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RRR000657

January 9, 2008

Dr. Jane Summerson
EIS Document Manager
Office of Civilian Radioactive Waste Management
U.S. Department of Energy
1551 Hillshire Drive, M/S 011
Las Vegas, NV 89134

RE: Nye County, Situs Jurisdiction, Comments on the Draft 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 (Draft Repository SEIS)

Dear Dr. Summerson:

Nye County appreciates having had the opportunity to participate as a cooperating agency on the Draft Repository SEIS and looks forward to continued interaction with the Department of Energy (DOE) in the completion of the Final Repository SEIS. Our specific comments on the Draft SEIS are attached. The remainder of this letter summarizes our comments and suggested resolutions.

As noted in our original scoping comments, Nye County does not agree with some of the assumptions in the socioeconomic analysis, specifically the percentage of the work force that will reside in the County. DOE has acknowledged the uncertainty in assumptions based on historical patterns and addressed the County's concerns through the alternative analysis that appears in Appendix A.4. Nye County continues to believe that the residency trends associated with factors such as those identified on page A-8 will result in a greater percentage of repository personnel choosing to reside in Nye County than is assumed.

While the Draft Repository SEIS recognizes that the socioeconomic impacts of the proposed action on Nye County are substantially larger than on Clark County because of their significantly different populations, the socioeconomic analysis based on historical patterns concludes that, in spite of these differences, the potential impacts are "small." Nye County notes that the impacts might be small relative to conditions in Clark County, but does not agree that the potential impacts to Nye County will be small, even for the base-case residency scenario. With limited housing, infrastructure, and public services, Nye County may find itself hard pressed to absorb the impacts without a cooperative agreement with DOE for mutual aid and support. As correctly noted in the Draft

Repository SEIS, impacts on public services such as education and public safety could require mitigation. Nye County fully agrees with this assessment and, consistent with its position on mitigation as outlined below, proposes to develop appropriate agreements and to implement an adaptive management approach in cooperation with DOE to monitor repository related impacts and to identify and implement effective planning and mitigation measures.]

2 [The County's approach to the assessment of cumulative impacts differs from the approach taken in the Draft Repository SEIS, primarily reflecting different regions of influence and a long-term historical perspective. However, as the County notes in its evaluation, many of the impacts identified could be addressed and mitigated through implementation of various, routine measures. Identification and implementation of such measures could be facilitated through consultation, cooperation and advance planning between the County and DOE.

Because of these differences in perspective and uncertainty about future conditions, the conclusions about potential impacts presented in the Draft Repository SEIS should be continuously evaluated as the Proposed Action is implemented. Nye County believes that an adaptive management approach is needed that includes the development of a comprehensive environmental and socioeconomic baseline followed by continuous monitoring of changes with regard to that baseline. With a baseline and monitoring established, the socioeconomic and fiscal impacts of the Yucca Mountain Project on Nye County can be ascertained and appropriate mitigation measures implemented. As the situs jurisdiction and a cooperating agency, Nye County realizes mutual benefit for both the federal and local government in partnering to monitor, assess, and evaluate conditions at and around the repository site. Through joint monitoring and adaptive management, Nye County can assist DOE in the identification of impacts and their significance, and then cooperatively plan and develop effective mitigation measures. Nye County believes that such mutual consultation and cooperation should be formalized through a memorandum of understanding. Nye County has included suggested text revisions that address these recommendations. We encourage DOE to work with Nye County to develop this Adaptive Management program as early in the process as possible since some of the expected mitigation measures need to be started several years before the project starts. An example of these measures would be road construction and worker training programs. These types of mitigation measures will benefit both DOE and Nye County but should be completed prior to the start of construction to achieve the maximum benefit.]

3 [The safe construction and operation of the repository is of paramount concern to Nye County, including use of transportation, aging and disposal canisters, and early completion of a shared-use rail line to support repository construction and operation. DOE has made many improvements in its radiological safety analyses both during repository operation and after repository closure, however, it appears that overly conservative assumptions remain in the Draft Repository SEIS, including failure to assume active and timely measures to mitigate a radiological accident or sabotage, and the assumption that all waste packages would be affected by an igneous intrusion event. Such assumptions are, in Nye County's view, unrealistic and have the potential to mislead the public's understanding and impair the County's ability to effectively convey the expected risks associated with a repository. Risk communications could be improved

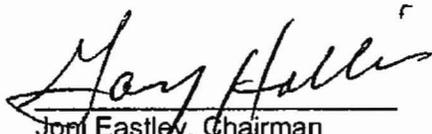
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if the Final Repository SEIS were to provide perspective on reasonably expected consequences and risks in conjunction with its discussion of the more conservative results of these analyses.]

As the situs jurisdiction for the Yucca Mountain Project, Nye County has a tremendous stake in the National Environmental Policy Act process and will continue to pursue all available opportunities to participate as a cooperating agency. Nye County anticipates working closely with DOE following issuance of the Final Repository SEIS to plan and implement the adaptive management approach outlined above that will allow the County to protect the safety, environmental values, and economic well-being of the residents of Nye County.

Please feel free to contact us should you have any questions regarding our comments.

Sincerely,



Jomi Eastley, Chairman
Nye County Board of County Commissioners

Attachment: Nye County, Situs Jurisdiction, Comments on the Draft 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 (Draft Repository SEIS)

cc: The Honorable Governor James Gibbons
Nevada Congressional Delegations
The Nevada Legislative Committee on Nuclear Waste
Mr. Robert Loux
Affected Units of Local Government

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- 4 **[Comment** Section S.3.1.6, page S-28, this section states "...by any measure, impacts to employment in Clark and Nye counties from repository-related construction and operations would be small." Nye County does not agree with this statement and finds it inconsistent with other statements in the Draft Repository SEIS.
Resolution Delete the words, "...by any measure." At a minimum, there should be a reference to the relative likely difference in impacts based on the population difference between Clark and Nye Counties, as noted in Sec. 4.1.6, p 4-40...]
- 5 **[Comment** Section 1.5.3, page 1-17 (also Table 1-2 on page 1-20), Section 4, page 4-2: This section discusses the June 2006, Draft Environmental Assessment for the Proposed Infrastructure Improvements for the Yucca Mountain Project, Nevada (DIRS 178817-DOE 2006, all) and its incorporation into the Repository SEIS as a "subelement." It states: *Chapter 4 of this Repository SEIS identifies the specific elements, or subelements, of those improvements that DOE could implement before receiving a construction authorization from the NRC [Nuclear Regulatory Commission]. Before implementation, a Record of Decision on this SEIS will present any decisions DOE might make regarding the improvement. These actions would be independent of repository construction and would be conducted under DOE authority. The Record of Decision is also mentioned in Table 1-2 on page 1-20 and on page 4-2. Nonetheless, DOE has stated its decision not to prepare a Record of Decision on the repository.*
Resolution It is recommended that DOE implement 40 CFR 1502.2 and prepare a Record of Decision, which is essentially a "document that provides a concise public record of a decision made by a government agency" (definition from page 12-25 of the Repository SEIS).]
- 6 **[Comment** Section 2.1.1, Page 2-9: This section describes scenarios of receiving 90 percent of the commercial used nuclear fuel in Transportation, Aging, and Disposal (TAD) canisters and an alternate scenario of receiving 75 percent of the used nuclear fuel in TAD canisters. DOE is commended for its plans to use TAD canisters to the extent practical and for analyzing a range of percentages of used nuclear fuel received in TAD canisters. The lower percentage (75%) appears to adequately bind the range that might reasonably be expected. Nevertheless, DOE should consider the option of receiving all used nuclear fuel in TAD canisters.
Resolution The option of receiving all used nuclear fuel in TAD canisters may require intermediate packaging at a location other than the facility that generated the used fuel, but would greatly simplify operations at Yucca Mountain. The Yucca Mountain Repository would then be a radioactive contamination free facility because no individual fuel assemblies would be handled there. There are existing nuclear power facilities that receive used fuel from other facilities and have the capability to package that fuel in TAD canisters. Additionally, potential savings of billions of dollars might be possible if there were no need to handle individual assemblies. Consideration should not be limited to building new repackaging facilities.]
- 7 **[Comment** Section 2.1.4.2, page 2-37: The Engineering and Safety Demonstration Facility is discussed in this section.
Resolution No resolution is required; DOE included such a facility and particularly for including public outreach as part of its mission, and Nye County believes that Nye County should be directly involved in such programs.]
- 8 **[Comment** Sections 2.1.4.3 through 2.1.4.7, page 2-39: Various repository support facilities are discussed in these sections.

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Resolution To the extent practical, the repository support facilities should be developed on private property near the repository so these facilities would be included in the local tax base and provide economic opportunities to local residents.]

9 [**Comment** Section 2.1.6, page 2-41: This section discusses repository closure and recognizes that when DOE decides to close the repository it must submit "a description of the program for post closure monitoring to regulate or prevent activities that could impair the long-term isolation of waste."

Resolution While the details of a post closure monitoring program are not required to be submitted to NRC until the closure application is submitted, the environmental impact analysis in the Repository SEIS should recognize the basic elements of such a program. Specifically, at a minimum, DOE should specify the need for downstream groundwater monitoring in perpetuity.]

10 [**Comment** Section 2.3.2, page 2-58: This section discusses severe accident and sabotage scenarios and the resulting estimated consequences. Based on the information in the Draft Repository SEIS appendices and references, the consequences make conservative assumptions regarding responses to sabotage or accident events.

Resolution These conservative assumptions should be noted in the text along with analytical results of more reasonable scenarios. For instance, estimates assuming evacuation within a few hours at 0.5 mile from the severe event would be more reasonable and should be included as a point of reference. Bounding analysis may be useful to DOE impact analysts, but can be misinterpreted by the public and complicate County efforts to communicate information on the expected risks associated with a repository.]

11 [**Comment** Section 3.1.7.4, third full paragraph, page 3-67: Nye County agrees with the assertion that "new residents would cause additional net deficits under the existing revenue structure."

Resolution A fiscal impact analysis, of the Yucca Mountain Project focusing on government services, should be completed to ascertain the economic impacts to Nye County. This should be part of the DOE-supported Nye County study documenting the socioeconomic baseline with and without the Yucca Mountain Project. Residency decisions of new repository workers should be determined, and the resulting effects to the various socioeconomic conditions (e.g., education, sheriff and fire protection, health services, and infrastructure) should be established. Once recognized, mitigation measures should be jointly planned, developed and adopted through appropriate agreements. In addition, a reference to the Nye County perspectives (sections 8.6.2 and 9.2.3) should be made in this section.]

12 [**Comment** Sections 3.1.7.5.1, 3.1.7.5.2, 3.1.7.5.3, 3.1.7.5.4, Pages 3-67, 3-68, 3-69: These sections state that "Nye County school officials report that all schools in the county are at capacity and that those in Pahrump exceed design capacity." It goes on to maintain that in "2005, the Nye County Sheriff's office had 141 employees, including 102 commissioned officers—a ratio of 2.5 commissioned officers per 1,000 residents." For fire protection, the sections state: Nye County is hampered by its rural nature and size; assistance from mutual aid departments is often an hour away. Many conventional developed neighborhoods in the county lack fire hydrants. Most of the Town of Pahrump is outside the nationally recommended radius of 5 kilometers (3 miles) to achieve a 4- to 5 minute response time.... As for health care, the sections state "most people in the southern part of the [Nye] county use local clinics or go to hospitals in metropolitan Las Vegas."

Resolution When the number of direct, indirect, and induced workers is established (along with their estimated number of dependents), a suitable analysis can be completed. It may be

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concluded that, as a direct result of the Yucca Mountain Project, an additional school or more classrooms would need to be built, and more career fire personnel will be required (the Amargosa Valley Fire Department, for example, has 23 volunteer firefighters and one career firefighter). Impacts to public education, sheriff protection, fire protection, and health care from the construction and operation activities of the Yucca Mountain Project can be ascertained once the socioeconomic baseline with and without the Project is established through a monitoring program. Residency decisions of new repository workers should be determined, and mitigation measures should be jointly planned, developed and adopted through appropriate agreements between Nye County and DOE. A reference to the Nye County perspective (sections 8.6.2 and 9.2.3) should be made in this section as well.]

13 [Comment Section 4, page 4-1: This section states the following: "The methods DOE used in the analyses to predict the potential impacts in this section are conservative. This means that the predicted results are likely higher than the actual values that would be measured or observed." It goes on to say that the analysis does not take credit for "... applying DOE radiation protection program objectives such as As Low As Reasonably Achievable into worker radiation exposure analyses." Conservative estimates can lead to poor decision-making regarding project design, operations, and development activities. They can also lead to the perception by the public of a much higher risk than would actually be associated with repository operation.

Resolution Where conservative estimates of impacts would be more than negligible, the unrealistically conservative estimates should be accompanied by estimates of a more reasonable scenario. In this way, the public and decision makers can better understand risks of the Yucca Mountain Project. There may be some reason to provide bounding calculations, but to do so without providing reasonable estimates misleads the public. Known conservative estimates should not be labeled "predictions."]

14 [Comment Section 4.1.1.1, page 4-4: This section discusses impacts to land use and ownership from land withdrawal. The area of permanent land withdrawal proposed for the repository comprises nearly 150,000 acres, approximately 44,000 acres of which would be newly withdrawn land. As noted in the Nye County perspective (section 8.6.2), the withdrawal of these lands would contribute to indirect cumulative impacts, which include the loss of the following: Access to groundwater and mineral resources; Access to industrial commodities (cinder, sands, and gravels); Potential grazing lands; and Recreational opportunities.

Resolution Nye County believes this incremental contribution to cumulative impacts can be successfully mitigated by allowing use of and access to these withdrawn lands, so long as the activities proposed would be consistent with repository land use and operation. DOE, as the designated federal manager of the withdrawn lands, would have the authority to work with Nye County and local entities to ensure the successful management of lands. Add the following sentence to the last paragraph on page 4-4: "DOE will work in conjunction with Nye County, the situs jurisdiction, to identify other land uses that may be consistent with the terms of the land withdrawal."]

15 [Comment Section 4.1.6, page 4-40: At present, the socioeconomic parameters discussed in the Repository SEIS are the following; Population; Employment; Government spending; Real disposable income; and Gross regional product.

Resolution The socioeconomic baseline, existing and future, with and without the Yucca Mountain Project, needs to be quantified for Nye County to include the following; Location of existing housing stock in Nye County; Construction of future housing developments in Nye County; Public finance levels (existing and future); Existing and predicted (based on population) levels of service for public education, sheriff protection, fire protection, health care, and

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infrastructure in Nye County. As most of its long-term activities would be located in Nye County, the location of residences of future workers tied to the Yucca Mountain Project is extremely important. The housing stock and future development discussion will assist in determining the most logical residence of future workers, whether the workers would be the result of direct activities of the Proposed Action, indirect actions (e.g., office machine suppliers or office cleaning services), or induced events (mechanics or school teachers). The worker discussion will lead to a more realistic determination of public finance and population levels, thereby leading to realistic required levels of service for public education, sheriff protection, fire protection, health care, and infrastructure. With a proper monitoring program, the socioeconomic and fiscal impacts can be determined with respect to these issues, and a fair determination of the socioeconomic impacts of the Yucca Mountain Project on Nye County can be ascertained.]

16 [**Comment** Section 4.1.6, page 4-40: This section discusses socioeconomics and recognizes that Clark County and Nye County are different.

Resolution This section should be expanded and be reflected in meaningful discussions pertaining to Nye County socioeconomic factors. A reference to the Nye County perspective (sections 8.6.2 and 9.2.3) should be made in this section. A monitoring program should be established as part of a program for adaptive management to document the socioeconomic baseline with and without the Yucca Mountain Project. Residency decisions of new repository workers should be determined, and the resulting effects to various socioeconomic conditions should be established. Once recognized, mitigation measures should be developed and adopted through appropriate agreements between DOE and Nye County.]

17 [**Comment** Section 4.1.6.1.3, Tables 4-14 and 4-15, pages 4-46 and 4-47: Total "State and local government spend" in Nye County as a result of the Yucca Mountain Project would be \$700,000 during the peak year for construction activities and \$500,000 during peak operations activities. It is unclear whether the dollar amounts in these tables are to cover all construction and operations costs incurred by Nye County. Further, it is not clear which portion would be borne by Nye County and which by others, such as the Nye County School District. With the implementation of the Project, Nye County would incur a multitude of economic effects resulting in the need to provide services for new workers (direct, indirect, and induced). These will include the expansion of emergency services and equipment (e.g., fire, police, and emergency medical); and additional education, medical, water, sewer, trash, road services, and infrastructure.

Resolution One of the major questions to answer in the Repository SEIS is: What are the economic impacts of the Yucca Mountain Project to Nye County, and how should these impacts be mitigated? According to the Nye County Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2006, the primary revenue source of Nye County for governmental activities is property taxes, and the greatest expenses are for general government and public safety functions. Nye County's responsibility to its residents is to determine the demand that the Project would place on Nye County services and its budget and whether the flow of revenues from DOE and the Project in the form of PETT and ad valorem taxes and other taxes (from direct, indirect, and induced workers) would balance incurred costs. A fiscal impact analysis based on monitoring certain economic activities of the Yucca Mountain Project would determine its fiscal impacts on Nye County. This should be started as soon as possible to determine the fiscal baseline, and should be part of the monitoring program to document the socioeconomic baseline with and without the Yucca Mountain Project.]

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- 18 **Comment** Page 4-49, excerpts from first full paragraph: It is agreed that impacts would be greater in Nye County, but it is disagreed that they would be "still small." This statement is also inconsistent with the statements in the preceding section, 4.1.6.1.5, regarding the potential strains on Nye County.
Resolution This section should reflect the statements in the preceding section and reference Nye County's perspective on cumulative impacts, section 8.6.2, and mitigation, 9.2.3.]
- 19 **Comment** Section 4.1.7, page 4-59: A text box that describes conservative assumptions used in the Draft Repository SEIS radiological impact analysis is shown in this section. Assumptions are the following; Workers would work 50 years in the same job handling used nuclear fuel; All fuel would be at the radioactive design basis limit; No radiation protection administrative limits would be applied; and the most exposed member of the public would stand at the site boundary for 70 consecutive years. These assumptions are grossly conservative.
Resolution Results should be presented using more reasonable assumptions; otherwise, the public and decision makers are being misinformed which could result in overestimates of radiological consequences and poor decision-making. Such conservative analyses also complicate the County's risk-communication efforts.]
- 20 **Comment** Section 4.1.7.2.6, page 4-65 and Section 8.3.2, page 8-27: About 99.9 percent of preclosure health impacts would be from exposure to naturally occurring radon and its decay products, according to this section. Without real life comparisons, it is difficult for the public and decision makers to be informed.
Resolution A point of comparison should be made to other ongoing activities that are readily accepted in Nevada that also release naturally-occurring radon. For instance, comparison of radon releases from a Nevada mining operation would be informative.]
- 21 **Comment** Section 4.1.8.4, page 4-67: This section discusses a conservative assumption regarding consequence mitigation. No interdiction is assumed after a severe accident. Bounding analyses may be adequate for regulatory purposes, but they far overstate consequences in environmental impact assessments.
Resolution A more reasonable scenario should also be analyzed, and its results should be presented.]
- 22 **Comment** Section 4.1.8.2, page 4-69: This section states, "The analysis assumed neither DOE nor other government agencies would implement mitigation measures, such as evacuation, to limit long-term radiation doses." This is an unreasonable assumption for accident analyses.
Resolution At a minimum, the accident scenarios with the highest consequences should be re-evaluated using reasonable assumptions regarding evacuation and other factors and state those results along with the grossly conservative (bounding) analysis results.]
- 23 **Comment** Section 4.1.8.4, pages 4-74 and 4-75 (and Appendix E, Section E.7): These sections reasonably describe why a successful sabotage attempt on a repository is unlikely; the results of an assumed successful sabotage event that could never happen is then presented. The details of the analysis described in section E.7 assume; A successful aircraft attack into a specific building; A worst-case fire resulting; 100 percent of the maximum inventory in the building affected by the attack; and the waste form being turned into a powdered oxide form and dispersed. An assumption of no evacuation for 24 hours is a little more reasonable than the 30 days assumed for accidents, but is still much longer than would actually be the case after a successful aircraft attack on repository facilities. To present only the results of a very

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conservative analysis provides misinformation to the public who reside in the vicinity of the repository.

Resolution The results of a more likely scenario should be presented along with the very conservative analytical results.]

24 [**Comment** Section 4, page 4-2 and Section 4.3, page 4-111 to 4-127: These sections discuss infrastructure improvements that DOE may implement prior to receiving authorization from the NRC to construct the GROA. These non-GROA improvements would enhance worker safety and operations efficiency of ongoing activities.

Resolution No resolution is necessary; DOE has taken action to make its activities as safe and efficient as possible while at the same time making sure it is ready to begin repository construction upon authorization.]

25 [**Comment** Section 4.3.4.4, page 4-127: This section discusses the Yucca Mountain Project Gateway Area Concept Plan and the Nye County perspective on cumulative impacts.

Resolution No resolution is needed.]

26 [**Comment** Section 5.1.1, Table 5-1, pages 5-7 and 5-8: Discussion of performance assessment models in several areas is discussed here.

Resolution No resolution is required; DOE updated its performance assessment models in several areas to be more realistic based on actual data. For example, the in-drift chemistry modeling that constrains in situ water chemistry and the inclusion of thermal dependency in general corrosion rates are more realistic than previous model inputs.]

27 [**Comment** Table 5-1, pages 5-8 and section 5.1.1.3, page 5-9: This section presents an assumption that all waste packages would be destroyed in the event of an igneous intrusion.

Resolution This assumption is grossly conservative, and no explanation is given for this unrealistic approach. In light of improvements to other areas of the modeling, this likely causes an overestimate of the postclosure reasonably maximally exposed individual (RMEI). An explanation should be provided.]

28 [**Comment** Section 5.1.1.4, page 5-9; Section 5.4 and Appendix F: This section discusses impacts at different locations. It states that the large water use at the RMEI location would "consume the entire plume" by withdrawing 3,000 acre feet of water," and since the plume is very narrow, the dose would be the same at all locations. This conclusion is illogical and may be a remnant of a conservative assumption that 100 percent of nuclides in the groundwater system would be dissolved in the representative volume specified by regulation. It does not make sense that as the distance from the repository increases that the combination of flow from different groundwater basins would not add more water to the flow system, potentially diluting the concentration of radionuclides in the groundwater. It is also not clear why Section 5.4, Locations for Impact Estimates, is included in the Draft Repository SEIS if no estimates are included for different locations per section 5.1.1.4. Additionally, Appendix F, section F.2.8.2, page 2 states, "Matrix flow in the alluvium would provide a significant reduction in the movement of radionuclides to the environment."

Resolution Since the dose to the RMEI is small, it is probably not necessary to model doses to hypothetical individuals farther downstream for regulatory purposes, but to say the dose farther downstream would be the same is incorrect. If calculations were completed farther downstream, the same conservative restraints required for calculating the RMEI dose per NRC regulations should not be applied. If not calculated (per the current Repository SEIS), it should be recognized that potential doses farther downstream would be lower if reasonable assumptions

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were applied. DOE needs to address the contradiction in the statements in section 5.1.1.4 and F.2.8.2.]

29 [**Comment** Section 5.1.2, page 5-10: This section includes a discussion regarding chemical toxicity of repository releases.

Resolution No resolution is necessary; the discussion is improved over the previous Final EIS analysis. More reasonable inputs regarding the ionic state of dissolved chromium are used, and the unreasonable conservatism from previous analyses has been removed.]

30 [**Comment** Table 5-4 and section 5.5.1, page 5-26; section F.4.1.1, page F-33; section F.4.2.1.1; section F.4.2.2.1: Section 5.5.1 states that the mean annual 10,000-year dose to the RMEI could be as high as 0.24 millirem. Section F.4.1.1, page F-33, states that the nominal scenario class contributes nothing to this total; section F.4.2.1.1 states that the igneous intrusion modeling case contributes about 0.06 millirem to the total; section F.4.2.2.1 states that the seismic ground motion modeling case contributes about 0.2 millirem to the total. The igneous intrusion case is grossly conservative because it assumes 100 percent of the repository waste packages would be destroyed if an igneous intrusive event were to occur. The seismic ground motion modeling case is also grossly conservative because it assumes, per section F.4.2.2.1, that "... each epistemic realization has essentially the same set of future conditions. That is, each epistemic realization has the same number of events, the same event times, and the same event magnitudes. As a result, all epistemic realizations and their spikes reinforce each other in the calculation of the mean and median annual doses...." Modeling discrete low probability seismic events at precise points in time in a probabilistic model is extremely conservative.

Resolution Virtually the entire estimated 10,000-year mean annual dose is predicated on two grossly conservative assumptions and should be corrected. At a minimum, the grossly conservative assumptions should be recognized as resulting in practically 100 percent of the estimated 10,000-year mean annual dose. In addition, tabular data showing the contributing factors to the 10,000-year total dose should be provided in the main body of the Repository SEIS.]

31 [**Comment** Table 5-4, page 5-26 and section 5.5.2, page 5-29; section F.4.1.1, page F-33; section F.4.1.2.2; section F.4.2.1.1; section F.4.2.2.1: Section 5.5.2 states that the mean annual 1-million year dose to the RMEI could be as high as 2.3 millirem. Section F.4.1.1, page F-33 says the nominal scenario class contributes 0.5 millirem to this total; section F.4.1.2.2 says the waste package early failure modeling case contributes about 0.2 millirem to the total; section F.4.2.1.1 says the igneous intrusion modeling case contributes about 1.3 millirem to the total; section F.4.2.2.1 says the seismic ground motion modeling case contributes about 1.5 millirem to the total. The igneous intrusion case is grossly conservative because it assumes 100 percent of the repository waste packages are destroyed if an igneous intrusive event occurs. The seismic ground motion modeling case is also grossly conservative because it assumes, per section F.4.2.2.1, that "...each epistemic realization has essentially the same set of future conditions. That is, each epistemic realization has the same number of events, the same event times, and the same event magnitudes. As a result, all epistemic realizations and their spikes reinforce each other in the calculation of the mean and median annual doses" Modeling discrete low probability seismic events at precise points in time in a probabilistic model is ridiculously conservative.

Resolution Most of the 1 million year mean annual dose is, therefore, predicated on the two grossly conservative assumptions. The grossly conservative assumptions should be corrected. At a minimum, the grossly conservative assumptions should be recognized as resulting in most of the 1 million year mean annual dose. Additionally, tabular data showing the contributing

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factors to the 1 million year total dose should be provided in the main body of the Repository SEIS along with an explanation of why the total is less than the sum from all the scenario classes.]

- 32 [Comment Section 6.1.11, page 6-7: This section recognizes that previous estimates of sabotage consequences in the Final EIS could be overstated by a factor of 2.5 to 12. Resolution A resolution is not necessary; this concept of more reasonable assessments should be applied throughout the Repository SEIS.]
- 33 [Comment Section 6.2.3, page 6-9, Table 6-2: This section states that the maximally exposed individual repository worker would receive 25 rem based on an assumption that he would receive an annual administrative limit of 500 millirem per year for a 50-year working life. Even though page 6-10 recognizes this is "unlikely," such grossly conservative assumptions serve no useful purpose and should be avoided. Resolution Instead of making the assumption that the same person would receive the maximum allowed dose for 50 consecutive years, only the maximum annual results should be presented. Use of administrative controls to reduce the actual worker dose should also be acknowledged.]
- 34 [Comment Section 6.3.1, page 6-12: This section discusses methods to estimate transportation impacts. One of the assumptions is that the radiation levels emitted from transportation casks would be at the regulatory limit of 10 millirem per hour at a distance of 2 meters for every transportation cask. Resolution This assumption should be recognized as very conservative. Either replace it with an estimate using statistical average radiation limits from previous shipments or at least include the more realistic estimate as a point of reference. The use of grossly conservative input assumptions should be avoided to the extent practical because overestimates of consequences provide misinformation to the public and decision makers.]
- 35 [Comment Section 6.3.3.2, page 6-19: This section discusses impacts of severe accidents and presents an opposing viewpoint of the State of Nevada, stating that the consequences of severe accidents could be much greater than estimated. Most of the accident analysis inputs used are fairly reasonable. Resolution Where inputs are unrealistically conservative, recognition should be given to the very conservative input assumptions that cause gross overestimates of accident consequences. See comments on Appendix G for this topic.]
- 36 [Comment Section 6.4.1.11, page 6-39 and 6-40: This section presents transportation radiological health and safety impact estimates and sabotage impact estimates. Certain inputs to the estimates may be very conservative, causing gross overestimates. Resolution Neutral meteorological conditions and reasonable evacuation timing should be assumed for any significant release of radioactive contaminants. The estimates should be recalculated using reasonable inputs, or reasonably expected results provided for perspective. To do otherwise misinforms the public and decision makers about reasonably expected risks.]
- 37 [Comment Section 8.3.1, page 8-25: This section discusses a scaling approach to Inventory Modules 1 and 2. Resolution No resolution is required. A common sense approach is used for scaling the 70,000 metric tons of heavy metal (MTHM) repository impact estimates to estimates for Inventory Modules 1 and 2. Such a straightforward and reasonable approach is easily explained and understood.]

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38 **Comment** Section 8.6.2, page 8-47: The Nye County viewpoint is included in this section.
Resolution A resolution is not necessary.]

39 **Comment** Section 9.2.2, page 9-2: This section discusses stewardship practices and implementation of environmental management systems as part of its Integrated Safety Management Systems. It states: This structured approach to adaptive management through monitoring is currently an active part of DOE's management structure; DOE would continue this practice throughout the Proposed Action. As part of the planning process, DOE would establish measurable environmental objectives, and set measurable goals and targets (for example, pollution prevention goals for reductions in waste generation). DOE would then implement programs, procedures, and controls for monitoring and measuring progress, document progress and, if appropriate, institute corrective actions.

Resolution Page 9-5 first bullet list, add: *Monitor residency trends of Repository workers to assess and evaluate conditions at and around the repository site as repository-related activities take place.* Add the following text to the discussion:

The Council on Environmental Quality (CEQ) addressed the potential for using adaptive management in the NEPA process in "The National Environmental Policy Act: A Study of its Effectiveness After Twenty-five Years" (CEQ 1997c). The study concluded that a "major difficulty with the traditional environmental impact analysis process is that it is a one-time event". Unfortunately, the process does not account for unanticipated changes in environmental or social conditions, inaccurate predictions, or subsequent information that might affect the original mitigation measures. The adaptive management model, by adding "monitor and adapt," was seen as a significant improvement.

Although extensive studies, analyses, and modeling were conducted for the Repository, a level of uncertainty remains regarding potential environmental and social impacts. Therefore, adopting an adaptive management approach, which would include the implementation of an adaptive management plan, would provide DOE with a clear process for monitoring various parameters and adapting management decisions and mitigation measures as needed.

Amend the reference list to include:

CEQ. 1997. The National Environmental Policy Act: A Study of its Effectiveness After Twenty-five Years. January 1997. Available at <http://ceq.eh.doe.gov/nepa/nepa25fn.pdf>.

CEQ. 2003. The NEPA Task Force Report to the Council on Environmental Quality, Modernizing NEPA Implementation, September 2003.]

40 **Comment** Page 9-5: A DOE-provided economic mitigation measure is mentioned in this section: Provide assistance to state or local governments to mitigate economic, social, public health and safety, and environmental impacts under Section 116(c) of the Nuclear Waste Policy Act, as amended (NWPA) (42 U.S.C. 10101 et seq.). No value of such assistance is specified in the NWPA.

Resolution As part of the proposed adaptive management program, DOE and Nye County should conduct a fiscal impact baseline analysis that deals only with government costs and revenues; such an approach would provide a means of estimating the fiscal impact of the Yucca Mountain Project and would give a general sense of the level of economic mitigation required from the DOE. Estimates should be made of the additional revenue from and cost for each new resident (direct, indirect, or induced worker, for example) living in Nye County as a result of the

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Yucca Mountain Project. This should be part of the monitoring program to document the socioeconomic baseline with and without the Yucca Mountain Project.]

- 41 [Comment Section 9.2.3, page 9-6: This section includes the Nye County perspective.
Resolution No resolution is required.]
- 42 [Comment Section 10.1.1.6, page 10-4: The Nye County perspective is not included.
Resolution This section should be consistent with the observations made in Sec 4.1.6.1.5,
pages 4-48 and 4-49, and include a reference to the Nye County perspective in section 9.2.3.]
- 43 [Comment Section 10.1.1.7, pages 10-4 and 10-5: This section discusses impacts from radon
and its decay products.
Resolution Since almost all radiation impacts are from radon, DOE should commit to ensuring
that a monitoring program is in place as soon as possible to establish a baseline for radon
exposure at various site boundary locations and continue the monitoring throughout
construction and operations of the repository. DOE should also give serious consideration to
monitoring in conjunction with Nye County, to create a baseline against which other potential
offsite hazards could be measured.]
- 44 [Comment Sections 10.1.2.1.1 and 10.1.2.1.2, page 10-6: These sections discuss radiation
dose to workers who load transportation casks and to the public from incident free
transportation.
Resolution These discussions should acknowledge conservative inputs such as the assumption
of the regulatory limit radiation doses at 2 meters from the transportation casks. It should also
be acknowledged that the resulting consequences would be lower than the estimates
presented.]
- 45 [Comment Section G.7.1.3, page G-43; section G.8, page G-47: Possibly overly conservative
assumptions are used in the inputs regarding meteorological conditions. Section G.7.1.3
discusses a reasonable set of meteorological assumptions, which are used in the Draft
Repository SEIS. Section G.8 discusses severe transportation accidents and states the
repository Final EIS used near average meteorological inputs, but the Draft Repository SEIS
used 95th percentile meteorological inputs. Assuming an extraordinary unlikely accident occurs
simultaneously with very calm (worst case) meteorological conditions is an unreasonable
assumption and a step in the wrong direction in estimating consequences. Section G.8 also
states that exposure to contaminated ground lasts one year with no interdiction or cleanup. This
is an unrealistic assumption for any significant contaminate release. Gross overestimates are
not informative to the public or to decision makers and make it difficult for the County to
communicate with its citizens regarding the expected risks of repository operation.
Resolution Results with more reasonable inputs should be included along with the more
conservative estimates.]