of legal weight on the nation's highways and were initially evaluated in the FEIS as a potential transportation mode for SNF and HLW. However, "DOE has since determined that trucks carrying truck casks would be more likely to have gross vehicle weights in the range of 36,000 kilograms to 52,000 kilograms (115,000 pounds)."<sup>5</sup> As proposed and evaluated in the SEIS, the truck shipments of SNF and HLW would be transported to the Repository using overweight trucks on Nevada highways as part of the DOE's Proposed Action.

The SEIS identified and analyzed 11. Representative National Routes: representative national truck routes from SNF and HLW origination sites throughout the United States to the Repository in Nevada. The representative national truck routes identified and analyzed in Nevada include only I-15, CC-215 (the Las Vegas Beltway)

<sup>&</sup>lt;sup>2</sup> Rail Corridors are evaluated in the Nevada Rail Corridor SEIS and the Rail Alignment EIS as well as in the SEIS.

<sup>&</sup>lt;sup>3</sup> SEIS, page 2-45 <sup>4</sup> SEIS, page 2-45

<sup>&</sup>lt;sup>5</sup> SEIS, page 2-45

and US-95. The specific truck routes to the Repository in Nevada<sup>6</sup> analyzed in the SEIS are:

- South on I-15 from Utah to Las Vegas, west along the Northern Beltway (a) (CC-215) through the Las Vegas Valley and then northwest on US-95 to the Repository; and,
- North on I-15 from California to Las Vegas, north along the Western (b) Beltway (CC-215) through the Las Vegas Valley and then northwest on US-95 to the Repository.

While the SEIS identified and analyzed only these two specific truck routes in Nevada, it states that "At this time, before receipt of a construction authorization for the Repository and years before a possible first shipment, DOE has not identified the actual routes it would use to ship spent nuclear fuel and high-level radioactive waste to Yucca Mountain. However, the highway and rail routes that DOE used for analysis in this Repository SEIS are representative of routes that it could use. The highway routes conform to U.S. Department of Transportation regulations (49 CFR 397.101). These regulations, which the Department of Transportation developed for Highway Route-Controlled Quantities of Radioactive Materials, require such shipments to use preferred routes that would reduce the time in transit. A preferred route is an Interstate System highway, bypass, beltway, or an alternative route designated by a state routing agency. Alternative routes can be designated by states and tribes under U.S. Department of Transportation regulations (49 CFR 397.103) that require consideration of the overall risk to the public and prior consultation with local jurisdictions and other States."7

This statement makes it clear that under U.S. Department of Transportation regulations, a state routing agency, presumably the Nevada Department of Transportation<sup>8</sup> (NDOT), could designate routes to the Repository through the State of Nevada which are different than the representative routes analyzed in the SEIS. Such alternate routes, which certainly exist, have not been identified or analyzed in the SEIS and include routes through the Four Counties.

<sup>&</sup>lt;sup>6</sup> SEIS, Figure 2-12, page 2-47 <sup>7</sup> SEIS, page 6-4

<sup>&</sup>lt;sup>8</sup> FEIS, Appendix J, page J-30

12. Likely Alternative Routes through the Four Counties: Two interstate highways cross the State of Nevada. I-80 crosses the northern part of the State from east to west from Utah to Northern California. I-15 crosses the southern part of the State from northeast to southwest from Arizona (and Utah) to Southern California. Any SNF and HLW waste shipped to the Repository by truck would enter Nevada on I-80 or I-15 since the preferred route in neighboring states is likely to be an Interstate System highway. I-15 is located in Clark County and passes through Las Vegas, the largest and most populous City in the State of Nevada. I-80 extends through Churchill County and Lander County as well as six other Northern Nevada counties.

The proposed Yucca Mountain Repository is only accessible from US-95, a national highway which extends north-south through Nevada from Oregon to Southern California and connects to both I-80 and I-15. While the portion of US-95 from Las Vegas northward to the Repository has been identified and analyzed in the SEIS as a representative truck route, there are several other routes within the State of Nevada which lead from I-80 and/or I-15 to the Repository and which the NDOT would have the authority to designate as alternative routes for the transportation of SNF and HLW.

Without limiting the number of alternative routes that could be considered, two alternative routes which would be likely candidates are:

- (a) I-80 westbound from Utah to US-95 and then US-95 southbound to the Repository. (This route passes through Lander, Churchill, Mineral and Esmeralda Counties); and,
- (b) I-80 eastbound from California to Fernley, Nevada, Alt. US-50 eastbound to US-50, US-50 eastbound to Fallon, Nevada, and then US-95 southbound to the Repository. (This route passes through Churchill, Mineral and Esmeralda Counties.)

These alternative routes, utilizing existing highways in the Four Counties, would avoid the shipment of SNF and HLW by overweight trucks through the Las Vegas Valley. As set forth in the contentions and described by the accompanying affidavit of Rex T. Massey, shipment of SNF and HLW through the Las Vegas Valley to the Repository would be totally inconsistent with and contrary to DOE's long-standing policy of precluding the shipment of even low-level waste through the Las Vegas Valley. In light of this precedent and the obligation which rests with the State of Nevada to designate alternative routes after due consideration of the overall risk to the public, use of the above routes through the Four Counties to avoid the Las Valley is all but a certainty. However, the SEIS does not assess impacts associated with either of these routes which could be designated as alternative routes by the State of Nevada.

I-80 is a four-lane Interstate highway, designed, constructed and maintained to Interstate standards. Alt. US-50 and US-50 are rural highways between Fernley and Fallon which have been recently widened to four lanes by the NDOT. However, US-95 within Churchill, Mineral and Esmeralda Counties is a two-lane rural highway. The FEIS and SEIS do not consider the sufficiency or reliability of US-95, US-50 or Alt. US-50 to accommodate overweight trucks carrying SNF and HLW.

Since US-95 and other rural highways in Nevada are likely to be designated for the transportation of SNF and HLW for all truck shipments to the Repository, then the impacts of the truck shipments and the affects upon the highways should be considered.

The FEIS contends that because trucks transporting SNF and HLW would use existing highways, "measurable impacts would not occur in environmental resource areas other than health and safety in Nevada."<sup>9</sup> Since likely alternative routes for truck shipments in Nevada were not analyzed, measures to identify and mitigate health and safety impacts on highways in the Four Counties have not been addressed in the SEIS.

13. The analysis which follows represents a summary of the estimated environmental impacts and affects upon certain highways and related facilities which are likely to occur by reason of the transportation of SNF and HLW by overweight trucks through the Four Counties.

Rural highways, especially low volume rural highways, are upgraded and maintained less frequently than interstate highways. Accordingly, the initial condition of the roadway and the reliability of maintenance may be insufficient for the safe transportation of SNF and HLW using overweight trucks.

Overweight trucks shipping SNF and HLW will travel at a slower rate of speed than automobile traffic, especially on long ascending grades. This is generally not a problem on four-lane interstate highways where an additional lane is available for passing. However, on two-lane highways such as US-95, faster traffic tends to queue up

<sup>&</sup>lt;sup>9</sup> FEIS, page 6-61

behind slower moving vehicles. Normal operating procedure is for faster traffic to pass slower moving vehicles by temporarily occupying the on-coming traffic lane in locations where there is adequate sight distance and a gap in on-coming traffic. Roadway safety depends upon the skill and judgment of individual motorists as well as the frequency of passing opportunities. As traffic volumes continue to increase in the future, passing opportunities will become less available.

Specific impacts which can be anticipated include the following:

- (a) Traffic safety will decline as traffic backs up behind overweight trucks on two lane highways;
- (b) Traffic safety is also compromised if substandard highway design features are not upgraded to current standards; and,
- (c) Overweight trucks accelerate the deterioration of pavement, shortening pavement life.

Failure to address these impacts with appropriate mitigation could lead to substantially increased accident rates, increased radiological affects, increased air pollution and increased costs to state and local jurisdictions.

As set forth in the contentions and described in the accompanying affidavit of Engelbrecht Von Tiesenhausen, the number of shipments of truck casks of SNF and HLF on the highways within the Four Counties may have been substantially underestimated. While a minimum of 2,700 truck shipments of SNF and HLW can be expected to be transported on highways through the Four Counties, the actual number of truck shipments could potentially be as high as 61,000. The above impacts will be greatly compounded by such underestimation.

14. Our analysis which follows represents a summary of the suggested measures required to mitigate the foregoing environmental impacts.

- (a) Construct passing lanes at intervals of 5 to 10 miles, in accordance with the guidelines of the Transportation Research Board's Highway Capacity Manual, to allow faster traffic to pass;
- (b) Increase shoulder width to a minimum of 8 ft. in accordance with AASHTO<sup>10</sup> guidelines;(c) Provide realignment of the highway in locations with substandard geometrics, in accordance with AASHTO guidelines;

<sup>&</sup>lt;sup>10</sup> American Association of State Highway and Transportation Officials.

- (d) Upgrade roadside design features through the use of guardrail, flattened slopes and improved drainage;
- (e) Construct truck climbing lanes on long upgrades;
- (f) Improve signage to alert drivers to the locations of climbing and passing lanes as safe passing zones;
- (g) Upgrade signage to better designate no-passing zones;
- (h) Upgrade intersection controls and sight visibility zones as warranted; and,
- (i) In accordance with the State of Nevada Highway Preservation Report,
  - Provide corrective maintenance on sections of pavement which have been overlayed within the previous 12 years but show signs of physical deterioration;
  - Re-construct pavement which has not been overlayed within 12 years; and,
  - Provide a pavement maintenance overlay at a minimum of twelve year intervals.

The above mitigation is necessary with the shipment of 2,700 truck casks through Nevada with the Proposed Action. In the worst-case scenario, as described in the affidavit of Engelbrecht Von Tiesenhausen, whereby the actual number of truck shipments of SNF and HLW on Nevada highways may be underestimated by an order of magnitude, widening of US-95 to four lanes would be necessary to provide appropriate mitigation.

15. The collective costs of mitigation for the forgoing environmental impacts and effects during the life of the project are substantial, and should be borne as a project expense.

16. An overweight, over-dimensional truck traveling on the National highway system requires permits from each state through which it travels. The permit may place restrictions on vehicle operations to protect public safety. In Nevada, for example, an overweight truck permit may restrict shipments to daylight hours. The distance traveled by trucks in Nevada may range up to 675 miles following I-80 and US-95 from the Utah border to the Repository. Assuming that the overweight truck permit restricts travel to daylight hours, one or more night-time layover locations will be needed in Nevada. The night-time layover locations may include amenities for the drivers, a refueling station,

inspection area and site security features. The costs to mitigate for permit requirements such as providing for overnight parking, inspections or other features which may only be identified through the permit application process should be borne as a project expense.

17. Section 9.3.1 National Transportation of the SEIS states: "As indicated in the Yucca Mountain FEIS, Section 180(c) of the NWPA requires DOE to provide technical assistance and funds to states for training local government and American Indian tribal public safety officials through whose jurisdictions DOE could plan to transport spent nuclear fuel or high-level radioactive waste. As a specific management action to mitigate impacts, DOE would provide such training. The training would cover procedures for safe, routine transportation and for emergency response situations."

Since transportation routes through the Four Counties could be designated as alternative truck routes for the shipment of SNF and HLW, the costs for training local government representatives in the Four Counties should also be included as a project expense.

DATED: December 15, 2008

Roger Patton, P.E.

State of Nevada ) )ss. County of Clark )

Subscribed and sworn to before me this <u>J</u> day of December, 2008

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U.S. Department of Energy Office of Civilian Radioactive Waste Management



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## Office of Logistics Management Transportation Program Review

Presented to: Nuclear Waste Technical Review Board (NWTRB) Board Fall Meeting

Presented by: Gary Lanthrum Director, Office of Logistics Management

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