NYE COUNTY

July 18, 1996

Mr. William Knoll
Department of the Navy
Code NAVSEA 08U
2531 Jefferson Davis Highway
Arlington, VA 22242-5160

RE: Nye County Comments on Draft EIS for Container System for the Management of Naval Spent Nuclear Fuel

Dear Mr. Knoll:

Nye County is the host jurisdiction for the Yucca Mountain Project, and if pending legislation is passed, will also be designated as the location for the nation's only centralized spent fuel storage facility. The Nye County Board of Commissioners established the Nuclear Waste Repository Project Office to provide local oversight of the Yucca Mountain Project and associated activities, including the potential disposal of naval spent fuel at a geologic repository. We appreciate the opportunity to submit these comments on the Navy's Draft EIS for a Container System for the Management of Naval Spent Nuclear Fuel.

A At the outset, Nye County wishes to repeat our request that a public hearing on the EIS be held in Nye County. Our residents have a direct interest in the Navy's decisions regarding the management of its spent fuel. We are particularly mindful of the fact that decisions regarding Naval spent fuel will set important precedents for how the Department of Energy manages much larger volumes of civilian spent fuel.

B In general, we find that the draft EIS gives insufficient attention to potential impacts of transporting, storing, and disposing of Naval spent fuel in Nevada, and at Yucca Mountain in particular. The lack of attention to impacts in Nevada is especially egregious since Naval spent fuel is likely to be stored or disposed of in Nevada permanently, whereas all such fuel is scheduled to be removed from Idaho by 2035, according to the EIS.

C The analysis of repository impacts does not consider a wealth of site-specific information about the site. Similarly, the transportation analysis ignores the potential rail routes to the site that are actually under consideration and it fails to consider the potential need for long-distance heavy haul transport of spent fuel containers from a rail head to the site.

COUNTY OF NYE • P.O. BOX 153 • TONOPAH, NEVADA 89049 • (702) 482-8191

D The rationale for providing this relatively generic analysis of impacts in Nevada appears to be that Yucca Mountain has not been designated as a repository. We believe this reasoning is flawed. The only repository site that will be available under any foreseeable scenario is Yucca Mountain. We urge that the Navy to provide the most detailed analysis of transportation, storage, and disposal impacts in Nevada that the available data will permit.

Our other comments are keyed to relevant sections of the EIS, as follows:

E **Section 3** The description of alternatives assumes that casks will be transported by rail "using commercial rail lines as part of commonly scheduled trains traveling to the vicinity of a repository...Dedicated trains may be used when appropriate." (p. 3-8, para 2) We note that the closest rail head to Yucca Mountain is some 100 miles away, and that most of the potential routes to the site including the Carlin and Caliente routes are more than 300 miles long. We recommend that the EIS account for these alternatives. We also note that virtually all stakeholders recommend the use of dedicated trains, and we therefore recommend that the transportation analysis assume the use of dedicated trains.

F **Sections 3.1 and 3.6** The analysis assumes that multi-purpose canisters will be placed directly into a repository and not opened. Since repository thermal loads and many other design considerations at the repository are currently unknown, we believe it would be more appropriate (and conservative) to assume that MPCs would be opened at the repository. At a minimum, some MPCs would probably have to be opened to allow inspection and verification of spent fuel characteristics, especially after a long storage period.

Section 3.8

G Risk Assessment Although we do not dispute the assessment of radiological and accident risks, we question its interpretation. Admittedly the potential impacts are very small for all alternatives, but there are significant differences that should be highlighted. For example, table 3.2 shows that there are orders of magnitude differences between, for example, the small MPC and current technology/rail in the number of latent cancer fatalities expected as a result of transportation.

H We also note that the risk analysis does not consider impacts of a terrorist attack or sabotage of a cask. Although we realize these issues (and worst case scenarios in general) pose difficult methodological challenges, they are significant public concerns and must be addressed for the EIS to be credible.

I (p.3-18, last para) This paragraph indicates that the main sources of differences in the radiation doses from accidents or routine operations are the number of people who live near a facility and where they live in relation to the facility. We could not have stated a better reason for using site-specific information about Yucca Mountain.

J Environmental Justice We believe the analysis of environmental justice impacts (p. 3-19, 4-16) is incomplete. It is not sufficient to consider impacts only to minority and disadvantaged populations adjacent to cask manufacturing facilities, as does the EIS. The EIS should also recognize that there is an environmental justice dimension to waste disposal in rural areas. The EIS is, in addition, virtually silent on potential impacts to Native American through whose reservations naval spent fuel could be transported.

K There are fundamental questions of equity that should be addressed as part of the environmental justice assessment. In particular, does disposal of the nation's most toxic material in one jurisdiction (Nye County) impose an unfair burden on that jurisdiction? If so, to what equity offsets should that jurisdiction be entitled?

L Cumulative Impacts (p. 3-25, last two paragraphs) The summary of cumulative impacts states that naval waste would be 3 percent of the total number of containers of civilian spent fuel shipments, and in the next paragraph that total transportation impacts of naval fuel shipments would be 1 to 4 percent of the impact of all shipments. In and of themselves these comparisons are meaningless. What is important in our view is not the *relative* impact of naval shipments, but the *absolute* impact.

Chapter 6

M This chapter is seriously deficient. The last paragraph on page 6-1, for example, is simply astounding in view of the actual situation "on the ground." We find the claim that "A site specific environmental setting cannot be presented here since the exact location of the repository would be needed" to be utterly mystifying. **There is no potential site for a repository other than Yucca Mountain.**

Likewise the last paragraph on page 6-3 states that:

> Several other resources and environmental attributes were evaluated for INEL in Chapter 5. These attributes were not evaluated in detail for a hypothetical geologic repository or centralized interim storage site, since a specific site location is not known, *the impact on the attributes are not expected to be large*, and the evaluation would not help to discriminate among the container alternatives. These areas include ecology, air quality, cultural resources, socioeconomics, water resources, environmental justice, aesthetic and scenic resources, geology, noise, and electricity consumption. (emphasis ours)

N The logic here is puzzling. In effect, this paragraph says that "we chose not to evaluate the impacts of managing naval spent fuel at the repository because we don't think there are going to be any impacts." How can you know this without any analysis?

Section 6.5 on page 6-4 continues:

> Since the amount of spent nuclear fuel and special case low-level waste handled at the repository or centralized interim storage facility will be extremely small when compared to the amount of civilian spent nuclear fuel, cumulative impacts were evaluated qualitatively...It is expected that the environmental impacts due to unloading naval spent fuel and special case low-level waste at the surface facility would be in proportion to the total number of spent fuel containers received at the facility, and thus, these activities would have a small impact on the environment and the surrounding population.

O This is in sharp contrast to the detailed evaluation of cumulative impacts at INEL in section 5.11. Section 6.5 assumes (with no analysis) for the repository site what section 5.11 concludes (after extensive analysis) for INEL, namely, that the cumulative impacts of managing naval fuel are so small in comparison to other activities, such as managing civilian fuel, that they are insignificant. We believe ~~it is indefensible to assume for one section~~ what you conclude for an earlier section.

Chapter 7

P We find many of the same shortcomings in this chapter as in Chapter 6. Section 7.2 states that "It is impossible to select a route since the repository site is unknown." Yet all three routes that are evaluated terminate at Yucca Mountain by way of Las Vegas. None of the actual potential rail routes to Yucca Mountain are considered. We believe the analysis would be significantly strengthened by considering the Carlin, Caliente, Jean, and Modified Valley routes, and we urge you to do so.

Q Likewise, the transportation analysis does not adequately consider the need for heavy haul truck transport in the absence of a rail link to Yucca Mountain. It is irrelevant in our view that "The ultimate decision...on transportation options...will be made by DOE on the basis of analyses to be performed in the repository EIS." (page 7-1, para 2) All the likely potential routes to Yucca Mountain options are now known, and the EIS should consider them in an much detail as the available data permit.

Later (page 7-5, para 3) the EIS states that "If heavy haul transporters were needed...the air quality effects due to heavy haul transporters would be expected to be small due the distance traveled and the small number of shipments." While we do not disagree your assessment of air quality effects, a campaign involving 300 to 500 shipments can scarcely be considered small. Moreover, heavy haul shipments to Yucca Mountain would cover a much larger distance than any other heavy haul campaign ever has before. We believe that a much more specific analysis of heavy haul impacts should be included in the EIS.

R

S In conclusion, we find that (1) the EIS makes unreasonable assumptions about the location of a repository, and (2) does not take advantage of available data about Yucca Mountain and potential transportation routes in Nevada. As the result the EIS fails almost totally to adequately assess potential impacts in Nevada. This deficiency is especially glaring in view of the extensive attention to impacts at INEL and the fact that naval spent fuel is likely to spent a much longer time in Nevada than in Idaho.

The irony, of course, is that the impacts of managing naval spent fuel *are* likely to be minimal. In failing to make the most reasonable assumptions about the anticipated repository and to use available data for Yucca Mountain, however, the Navy undermines the overall credibility of its conclusions.

Thank you again for the opportunity to comment on the EIS. Please call me at (703) 482-8183 or our Washington representative, Phillip Niedzielski-Eichner at (703) 818-2434 if you have any questions.

Sincerely,

Les W Bradshaw

Les Bradshaw
County Manager

cc: Nye County Commissioners
Dr. Daniel Dreyfus, OCRWM Director
Phillip Niedzielski-Eichner, Governmental Dynamics, Inc.

Commenter: Les Bradshaw - Nye County/County Manager

Response to Comments:

A. The public involvement/participation process for this EIS meets applicable requirements. Over 1,600 copies of the Draft EIS and EIS Summary were mailed to interested members of the public, federal, state, tribal, and local agencies. The Draft EIS was placed in 43 public reading rooms and libraries spread throughout the western states and numerous advertisements were placed in local newspapers announcing the availability of the Draft EIS for public review and comment. In addition, six public hearings were held at three locations (Boise, Idaho Falls area, and Salt Lake City) in Idaho and Utah. The locations selected covered those regions where naval spent nuclear fuel will be loaded and stored, and a large urban area along a possible transportation route. These locations are consistent with the proposed action covered in the Container System EIS. The EIS does not lead to selection of a centralized interim storage site or a site for ultimate disposal of spent fuel, since those matters are under the cognizance of the Department of Energy. The EIS does analyze shipment to Yucca Mountain, but for analytical purposes of comparing alternative container systems only, recognizing that location as the only one authorized under the Nuclear Waste Policy Act for evaluation as a potential repository. The analysis does not presume, however, that Yucca Mountain will be found suitable as a repository.

The actual routes to be used for shipment of naval spent nuclear fuel to a repository will be evaluated along with other routes to be used for a geologic repository or centralized interim storage facility in the site specific EIS for such a facility. The evaluation of the environmental impacts due to transportation of naval spent nuclear fuel in this EIS was performed in part to determine whether or not there were any differences among the six container system alternatives. In order to perform the analysis, a destination had to be selected. In addition, three routes were evaluated to identify a range of potential impacts to see if that would produce differences among the alternative container systems. As the summary in Chapter 7, Section 7.3 states, the environmental impacts are very small in each case and the differences among the container system alternatives are negligible. The analysis suggests that a similar conclusion would be reached, regardless of the location of the destination or route selected for analysis. The DOE's Notice of Intent for Preparation of an 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 (60 FR 40164), states that "The potential impacts associated with national and regional shipments of spent nuclear fuel and high-level radioactive waste from reactor sites and DOE facilities will be assessed. Regional transportation issues include: (a) technical feasibility, (b) socioeconomic impacts, (c) land use and access impacts, and (d) impacts of constructing and operating a rail spur, a heavy haul route, and/or a transfer facility...". The Navy will work with the Department of Energy to ensure naval spent nuclear fuel is properly addressed in the Repository EIS analyses.

B. Nye County's concern about the sufficiency of attention in the Draft EIS to impacts of transporting, storing and disposal of naval spent nuclear fuel in Nevada is outside the scope of the Navy Container System EIS. These topics are appropriate for the Department of Energy EIS that supports a recommendation to the President for the location of a repository but are not appropriate for the Navy Container System EIS.

The proposed action of this EIS does not entail actual shipment to a repository or a centralized interim storage site. Rather such a shipment to a notional repository or centralized interim storage site is evaluated to help distinguish among the six container alternatives. As stated in the EIS, the proposed action is the selection of a container system for the management of post-examination naval spent nuclear fuel and Navy-generated special case waste. The proposed action also includes:

- Manufacturing the container system.

- Loading, handling and storage of the container system at Idaho National Engineering Laboratory.
- Modifications to the Expended Core Facility and the Idaho Chemical Processing Plant at Idaho National Engineering Laboratory to support loading the containers at Idaho National Engineering Laboratory.
- Selection of the location of the dry storage area at Idaho National Engineering Laboratory.
- Evaluating the impacts of transporting the container system to a representative or notional interim storage facility or repository and unloading the container system at that hypothetical location.

Including the impacts of transporting the container system to, and unloading at, a representative or notional interim storage facility or repository ensures that the container system selected is compatible with these operations at these facilities to the extent they are defined at this time. The EIS shows that the differences between container systems are very small and the impacts of any of the alternative systems is also small. Since the specific location of a repository is not known at this time, the Navy Container System EIS used Yucca Mountain, Nevada as the representative location since it is the only location currently approved for site characterization.

C.&Q. The DOE's Notice of Intent for Preparation of an 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 (60 FR 40164), states that "The potential impacts associated with national and regional shipments of spent nuclear fuel and high-level radioactive waste from reactor sites and DOE facilities will be assessed. Regional transportation issues include: (a) technical feasibility, (b) socioeconomic impacts, (c) land use and access impacts, and (d) impacts of constructing and operating a rail spur, a heavy haul route, and/or a transfer facility...". The Navy will work with the Department of Energy to ensure naval spent nuclear fuel is properly addressed in the Repository EIS analyses. Comparison of heavy-haul transportation routes is pertinent to this EIS to the extent that it helps to discriminate among the alternatives considered.

All of the alternative container systems would be suitable for heavy-haul transportation, as illustrated by prior use of the M-140 containers in heavy-haul transport. However, it is accurate to state that the M-140 based alternatives would be less suitable due to size, height, and weight. This statement has been added to Chapter 3, Sections 3.2, 3.8.4 and Chapter 7, Section 7.3 of the EIS.

The Navy is aware that no rail link to the Yucca Mountain site currently exists, and that if it were to become the site of a repository or centralized interim storage facility, heavy-haul transport might be used in place of a rail connection. However, the resolution of that issue will depend on the site eventually selected and the evaluation of the environmental impacts and other factors specific to that site. The routes, distances, and potentially affected populations would be the same for all of the alternative container systems considered for naval spent fuel because the shipments will use the same route--the route selected for shipment of commercial spent nuclear fuel and high-level radiological waste to the repository or centralized interim storage site. Similarly, all container systems considered would have the same design dose rate, a maximum of 10 millirem per hour at 2 meters, as required by the Department of Transportation regulations (49 CFR 100 et seq.). Therefore, the key difference in the alternatives for the purposes of comparing the impacts associated with heavy-haul transport

for naval spent nuclear fuel using the alternative container systems is the number of shipments. Text which explains this matter has been added to Appendix B, Section B.4.

The radiological risks of shipping naval spent nuclear fuel have been conservatively analyzed in this EIS and are described in Section B.5.1. The analyses use a train speed of 15 miles per hour. This is slower than the actual expected average transport speed. Using the slower train speeds is more conservative because that results in higher calculated radiation exposure to the public (trains spend more time proximate to the public). This conservatively slow train speed means that the exposure associated with the transport speeds for possible heavy-haul transport would be similar to the results for rail shipments of the same length over similar routes (e.g., Caliente to Yucca Mountain).

It is unlikely that passengers in recreational vehicles and buses (elevated vehicles) traveling in the vicinity of an oversized load on a heavy-haul transport vehicle would be as close as the 2 meter distance of the regulatory package maximum external exposure of 10 millirem per hour. First, the length of the tractor and the overlap of the trailer on the sides and at the rear would prevent any vehicle approaching as close as 2 meters (about 6.5 feet) to the exterior surface of the container. Second, the routine safety precautions for shipping would involve at least one escort vehicle for the tractor-trailer rig due to its size and speed. This escort vehicle would add several meters to the distance from the spent nuclear fuel shipping cask. In the EIS a maximally exposed individual for shipments has been described in Section B.3.1, and the results in Table B.10 are evidence of small impact for such a person.

Containers used for legal-weight truck transfer would also be designed to produce a maximum exposure rate of 10 millirem per hour at 2 meters in accordance with the DOT regulations and their use would present the same opportunity for the elevated vehicles to be in traffic with them as would occur for heavy-haul transport. Further, many more legal-weight truck shipments would be required to move all spent fuel. Text has been added to Chapter 3, Section 3.7 which summarizes the evaluation of legal-weight truck use.

The range of accidents analyzed in the EIS Section B.5.2 would bound the impacts from a hypothetical heavy-haul transportation accident at an intersection in Las Vegas, such as at the intersection of I-15 and U.S. Route 95 on a week day during rush hour. Such an event would be expected to produce impacts which would be within the scope of the accidents analyzed in Section B.5.2, using an urban population density of 3,861 people per square kilometer. These severe hypothetical accidents have also been analyzed for the rural population density of six people per square kilometer and would produce estimates of effects similar to those which might result from the scenario postulating an accident at the intersection of Nevada State Routes 375 and 318 at Crystal Springs.

Text has been added to Section B.5.2 to specifically cover these points.

D. Evaluating disposal at Yucca Mountain is outside the scope of this EIS. The Navy is attempting to select a container system that would be used to store naval spent nuclear fuel at the Idaho National Engineering Laboratory. The Navy is not trying to identify the location of a repository.

The Nuclear Waste Policy Act (42 U.S.C. 10101 et seq. as amended) identifies that Yucca Mountain, Nevada is the only site currently authorized for characterization as a repository. However, Nuclear Waste Policy Act also identifies the steps that must be taken before a repository site is approved as a repository. The environmental impacts of disposal will be

covered in the EIS that Department of Energy is preparing to support a recommendation to the President for a repository site.

E. The response to Comment C. discusses the issue of heavy-haul transport.

The shipment of naval spent nuclear fuel containers in general commerce, i.e., as part of freight trains carrying other cargo to many destinations, has proved to be acceptable, practical and safe in almost 40 years of experience, during which over 660 shipments of naval spent nuclear fuel have been done safely. This practice is not especially complex and has been proven not to increase the difficulty or hazards of point-of-entry inspections for railroad or other personnel. It has not contributed to any derailments and the railroads have provided clearance for the shipments and associated railcars, frequently being involved in the design process for the systems. The shipping containers are designed to meet the requirements for shipping in general commerce, including withstanding high temperature fires. Safety precautions, such as using buffer cars, have worked well over time.

The use of general freight trains has been proven safe during the almost 40 years of shipping over 660 container shipments of naval spent nuclear fuel. These shipments have been made with no release of radioactivity to the environment. Dedicated trains have been used only when the need for urgent delivery or other considerations justified the increased cost. The DOE's Notice of Intent for Preparation of an 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 (60 FR 40164), states that "The potential impacts associated with national and regional shipments of spent nuclear fuel and high-level radioactive waste from reactor sites and DOE facilities will be assessed. Regional transportation issues include: (a) technical feasibility, (b) socioeconomic impacts, (c) land use and access impacts, and (d) impacts of constructing and operating a rail spur, a heavy haul route, and/or a transfer facility...". The Navy will work with the Department of Energy to ensure naval spent nuclear fuel is properly addressed in the Repository EIS analyses.

From the mid-1970s to the early 1990s the Department of Energy and Department of Defense argued before the Interstate Commerce Commission and civil courts in multiple proceedings against the railroads imposition of special (dedicated) train service on radioactive shipments. In every case, including exhaustive reviews of safety and railroad and train operations, the Interstate Commerce Commission and courts determined and upheld that special train service for radioactive shipments, including spent nuclear fuel, was unnecessary, wasteful and unlawful. In 1993, the railroad industry refunded to the federal government $8 million it had collected, plus interest, for imposed special train service.

The Navy remains of the view that any additional safety resulting from dedicated train service is insignificant and, when compared to the substantial increase in cost associated with dedicated trains, simply cannot be justified. A dedicated train may be used in a particular instance if schedule or other considerations dictate that it is necessary but not as a matter of policy or routine and clearly not to increase safety.

The safety of naval spent nuclear fuel shipments rests squarely on the robust shipping containers and the rugged nature of the contents as discussed below in the response to comment I. Generally speaking, naval spent nuclear fuel shipments do not need to be treated or handled any differently than any other hazardous materials handled by the railroads in interchange service. Certainly unnecessary or lengthy delays and layovers in railyards and at interchanges should be avoided; but the normal times required for train switching and makeup, train crew reliefs, and connections between railroads are not a concern during movement of

naval spent nuclear fuel just as they are not a concern during movement of any other hazardous material. Expedited movement beyond what the Code of Federal Regulations, Title 49, Section 174.14 requires for any hazardous material is not necessary for naval spent nuclear fuel shipments for safety.

The Government will own the escort and container cars to be used in the future for shipping naval spent nuclear fuel to a geologic repository or centralized interim storage site just as it has for almost 40 years of naval spent nuclear fuel movements. This equipment is unique to the purpose and cargo and must be dedicated to naval spent nuclear fuel shipments without availability for other railroad customers, therefore it is appropriate for it to be government, not railroad owned. Current practice is and future practice will be to ensure in careful fashion that the equipment meets all railroad industry standards of railcar construction and operation, including Association of American Railroads review of the railcar design prior to construction and testing of new equipment at the Transportation Test Center in Pueblo, Colorado for dynamic handling. Association of American Railroads requirements for railcars used to transport radioactive material, for example as set forth in Field Manual Of Interchange Rule 88.A.15.c.(2), will be met.

If onboard defect detection equipment is required under Department of Transportation regulations, it will be used for naval spent nuclear fuel shipments.

Naval spent nuclear fuel shipments are intended to move in regular interchange freight service. Since specially designed buffer cars are not necessary for any other hazardous material which moves in regular interchange freight service in order to achieve 49 CFR separation and segregation requirements, then they should not be necessary for naval spent nuclear fuel shipments.

The current fleet of six escort cabooses has been used successfully, without any significant operational problems, in regular and dedicated interchange freight service in conjunction with naval spent nuclear fuel and other Naval Nuclear Propulsion Program shipments for approximately 20 years. Scrapping this equipment in favor of newer equipment before the existing equipment's useful life of 40 years, as defined by railroad industry standards, is not considered warranted. Navy equipment is expected to be replaced after the year 2010. When the time comes to replace the existing escort cabooses, the Naval Nuclear Propulsion Program will work closely with the Association of American Railroads, as it does for container cars, to ensure the new equipment meets railroad industry standards.

F. In concept, the design of the multi-purpose canister system would not require the canister to be opened at the repository since the canister would meet all disposal criteria. The commenter is correct that if the disposal criteria changed after an multi-purpose canister has been loaded and seal welded, then the package might have to be opened. Under such circumstances, the Multi-Purpose Canister Alternative becomes similar to the Dual-Purpose Canister Alternative which has been evaluated in this EIS. The analyses performed for this EIS show that the environmental impacts are small for all container system alternatives.

G. In the EIS Executive Summary, Section S.6.1 and Chapter 3, Section 3.8 and Tables S.6 and 3.2 it is clearly stated that the actual historic doses have been used for the alternatives based on the M-140 (the No-Action Alternative and the Current Technology/Rail Alternative) and not for the other container systems. The best available data have been used in this EIS to estimate environmental impacts. Actual measurements are available for the M-140 container but none of the other containers have been used for naval fuel so the regulatory limit which serves as the design basis represents the best estimate of the maximum external exposure

rate for such containers. The use of actual measurements did not bias the selection of the preferred alternative described in Section 3.8.

H. As stated in Appendix A, Section A.2.2 of the EIS, human-induced events such as terrorism were considered in selecting accidents to include in the detailed analyses. Acts of terrorism are expected to result in consequences which are bounded by the results of accidents which are evaluated. Naval spent nuclear fuel is not considered to be attractive to terrorists due to the bulk of the fuel containers and due to high radiation fields involved with unshielded spent nuclear fuel. However, terrorist attacks on naval fuel during shipment were evaluated. The massive structure of the containers used for naval spent nuclear fuel makes them an unlikely target of a terrorist attack. No such attacks have occurred in the almost 40 years of rail shipments which have now traveled about 2 million container kilometers. Thus, the probability of a terrorist attack on a shipment is no higher than the probability of a rail accident which is listed in Appendix B, Section B.5.2 of this EIS. Even if an attack were to occur, the likelihood of it causing a breach in a container is not high owing to the rugged nature of the containers (high explosives by themselves would be insufficient to breach a container). The consequences of a terrorist attack are also no more severe than those listed for the transportation accidents for reasons explained below. Therefore, the same conclusions reached for transportation accidents apply to the risk to the extremely rugged shipping containers from terrorist attack during a shipment. In addition, during shipment, all naval spent nuclear fuel containers are accompanied by escorts who remain in contact with headquarters, such that a failure to regularly check in with headquarters due to their incapacitation would result in a response. In the event of an emergency, state and federal resources would be quickly summoned. The issue of acts of terrorism was also addressed in the Programmatic SNF and INEL EIS and the same conclusions were reached.

For an act of war, sabotage, or terrorist attack, it is likely the risk would be lower than calculated for an airplane crash because it should be less probable that a force would exist to disperse radioactive products into the atmosphere from a weapon as compared to the motive force of the fire assumed in the case of an airplane crash. For example, attacks on containers using anti-tank weapons would be less severe than the accidents analyzed because: (a) anti-tank weapons would cause a self-sealing penetration in the metal of a container, unlike that which is assumed from the airplane crash (impact from a 50-inch diameter engine rotor); (b) there is no explosive material inside the container, so it will not "blow-up" as a tank would if hit by such a weapon (in a tank attack, the tank shells inside the turret detonate); (c) there would be no fire to disperse the radioactivity that is released when the container is breached, unlike an aircraft crash where the jet fuel will burn creating such a fire. The rugged design of containers reduce the effects of other types of explosive charges. It is not credible that a terrorist attack would result in a criticality or meltdown of spent nuclear fuel; however, in Section A.2.5, the consequences of a hypothetical criticality accident are presented. The risks associated with an accidental criticality are less than those associated with a drained water pool or an airplane crash into dry storage containers.

The effect of a terrorist attack or an act of sabotage is expected to be conservatively bounded by the limiting accident discussed at each facility under each alternative. For example, the most limiting accident involving naval spent nuclear fuel is described in this EIS to be an airplane crash into a 125 ton multi-purpose canister at the Idaho Chemical Processing Plant. This accident could lead to 2.6 latent fatal cancers over the next 50 years in the population within 50 miles of the site. Since the probability of the event is one chance in 2,500,000 per year, the risk would be 0.00000104 latent fatal cancer fatalities per year or, in other words, about one chance in 960,000 of a single fatal cancer fatality over a year. This risk is shared among the approximately 120,000 people residing within 50 miles of the site who would be

expected to have over 300 cancer fatalities from all causes every year. For an act of war, sabotage, or terrorist attack, it is likely the risk would be lower than calculated because it should be less probable that a force would exist to disperse radioactive products into the atmosphere from a weapon as compared to the motive force of the fire assumed in the case of an airplane crash.

This information has been added to Section A.2.2 of the EIS.

I.&M. Unloading operations were evaluated at a notional geologic repository to determine if there is a difference between container system alternatives. The results of this evaluation, presented in Table A.12, show that the multi-purpose canister alternatives would have a smaller environmental impact during operations at a repository surface facility since the canisters do not require opening. The analysis results suggest that a similar conclusion would be reached regardless of the meteorology and population distributions used. Site specific meteorology and population will be used as needed when appropriate environmental documentation is prepared for an interim storage facility or repository in accordance with the Nuclear Waste Policy Act.

J. In addition to the environmental justice impacts associated with manufacturing (Chapter 4, Section 4.8), this EIS analyzes the impacts for loading and storage operations (Chapter 5, Section 5.8) and transportation (Chapter 7, Section 7.3.5) of post-examination naval spent nuclear fuel.

The impacts on any segment of the population, including minorities and low-income groups, resulting from all normal operations or accidents associated with the loading or storage of naval spent nuclear fuel at the Idaho National Engineering Laboratory would be extremely small for any of the alternatives considered in this EIS. For example, under any of the alternative container systems it is unlikely that a single fatal cancer would occur over the 40 years considered in this EIS.

Similarly, for populations along the transportation routes which include population densities for rural, suburban and urban communities, the analysis of this EIS concludes that impacts resulting from any of the alternatives considered would not be high and adverse to any group. The analysis included in Section 7.3.5 included a demonstration, assuming that all of the latent cancer fatalities which might occur as the result of a severe accident during transportation of naval spent nuclear fuel, using any of the container systems considered. This analysis illustrated that members of minority and low-income populations would experience far less than one additional fatality per year. It can also be seen from the data presented in this section that the effects of radiation exposure from the total number of incident-free shipments over almost 40 years for the Shoshone-Bannock Reservation at Fort Hall are a very low risk to a Native American population who might be exposed to every shipment from the Idaho National Engineering Laboratory.

The DOE's Notice of Intent for Preparation of an 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 (60 FR 40164), states that "Potential for disproportionately high and adverse impacts on minority or low-income populations" will be examined.

K. This EIS does not make presumptions concerning the Yucca Mountain site's designation for use as a geologic repository, designation for use as a centralized interim storage site or burdens imposed on the jurisdiction in which it is located. Furthermore, appropriations for

fiscal resources to support the activities of the federal Government are determined by Congress and are beyond the scope of this EIS. As stated earlier, environmental justice issues will be addressed by the Department of Energy in their repository EIS.

L. Transportation impacts are discussed and summarized in Chapter 3, Sections 3.8.4 and 3.8.5. Transportation impacts in absolute terms are provided in Tables 3.8 and 3.9. Further information on transportation is provided in Chapter 7. Relative impacts, expressed as percentages of the total impacts which are due to naval spent nuclear fuel and special case waste, are also included to provide a convenient perspective. In Section 7.3.7 estimated cumulative impacts for transportation of all spent nuclear fuel to a geologic repository are described. These impacts are further described in the Department of Energy Programmatic Spent Nuclear Fuel and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Final Environmental Impact Statement of April 1995 in Appendix I of Volume 1.

Therefore, this EIS does provide sufficient information on the absolute as well as the relative effect on cumulative impacts.

M. See the response to Comment I above.

N. & O. Unloading operations were evaluated at a notional geologic repository to determine if there is a difference between container system alternatives. The results of this evaluation, presented in Appendix A, Table A.12, show that the Multi-Purpose Canister Alternatives would have a smaller environmental impact during operations at a repository surface facility since the canisters do not require opening. The analysis results suggest that a similar conclusion would be reached regardless of the meteorology and population distributions used. Site specific meteorology and population will be used as needed when appropriate environmental documentation is prepared for an interim storage facility or repository in accordance with the Nuclear Waste Policy Act.

Executive Summary, Section S.1 of the Final EIS states that before the Navy container system is actually used for shipments off the Idaho National Engineering Laboratory Site, appropriate environmental documentation will be prepared in support of an interim storage facility or a repository in accordance with the Nuclear Waste Policy Act. This documentation will include the potential impacts of shipments of spent nuclear fuel and high-level waste from reactor sites and Department of Energy facilities to the recommended location and the site specific impacts of operations at that location.

P. The DOE's Notice of Intent for Preparation of an 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 (60 FR 40164), states that "The potential impacts associated with national and regional shipments of spent nuclear fuel and high-level radioactive waste from reactor sites and DOE facilities will be assessed. Regional transportation issues include: (a) technical feasibility, (b) socioeconomic impacts, (c) land use and access impacts, and (d) impacts of constructing and operating a rail spur, a heavy haul route, and/or a transfer facility...". The Navy will work with the Department of Energy to ensure naval spent nuclear fuel is properly addressed in the Repository EIS analyses.

A range of routes to a repository or centralized interim storage site is used for the transportation analysis in this EIS in order to determine whether different routing characteristics, such as distance or differences in population distribution, would affect the comparison of the alternative container types. Since no repository or centralized interim

storage site has yet been selected, the transportation routing in this EIS uses a site being evaluated by the Department of Energy pursuant to the Nuclear Waste Policy Act as the destination point for naval spent nuclear fuel shipments.

The Navy recognizes that the legal and regulatory climate is evolving on nuclear waste transportation matters and is keeping abreast of the requirements. From the historical perspective, naval spent nuclear fuel has been shipped safely by rail for almost 40 years (over 660 container shipments) without release of radioactivity to the environment. Federal, state and local regulations have been fully met in the past. This EIS addresses issues in the light of the existing laws and regulations and the best information available on the future conditions. The Navy's shipment history demonstrates that the Navy is committed to ensuring the safety of spent nuclear fuel transportation. This commitment to safety will continue in the future as the new laws and regulations affecting transportation of spent nuclear fuel and high-level radioactive waste are implemented. For the sake of comparing a reasonable range of alternatives the current regulations have been applied conservatively in the EIS transportation analysis.

Additional discussion to clarify these points has been added to the EIS in Chapter 7, Section 7.1 and Appendix B, Section B.1.

Q. See the response to comment C above.

R. The transportation analysis in the EIS covers the scope of heavy-haul transportation as described in the response to C and Q above. As previously discussed, analysis of specific heavy-haul routes is appropriately the subject of the site-specific EIS to be prepared for a geologic repository or centralized interim storage site. Such analyses would not help to differentiate the impacts of the alternatives considered.

S. The Navy considers that Nye County's comment that the Draft EIS does not take advantage of available data about Yucca Mountain and potential transportation routes in Nevada is outside the scope of this EIS for the reasons previously stated.