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Review Comments to the Draft Environmental Impact  
Statement for a Geologic Repository for the Disposal of  
Spent Nuclear Fuel and High-Level Radioactive Waste  
at Yucca Mountain

Submitted To:  
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January 27, 2000

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North Las Vegas, Nevada 89036-0307

RE: Review Comments to Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain

Dear Ms. Dixon:

On behalf of Lincoln County and the City of Caliente, Nevada, we are pleased to submit comments to the Draft Environmental Impact Statement (DEIS) for the Yucca Mountain Project. These written comments supplement verbal comments which were provided to DOE by Mr. Dan Frehner, Chairman of the Lincoln County Commission on November 9 in Caliente, and by Mr. Kevin Phillips, Mayor of the City of Caliente on November 9 in Caliente and January 11 in Las Vegas. We would ask that the verbal comments of Mr. Frehner and Mr. Phillips be incorporated by reference and made a part of these written comments.

- 1... [The Board of Lincoln County Commissioners and the Caliente City Council expect DOE to give full consideration of all comments to the DEIS presented within this document. The County and City anticipate that these and other comments offered in response to the DEIS will warrant important changes to the draft document. In the event that substantive changes to the draft are necessary, the County and the City request that DOE consider reissuing the DEIS for further review and comment. Lincoln County and the City of Caliente will not hesitate to pursue all avenues afforded by federal and state law to ensure that repository impact issues important locally are fully addressed within the Final environmental impact statement and subsequent Record of Decision. The County and City will be particularly interested to see that negative aspects of the repository system are indeed identified and that the FEIS and Record of Decision

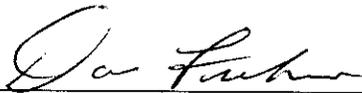
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January 27, 2000  
Ms. Wendy Dixon  
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1 cont. include substantive commitments to mitigation. Given that the repository and attendant transportation systems are not desired by any state in the Nation, but are being imposed on Nevada and its locales, Lincoln County and the City of Caliente believe that the FEIS and Record of Decision must include commitments by DOE to seek to compensate Nevada for the unwanted burden of hosting the Yucca Mountain project.

We trust that the comments which follow will serve to assist DOE in preparing a FEIS which is legally sufficient to satisfy the requirements of the National Environmental Policy Act and the Nuclear Waste Policy Act, as amended. Please feel free to contact us should you have any questions regarding the comments presented within this document.

Sincerely,



\_\_\_\_\_  
Dan Frehner  
Board of Lincoln County Commissioners

Cc: Governor Kenny Guinn  
Senator Harry Reid  
Senator Richard Bryan  
Congressman Jim Gibbons  
Congresswoman Shelly Berkley  
Chairman, Nuclear Regulatory Commission  
Administrator, U.S. Environmental Protection Agency

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## 1.0 INTRODUCTION

### 1.1 Purpose of These Comments

2 In submitting this document, Lincoln County and the City of Caliente are identifying and substantiating the importance of various omissions, errors, uncertainties within the Draft Environmental Impact Statement (DEIS) for the Yucca Mountain Project. With regard to omissions, the Council On Environmental Quality (CEQ) has indicated that every issue that is raised as a priority issue during scoping should be addressed in some manner in the EIS.<sup>1</sup> These comments include an assessment of DOE inclusion of issues raised by the County and City during scoping.

The County and City are providing these comments to assist DOE in preparing a Final Environmental Impact Statement (FEIS) which is sufficient under the National Environmental Policy Act (NEPA) to support major federal decisions regarding the Yucca Mountain project and related transportation systems. Reviewers of this document will immediately note the comprehensive nature with which the various sections to the DEIS are treated. The intent of the County and City is clear. Each intends to establish in the administrative record for the repository EIS that the jurisdictions did identify and validate the importance of the impact issues presented during scoping and not considered at all or treated in an insufficient manner in the DEIS. Given the failure of the DEIS to consider important issues, the County and City conclude that, in its current form, the DEIS is insufficient to support major federal decisions regarding the Yucca Mountain project and related transportation systems.

### 1.2 Status As An Affected Unit of Local Government

Lincoln County is one of ten units of local government which have been designated by the Secretary of Energy as an "affected unit of local government" pursuant to the Nuclear Waste Policy Act, as amended. The County is one of only three counties, which the Secretary of Energy voluntarily designated as affected by repository activities. What was identified in the 1986 Yucca Mountain environmental assessment remains true today: Lincoln County is likely to serve as the gateway for most shipments of high-level radioactive wastes entering Nevada and destined for storage and disposal at the Nevada Test Site. More recently, it has become evident that mutual interests of the State of Nevada and DOE to minimize risks to the health and safety of a majority of Nevada's residents and economy of southern Nevada will likely shift said risks to residents and businesses of Lincoln and other rural counties. Clear evidence of the State of Nevada's intent to cooperate with DOE to ensure that shipments of radioactive waste avoid the Las Vegas metropolitan area can be found in an August 24, 1999 letter from Nevada Governor Guinn to White Pine County Commissioner Julio Costello.<sup>2</sup> Such risk minimization objectives have been translated into proposed federal legislation, which has been introduced during each of the past several sessions of Congress. In response to efforts by the State of Nevada and DOE

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to defer risks away from Nevada's populated areas, the Board of Lincoln County Commissioners has and will continue to respond with recommendations focused at local risk and impact minimization and benefit maximization

### **1.3 Activities Leading To Preparation Of This Report**

Preparation of and submission by Lincoln County and the City of Caliente of this DEIS comment document does not represent an uninformed "not-in-my-backyard" reaction to the Yucca Mountain project. To the contrary, this document reflects well informed and carefully considered reactions to the DEIS. The ability of the County and City to provide DOE with the quality input by which this document can be characterized is dependent upon the lengthy involvement of concerned citizens, independent local research, and prior experience with NEPA compliance activities.

**1.3.1 Joint City/County Impact Alleviation Committee** - For the past fourteen years, Lincoln County and the City of Caliente have conducted a joint repository oversight and impact alleviation planning program. Through a memorandum of understanding, the County and City have established the Joint City/County Impact Alleviation Committee (JCCIAC) to oversee repository oversight and independent impact assessment activities. During this period, the eight-member JCCIAC Committee has diligently sought to provide guidance to local repository programs. The Committee, representing both geographic and disciplinary diversity, has met no less than 80 times and has invested over 1,500 hours of largely volunteer time to understand the implications of the Nation's nuclear waste management program to Lincoln County.

**1.3.2 Independent Research** - Utilizing funding provided by the DOE, the Committee has overseen the preparation of over 50 reports documenting repository system implications for Lincoln County. Topics addressed within these studies include emergency response, ethnography, transportation routing, economic/demographic impact assessment, media amplification of risks, community development, transportation risk assessment, risk communication, tourism impact assessment, fiscal impact assessment, and risk perception, among others. The numerous studies sponsored by the County and City of Caliente have utilized teams of highly trained and competent researchers representing both academic and private entities. In addition, the State of Nevada Nuclear Waste Projects Office has conducted numerous studies, which directly or indirectly address repository implications within Lincoln County and the City of Caliente. The County and City prepared a summary compilation of all findings of the State of Nevada with regard to repository system impacts locally. The extensive information base represented by these various studies was drawn upon by the County and City in preparing previously submitted comments to the scope of

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- 3 the DEIS. [In response to a request from DOE following DEIS scoping, DOE and DOE consultant staff were provided with a briefing on County and City independent research and were provided copies of numerous studies as well as diskettes containing Lincoln County specific economic impact models. The County and City are disappointed that the DOE apparently did not use the information provided by them as no reference to even one of the many reports provided to the Department is included within the DEIS. DOE is encouraged to make liberal use of information provided previously by the County and City in preparing the FEIS.]
- 4 **1.3.3 Input to Yucca Mountain EIS Scoping Process** – [As noted previously, Lincoln County and the City of Caliente did, in December of 1995, provided DOE with extensive written comments to the scope of the DEIS.(3)<sup>3</sup> The concerns raised by the County and City in during DEIS scoping remain equally valid today. DOE was asked to consider the potential for County and City input to the scope of the repository EIS to strengthen the sufficiency of the DEIS. For reasons not explained in any detail, the DOE elected to ignore most of the comments offered by the County and City.

## 2.0 Failure of DOE to Address Issues Raised During Scoping

It was within DOE's discretion to conclude whether issues raised by the County and City during scoping would be addressed in the EIS by in-depth analysis or through a short explanation showing that the issue was examined, but was not considered significant for one or more reasons. As the following assessment will demonstrate, DOE largely chose not to address issues raised by the County and City. For virtually issue presented by the County and City during scoping, DOE did not provide any explanation in the DEIS as to why the matter was not considered significant. The FEIS must include an explanation as to why each un-addressed issue raised during scoping by the County and City was not evaluated in the DEIS.]

## 2.1 ALTERNATIVES TO BE CONSIDERED

- 5 [The County and City recommended that definition of alternatives to be considered within the DEIS should be in part focused at aiding DOE and congressional decision-makers in evaluating comparative benefits and costs of proceeding with the waste management program now authorized by federal law. **The DEIS does not include a consistent presentation of benefits (including risk minimization) and costs of various alternatives for repository and related transportation system development and operation.**]
- 6 [The County and City suggested that DOE not be constrained by definition of alternatives, which fall wholly within the confines of existing law. Rather, DOE was

encouraged to consider alternatives that are outside the scope of what Congress has approved or authorized such that the EIS might serve as a the basis for framing subsequent Congressional decisions.<sup>4</sup> **The DEIS does not consider alternatives for waste disposal other than what has been currently authorized by the Congress. As a consequence the document is of little value in informing new legislative proposals and as such, is somewhat limited in its value as a decision-support document.**

- 7 **The County and City recommended that the DEIS consider alternatives for accomplishing each major facet of the waste management system including the repository itself, rail transportation within Nevada, legal weight truck transport within Nevada, heavy-haul truck transport through Nevada, and intermodal transfer from rail to truck within Nevada. DOE has considered alternatives for design and operation of the repository as well as various transportation modes and routes. The DEIS does not however, consider a rail to legal-weight truck alternative with intermodal operations at Caliente. Given the excessive risk of highway accidents (ie. speed differentials), institutional barriers (state permitting), costs to improve and maintain highway infrastructure, institutional certainty, and reduced risk and cost associated with trans-national rail transport, rail to legal-weight truck makes a great deal of sense. The FEIS must consider rail to legal-weight, with a Caliente intermodal location, as a transportation alternative.**

### 2.1.1 Repository Construction

- 8 **In DEIS scoping comments, the County and City noted that the disposal of radioactive waste in a deep geologic repository at Yucca Mountain is characterized by both real and perceived risk. The risk of exposure to radiation from atmospheric pathways was noted an important issue to residents of Lincoln County. Volcanism and criticality control were presented as two issues which the County believes every aspect of repository development and operation must be evaluated against. The County and City recommended that the DEIS include a comparative evaluation of the extent to which alternatives for accomplishing construction, emplacement, closure, and post-closure phases of the facility achieve containment of radioisotopes during volcanic eruption and loss of criticality control. The DEIS does not provide a comparative evaluation of the extent to which alternatives for construction, emplacement, closure and post-closure achieve containment of radioisotopes during volcanic eruption or loss of criticality control. The FEIS should include such a comparative evaluation.**
- 9... **The County and City recommended that the comparative evaluation of alternatives for accomplishing deep geologic disposal should also capture the range of**

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- 9 cont. uncertainty attendant to such options. In this way, the DEIS could facilitate decision-making under conditions of uncertainty. **While uncertainty is addressed to varying degrees throughout the DEIS, a summary assessment of the uncertainty associated with the various alternatives is not included within the DEIS. The FEIS should include such a summary assessment.**
- 10 The County and City recommended that the DEIS consider the risk management benefits and costs of the use of alternative repository construction materials. **The DEIS does consider alternative construction materials, however a comparison of the risk management benefits and costs is not to be found in the document.**
- 11 **2.1.2 Repository Emplacement** – Lincoln County and the City of Caliente encouraged DOE to consider alternatives for accomplishing the waste emplacement phase of the repository within the DEIS. The County and City noted that perhaps most important would be the evaluation of various candidate materials from which waste packages might be fabricated. Options suggested by the County and City which DOE might consider include those characterized as corrosion resistant, corrosion allowance, and moderately corrosion resistant. Each option was noted as performing differently under alternative thermal and geochemical environments. The County and City recommended that each alternative considered in the DEIS be characterized by varying contributions to risk management, cost and uncertainty. The County and City recommended that a similar evaluation be included for alternative materials for fabrication of waste package baskets. **The DEIS does consider alternative design concepts and design features intended to limit release and transport of radionuclides. The DEIS does not provide an assessment of the relative contributions to risk management, cost and uncertainty associated with each alternative considered. The information in the DEIS is therefor of limited value for decision-support.**
- 12 **2.1.3 Retrievability** – The County and City recommended that the DEIS evaluate various methods of ensuring that wastes can be safely and efficiently retrieved. **The DEIS does evaluate a variety of impacts associated with Retrievability. The DEIS does not however, consider transportation implications of retrieved wastes. The FEIS must consider possible transportation impacts associated with retrieved waste.**
- 13... **2.1.4 Closure** – The County and City recommended that the DEIS assess alternative materials which might be used to achieve closure for their relative contribution to risk management, Retrievability and cost. **The DEIS does not appear to consider the risk management, Retrievability and cost attributes of alternative materials which might be used to achieve repository closure. Absent such information, closure decisions can not**

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13 cont. **be supported by the document.**

14 **2.1.5 Post-closure** – Lincoln County and the City of Caliente noted in scoping comments that the relative contribution to risk management of various modes of warning future generations about the hazards of breaching repository containment should be considered in the DEIS. **It does not appear as though the DEIS includes an assessment of the risk management benefits of various methods to warn future generations about repository hazards.**

15 **2.2 Rail Transportation (within Nevada)**

The County and City recommended that the DEIS consider the effect that use of a proposed Yucca Mountain rail spur for LLRW shipments may have on route construction and operational economic feasibility should be considered within the DEIS. **The DEIS does not consider the implications for construction or operational feasibility of rails spurs under conditions of shared use for shipments of low-level radioactive waste.**

16 **2.2.1 Routing** – Lincoln County and the City of Caliente recommended that the DEIS consider the potential for rail-route alternatives to enhance access and mining of important mineral resources located within the study area. **The DEIS does not appear to consider (in any useful detail, if at all) the potential for rail-route alternatives to enhance access and mining of mineral resources within the study area.**

17... **2.2.2 Construction** – The County and City recommended that the repository EIS consider alternative strategies for construction of the rail spur serving Yucca Mountain. Alternatives suggested for consideration included construction standards (ie. rail strength, types of ties, maximum curve radius, maximum grade, and train speed). It was suggested that each of these alternatives should be assessed to determine their contribution to risk management and environmental impact. **The DEIS does not consider alternatives for rail strength, types of ties, maximum curve radius, maximum grade and train speed. The DEIS does not evaluate the relative contribution to risk management and environmental impact of alternatives for constructing a rail spur to serve Yucca Mountain.**

In addition, the County and City requested DOE to consider various methods for managing construction of the rail spur as a means to enhance positive and minimize negative fiscal impacts to regional economies. Alternatives suggested for consideration included using a single construction crew building the entire line over an extended period of time or multiple crews employed simultaneously to build various segments of

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17 cont. the spur. The County and City also requested that the DEIS consider whether union labor would be required for construction of the rail spur and the implications for such a requirement on rural resident employment opportunities. **The DEIS does not consider alternatives for staffing construction crews on the rail spur.**

18 **2.2.3 Operation** – Lincoln County and the City recommended that various options for operation of the rail spur be considered within the EIS. Operational alternatives affecting transportation safety which the County and City suggested for consideration included varying maintenance schedules and standards (ie. for roadbed, track and trains); options for coordinating train movements with Air Force overflights; train speeds; options for provision of security against sabotage or acts of terrorism; alternative locations for train maintenance and crew change facilities; the potential for and implications of allowing shared-use of the rail spur by other government agencies (ie. Air Force) and industrial users (ie. mining and energy); and options for ownership and operational management of the rail spur. It was recommended that each of these options should be evaluated against their contribution to risk management and regional economic benefit. **The DEIS does not consider operational alternatives affecting transportation safety including varying maintenance schedules and standards (ie. for roadbed, track and trains); options for coordinating train movements with Air Force overflights; train speeds; alternatives for provision of security against sabotage or acts of terrorism; alternative locations for train maintenance and crew change facilities; the potential for and implications of allowing shared-use of the rail spur by other government agencies (ie. Air Force) and industrial users (ie. mining and energy); and options for ownership and operational management of the rail spur.**

19 Lincoln County and the City of Caliente requested that the DEIS consider options for achievement of emergency management along the rail spur including enhanced local government response capabilities; placement of contractor response crews along the rail corridor; and provision of specialized equipment for train and shipping container handling. **The DEIS does not consider such alternatives.**

20... **2.2.4 Decommissioning** – The County and City of Caliente recommended that the DEIS consider what the disposition of the rail spur to Yucca Mountain will be following cessation of emplacement. Several alternatives were suggested by the County and City for consideration including: (1) abandon the line at the end of emplacement; (2) maintain the line during the period of monitored Retrievability (ie. 50-100 years) in case waste needs to be removed from the site; and (3) sell or deed the line to another governmental or private party following emplacement of waste. The County and City asked that consideration of these alternatives consider regional economies, impacts upon other public and private users, and barriers to effective relocation of waste from

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20 cont. the site in the event removal is required. **The DEIS does not consider the fate of a rail spur following cessation of emplacement.**

21 **2.3 Legal Weights Trucks (within Nevada)**

**2.3.1 Routing** – Because of the potential for U.S. Highway 6 and State Route 318 to be unavailable due to inclement weather, accidents, or construction, Lincoln County and the City of Caliente noted during scoping that the DEIS must consider impacts of transporting radioactive waste along U.S. Highway 93 through Lincoln County. **The DEIS does not consider transportation along U.S. Highway 93 in Lincoln County.**

22 **2.3.2 Operation** – The County and City recommended that the DEIS consider operational alternatives including escorted versus unescorted shipments; time of day travel restrictions versus unrestricted transport; and use of local versus non-local trucking firms. The first two were suggested for consideration for their contribution to risk management. The third option set was recommended for evaluation to determine regional economic benefits. **The DEIS does not consider operational alternatives for legal weight trucks as recommended by the County and City during scoping.**

23 Lincoln County and the City of Caliente pointed out the need for the DEIS to evaluate options for achievement of emergency management along legal weight truck routes. Alternatives suggested by the County and City for review included enhanced local government response capabilities; placement of contractor response crews along the highway corridor; and provision of specialized equipment for truck and shipping container handling. **The DEIS does not consider alternatives for ensuring that effective emergency management capabilities exist along legal weight truck routes.**

24... **2.4 Heavy Haul Trucks (within Nevada)**

**2.4.1 Construction** – Lincoln County and the City of Caliente noted that the DEIS should evaluate alternatives for establishing and maintaining a highway system capable of withstanding repeated heavy-haul loads. They further suggested that where new road construction is required, improved yet unpaved surfaces should be evaluated against pavement. The County and City encouraged DOE to evaluate risk management benefits associated with options for construction of dedicated travel lanes in areas of excessive grades or poor sight distance. **The DEIS does not consider paved versus unpaved roadway improvement alternatives. Evaluation of the risk management benefits potentially associated with construction of dedicated travel lanes was not addressed within the DEIS.**

**2.4.2 Operations** – The County and City recommended several operational alternatives

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24 cont. for consideration within the DEIS including escorted versus unescorted shipments; time of day travel restrictions versus unrestricted transport; and use of local versus non-local trucking firms. The first two were recommended for consideration for their contribution to risk management. DOE was encouraged to evaluate the third option set to determine regional economic benefits. **The DEIS does not consider specific heavy-haul operational alternatives offered by Lincoln County and the City of Caliente during scoping.**

25 Lincoln County and the City of Caliente recommended that the DEIS consider options for achievement of emergency management along heavy-haul truck routes. Alternatives suggested for consideration included enhanced local government response capabilities; placement of contractor response crews along the highway corridor; and provision of specialized equipment for heavy-haul truck and shipping container handling. **The DEIS does not consider alternatives for ensuring that effective emergency management capabilities exist along heavy-haul truck routes.**

26 **2.5 Intermodal Transfer (within Nevada)**

**2.5.1 Operations** – Lincoln County and the City of Caliente recommended that alternatives for accomplishing operation of the intermodal facility should be evaluated for their contribution to risk management and local economic benefits. It was suggested that DOE and DOE/contractor approaches should be considered against private development and operation. The County and City requested that options for shared use of the facility by other government (ie. defense) and private industries should be assessed for their contribution to regional economic development. Alternatives for management of throughput at the facility were suggested for evaluation for their relative contributions to risk management. Of particular concern to the County and City was the potential for buildup of loaded shipping containers at the intermodal transfer site. The County and City asked that the DEIS evaluate the exposure risks associated with alternative numbers of in-transit containers resident at the site. **The DEIS does not consider any of the specific intermodal operational issues raised by Lincoln County and the City of Caliente during EIS scoping.**

27 The County and City asked that options for achievement of emergency management at the intermodal transfer facility be considered in the EIS. Alternatives suggested by the County and City for evaluation included enhanced local government response capabilities; placement of contractor response crews at the facility corridor; and provision of specialized equipment for heavy-haul and shipping container handling. **The DEIS does not consider alternatives for ensuring that effective emergency management capabilities will exist at prospective intermodal facilities.**

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28 **2.5.2 Decommissioning** – Lincoln County and the City of Caliente requested that the DEIS consider the disposition of the intermodal transfer facility following cessation of waste emplacement at Yucca Mountain. Several alternatives were offered by the County and City for consideration by DOE including: (1) abandon the facility at the end of emplacement; (2) maintain the facility during the period of monitored Retrievability (ie. 50-100 years) in case waste needs to be removed from the site; and (3) sell or deed the facility to another governmental or private party following emplacement of waste. The County and City requested that consideration of these alternatives evaluate impacts upon local economies, impacts upon other public and private users, and barriers to effective relocation of waste from the site in the event removal is required. **The DEIS does not consider the fate of an intermodal facility following cessation of waste emplacement at Yucca Mountain.**

29 **2.6 Level of Analysis**

In scoping comments, Lincoln County and the City of Caliente noted that NEPA requires that each alternative and subalternative considered within the DEIS be evaluated in a comparative form to enable a clear foundation for choice among the options. The extent of analysis focused to each alternative must be largely similar to that devoted to the proposed action and each subset of the proposed action. **The DEIS does not address a sufficiently broad range of implementing alternatives or subalternatives for repository and transportation nor does it offer useful comparative evaluations of the few alternatives and subalternatives considered. As a consequence, the document is of marginal value as a decision-support tool for other than a perhaps a basic decision as to whether or not to recommend the site to the President. The DEIS will not support decisions about how best to develop and operate the repository and related transportation systems in a manner which minimizes risk and impacts and maximizes local economic benefits.**

30... **2.7 AFFECTED ENVIRONMENT**

Lincoln County and the City of Caliente requested that descriptions of the affected environment within the DEIS be detailed enough to enable delineation of subarea impacts (ie. City of Caliente, Alamo, etc.). Further, the County and City asked that to the maximum extent practical, DOE rely upon baseline descriptions of the affected environment developed and/or compiled by Lincoln County and the City of Caliente. DOE was provided copies of various socioeconomic, fiscal and other studies and economic/demographic models (on diskette) to facilitate use of locally derived information. **In general, DOE elected not to use locally specific and derived information provided by the County and City. As is noted in other comments, the resulting**

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30 cont. **description of the affected environment and impacts does not accurately reflect conditions in Lincoln County and the City of Caliente.**

31 **2.7.1 Air Quality** – The County and City noted that the DEIS should include a description of ambient air quality conditions within potentially impacted basins of Lincoln County. Information regarding current air quality conditions in the County were provided to DOE during EIS scoping. **The DEIS Affected Environment section on Air Quality does not even refer to Lincoln County specifically and offers only very general observations not useful to determine impacts.**

**2.7.2 Climate** – The County and City noted in scoping comments that although construction and operation of repository system components within Lincoln County will not likely affect regional climate, local climatic conditions may impact upon safe operation of the repository system, particularly transportation. The County and City recommended that DEIS consider impacts of climate upon safe transport of radioactive wastes. Aspects of the climate recommended by the County and City for consideration included precipitation (particularly snow and ice), temperature (as may impact upon highway infrastructure and road surface conditions), and fog. **The DEIS section on Affected Environment offers only a modest description of the climate within Lincoln County which provides insufficient information upon which to determine potential effects of climate upon safe transportation.**

32... **2.7.3 Hydrology** – The County and City recommended that the include a description of existing wells and springs within Lincoln County hydrographic basins potentially hosting repository system construction activities, including rail or highway improvements. DOE was encouraged to include in said description depth to groundwater, flow attributes of existing springs, and existing water quality. **While the DEIS Affected Environment section does address surface and groundwater conditions along potential transportation corridors in Lincoln County, the baseline data is not sufficient to enable conclusions about impact to hydrologic resources to be derived. For example, despite a request by the County and City for said information be included in the document, the DEIS does not describe depth to groundwater, flow attributes of potentially impacted springs or existing water quality of potentially impacted water resources.**

During scoping, the County and City suggested that surface hydrology might impair safe transport and/or handling of radioactive wastes and might be significantly altered by construction activities. The County and City recommended that for all areas within Lincoln County potentially impacted by repository system construction and operations

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32 cont. (including transportation), mapping of surface hydrology and estimates of baseline flows should be included within the DEIS. **The DEIS section on Affected Environment does not include any description of existing surface hydrologic conditions (particularly estimates of the duration and intensity of peak flows) within Lincoln County. This is despite the fact that the DEIS does attempt to describe potential hydrologic impacts of transportation in Lincoln County (Section 6 of DEIS).**

33 **2.7.4 Geology** – In scoping comments to the EIS, Lincoln County and the City of Caliente noted that baseline geology and soil conditions could impact upon construction and operation of repository system components, including transportation infrastructure. The County and City noted for example that fault and soil features might impair facility integrity and alteration of area soils might induce or exacerbate flooding, water quality, and air quality impacts. The County and City observed that construction of a rail spur through Lincoln County would require extensive quantities of ballast and other roadbed materials. The County and City recommended that the DEIS include an inventory of potentially suitable sites to borrow materials within Lincoln County and the DEIS include geologic and soils mapping for all candidate sites and corridors potentially hosting repository system components, including transportation, within Lincoln County. It was noted in the County and City scoping comments that such inventory of soils should be completed to also facilitate preparation of plans for revegetating areas disturbed by construction activities. To facilitate DOE consideration of soil conditions, the County offered to provide DOE county-wide digital soils map coverage at 1:100,000 scale, which had been developed by the County. **The Affected Environment section of the DEIS provides no information on specific soil conditions within Lincoln County. This is despite analyses contained within Section 6 of the DEIS which attempt to describe impacts of transportation activities on soils.**

34 **2.7.5 Flora and Fauna** – Lincoln County and the City of Caliente recommended that the DEIS include an assessment of existing populations and conditions of vegetative and animal resources along alternative rail corridors. In its scoping comments, Lincoln County was particularly concerned about losses of big game habitat and impacts on hunting's contribution to the local economy. **The DEIS does evaluate vegetative and animal resources along potential transportation routes. However, the lack of detailed inventory data for key species of flora and fauna renders the document insufficient as a decision-support tool with regard to deciding between alternative transportation corridors on the basis of impacts to flora and fauna. The DEIS does not appear to consider impacts to hunter recreation days as a result of impacts to lost wildlife habitat.**

- 35 **2.7.6 Noise** – The County and City recommended that the repository EIS include an assessment of background noise levels along proposed rail corridors and at locations potentially hosting other repository system components and activities (intermodal transfer, borrow sites, highway construction, heavy-haul transport). **Although the DEIS provides a generic assessment of ambient noise levels in certain Lincoln County communities, the information is not useful in deriving transportation system related impacts. For example, the DEIS contains no specific description of the variance in noise levels in Caliente associated with existing rail traffic through the community. Consequently, it is not possible to know to what extent proposed spent fuel shipments would serve to impact upon existing noise.**
- 36 **2.7.7 Viewshed** – Lincoln County and the City of Caliente recommended that the DEIS, to facilitate an assessment of impacts upon viewshed, include an analysis of existing visual quality within basins potentially impacted by rail construction and operation. The County and City noted that such information can be used in developing measures for mitigation of impacts to viewshed within Lincoln County. **The DEIS does assess existing visual quality along rail corridors in Lincoln County. There is however, no description of measures to mitigate visual impacts of rail corridors within Section 9.3 of the DEIS.**
- 37... **2.7.8 Background Radiation** – In comments to the scope of the DEIS, the County and City noted that the transportation of spent nuclear fuel and other high-level radioactive wastes through Lincoln County may increase the risks of exposure to radiation for residents and visitors to the area. Existing risks of exposure were noted as being attributable to natural and human induced background radiation. Because of the potential for cumulative exposures to heighten risks, the County and City suggested the necessity for the repository EIS to adequately assess baseline sources of radiation exposure within Lincoln County. The County and City offered evidence through County sponsored research that the potential for the cumulative effects of exposure to radiation sources could result in adverse consequences for public health and safety.<sup>5</sup> According to the County and City, this study provided the scientific justification for quantification of the cumulative risks of exposure to radiation associated with natural background sources, historic DOE weapons testing activities, on-going DOE activities at NTS, future low-level radioactive waste transport and disposal activities in Nevada, and future high-level waste transport and disposal activities in Nevada. The County and City noted in their scoping comments that the long-term physiological consequences associated with repeated exposures to radiation are cited in the report as very real. **Section 3, Affected Environment, of the DEIS does not provide any**

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37 cont.

**description of existing background levels of radiation along proposed transportation corridors, or in the vicinity of the proposed Caliente intermodal facility, in Lincoln County. As a consequence, the assessment of radiological risk contained within Section 6 of the DEIS does not appear to consider existing background sources of exposure in determining health risks. Further, the lack of baseline information on background radiation appears to render the cumulative impacts section of the DEIS insufficient in its estimate of health risk.**

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**2.7.9 Paleontologic – The County and City recommended that an assessment of paleontologic resources within alternative rail corridors and at potential borrow pit sites within Lincoln County be conducted and reported on within the scope of the repository DEIS. The DEIS does not identify potential borrow pits and therefor has not included an assessment of the paleontologic resources at such sites. Such an omission makes the document less useful as a decision-support tool, particularly in choosing among transportation corridor alternatives.**

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39 **2.7.10 Archaeologic** – Lincoln County and the City of Caliente recommended that the repository EIS include field surveys of alternative rail corridors, material sites, and other areas where construction may occur to determine the location and significance of any archeological resources. **The DEIS does not identify potential borrow pits and therefor has not included an assessment of the archaeological resources at such sites. Such an omission makes the document less useful as a decision-support tool, particularly in choosing among transportation corridor alternatives.**

**2.7.11 Historic** – Lincoln County and the City of Caliente recommended that the DEIS include an inventory of important historic resources within Lincoln County along transportation corridors and in the vicinity of construction material sites. **The DEIS does not identify potential construction material or man-camp sites and therefor no inventory of historic resources in the vicinity of such areas is included within the DEIS. The absence of this information makes the document less useful as a tool for discriminating among alternative transportation corridors.**

40... **2.7.12 Socioeconomic** – Lincoln County and the City of Caliente recommended that the DEIS include a comprehensive assessment of desirable and undesirable economic and fiscal consequences of repository system activities in the County and City. The County and City noted in their EIS scoping comments that a credible assessment of socioeconomic impacts would only be possible by DOE if the agency had at its disposal an accurate understanding of existing socioeconomic conditions within the County and among its communities. The County and City further suggested that such a baseline assessment of "without repository system" socioeconomic conditions should include the following factors: economy, demographics, social conditions, Native Americans, public perceptions and attitudes, community services, community infrastructure, local government finances, government structure, local politics, telecommunications, emergency management, transportation infrastructure, land use, traffic, military operations, and public health. The County and City noted that the DEIS must present a comprehensive appraisal of current and without repository future socioeconomic conditions. According to the County and City, this baseline of information could then be used to compare against projected with repository conditions to extract resultant system impacts upon the County and its communities. **Section 3, Affected Environment of the DEIS provides only a limited description of socioeconomic conditions in Lincoln County and the City of Caliente. The only desegregated description of socioeconomic conditions for Caliente concerns population. The DEIS provides no baseline description for many potentially impacted parameters including: age distribution; projected population growth without repository activities through at least 2035; baseline projected employment and incomes by economic sector through**

40 cont.

at least 2035; baseline projections of school enrollments by age distribution through at least 2035; baseline projections of supply and demand for public infrastructure (including water, wastewater, solid waste, electricity, recreation facilities, educational facilities, emergency first response equipment and facilities; emergency medical facilities and equipment) through at least 2035; baseline social conditions including crime, substance abuse, and demand for social programs; community cohesion; baseline projections of local government revenues and expenditures at least through 2035; baseline projections of housing availability, condition and cost through at least 2035; and baseline projections of land use through at least 2035 among other possible parameters. All of these descriptions of baseline and without repository projections of conditions should be at the Lincoln County and at the community level (ie. Caliente, Alamo, Panaca, Pioche, Hiko, Rachel). For example, baseline projections of wastewater treatment facility demand and capacity is key in Caliente as the proposed location of the intermodal facility is the current City wastewater treatment facility which would require that the City's existing wastewater treatment facilities be relocated. In addition, a recent DOE study has identified U.S. 93 (which is immediately adjacent to Pioche) as a potential corridor for legal weight truck shipments of radioactive waste.<sup>6</sup> The social tapestries, which characterize each community in Lincoln County, vary greatly. Religious and occupational variation contribute greatly to community social delineation. Age clusters define important social characteristics within each community. Previous studies by the State of Nevada have detailed differences in social conditions among Lincoln County communities.<sup>7,8</sup> Growth within Lincoln County's small communities may induce significant changes in social conditions. Ethnographic research sponsored by Lincoln County and the City of Caliente have illustrated the unique cultural dimension which characterizes the County and City. The County and City continue to believe that the EIS must a thorough description of social indicators for Lincoln County communities. Such information is not contained within the DEIS.

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**2.7.13 Public Perceptions and Attitudes** – During scoping, Lincoln County and the City of Caliente urged the DOE to include within the DEIS consideration of public perceptions and attitudes. The County and City were concerned that legitimate and ill conceived perceptions of repository system (including transportation) risks might induce adverse consequences to local social and economic conditions. Because residents and visitors to the area face existing and will face future "without repository" hazards, it was deemed imperative that existing perceptions and attitudes be fully understood within the DEIS so as to enable complete evaluation of repository system induced changes in cognition. It was noted in scoping comments that the availability of this information would enable County, City and DOE planners to effectively plan

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- 41 cont. communication and other response strategies intended to mitigate behavioral consequences of negative perceptions of risk. The County and City offered research sponsored by Lincoln County to demonstrate that media amplification of risk may induce unanticipated responses by area residents.<sup>9</sup> The County and City remain concerned that such a public reaction may constrain local emergency management effectiveness. **Despite raising and substantiating public perceptions and attitudes as an important issue for consideration in the DEIS, DOE has elected to exclude assessment of the matter in the document. Section 3 of the DEIS, Affected Environment, contains no substantive assessment of public perceptions and attitudes.**
- 42 **2.7.14 Community Services and Infrastructure** - During scoping of the EIS, Lincoln County and the City of Caliente made clear the difficulty that small rural counties and communities have in developing and maintaining public services and facilities. Any change in population, related demands for public services and facilities and induced changes in local revenues and expenditures can pose a significant hardship on the area and its residents. The County and City urged the DOE to include in the DEIS the repository EIS and assessment of existing and future "without repository" community service and infrastructure characteristics within Lincoln County and among its various communities. The County and City noted that when included in the affected environment section of the EIS, this information will be useful for comparison with "with repository" service and facility demands to determine net impacts. **The DEIS does not provide a sufficient assessment of existing and without repository future community service and facility needs within Lincoln County and the City of Caliente. As a consequence, subsequent impact analyses are wholly inadequate as a means to discern how the repository system (including transportation) may effect the County and City.**
- 43 **2.7.15 Local Politics** – In scoping comments to the EIS, Lincoln County and the City of Caliente observed that the potential for development and operation of repository system components within Lincoln County had already demonstrated the ability to bear upon local politics. The County and City recommended that the DEIS include an evaluation of possible impacts upon local politics. To enable said analysis, the County and City called upon DOE to include a baseline assessment of the local political landscape within the DEIS. **The DEIS gives no consideration to the potential for the Yucca Mountain project to be disruptive to or create political divisiveness within local political institutions.**
- 44... **2.7.16 Emergency Management** – Lincoln County and the City of Caliente commented

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during EIS scoping on the potential that the inability of local first responders to effectively manage incidents involving high-level radioactive wastes might result in significantly increased risks associated with related accidents. The County and City substantiated this possibility with reference to local assessments of local emergency response capabilities.<sup>10,11</sup> In addition, the County and City provided DOE with 83 possible constraints to effective local first response capabilities to accidents involving high-level radioactive wastes.<sup>12</sup> The County and City urged DOE to update this information and to consider it within the repository EIS. The County and City reasoned that "with repository" emergency response needs could then be compared with baseline conditions to determine improvements needed to provide adequate risk management. **The DEIS all but ignores existing emergency first response and emergency medical capabilities within Lincoln County and the City of Caliente. There is no description of existing capabilities nor any description of "with repository" requirements.**

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**2.7.17 Transportation Infrastructure** – During EIS scoping, Lincoln County and the City of Caliente provided DOE with evidence that rail condition can affect accident rates. Reference to County and City sponsored research regular assessments of rail condition along the UP mainline<sup>13</sup> was provided to DOE. The County and City encouraged DOE to an assessment of pre-waste shipment track condition and use within the DEIS. **The DEIS is silent on the issue of existing rail condition and implications of rail condition for transportation safety.**

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**2.7.18 Public Health** - Lincoln County and the City of Caliente noted in scoping comments on the EIS that one of the most important concerns of County and City residents is the protection and enhancement of resident health. The County and City noted that in order to accurately assess and monitor repository system health effects over time, it is essential that DOE develop a comprehensive baseline assessment of medical conditions within the County. This assessment, it was noted, should enable differentiation of existing and potential health effects attributable to exposure to radioisotopes associated with previous DOE activities at NTS. The County and City recommended that the results of the epidemiological assessment be included within the affected environment section of the repository EIS. **The DEIS does not address existing health conditions of residents residing within area potentially affected by the repository system, including transportation. As a consequence, there is no way to predict or monitor the significance of repository related health effects in the region.**

## 2.8 ENVIRONMENTAL CONSEQUENCES

47 **2.8.1 Direct Effects** – The County and City urged DOE to assess rail construction related losses in forage for livestock grazing. **While the DEIS recognizes that some forage might be lost and that livestock movements might be impeded, no estimate of lost animal unit months (AUM's) of forage is provided within the DEIS.**

48 **2.8.2 Indirect Effects-** Lincoln County and the City of Caliente encouraged DOE to consider population growth resulting from location of repository system support industries in the County and demands for public services and infrastructure by dependents of DOE or contractor employees within the County and City. **The DEIS does not consider the potential nor attempt to quantify population growth resulting from location of repository support industries in the County or related demands for public services and facilities.**

49... **2.8.3 Cumulative Effects** – In comments to the scope of the EIS, Lincoln County and the City of Caliente urged DOE to consider the cumulative effects which may result from the incremental impact of the proposed action and alternatives thereto when added to other past, present, and reasonably foreseeable future actions. Of particular concern to the County and City was the cumulative effects of exposure to various source terms for radiation within the region. As a component to their comments, the County and City referenced research they had sponsored which determined that consideration of cumulative exposures to radiation is a scientifically defensible undertaking.<sup>14</sup> The County and City recommended that the repository EIS consider the cumulative exposure risk associated with previous DOE weapons testing activities, on-going DOE weapons activities, on-going DOE low-level radioactive waste (LLRW) management activities, potential future LLRW management activities at NTS, potential LLRW transportation activities through Lincoln County, proposed high-level waste transport and disposal in Nevada, and natural and other human-induced sources of background radiation. **While the DEIS provides a generic assessment of cumulative risks, the analysis is not transportation corridor, county, or community specific. As a consequence, the assessment of cumulative risk is not useful in discriminating between routing alternatives. Nor does the analysis prove useful in determining where and in what manner risks might best be mitigated.**

**2.8.4 Conflicts With Plans** – Consistent with requirements of NEPA, the County and City recommended that the repository EIS consider how construction and operation of repository system components within Lincoln County will conflict with existing federal, state and local land use plans, policies, or controls. In particular, the County and City felt that conflicts with the Lincoln County Masterplan and the City of Caliente

49 cont. Mastertplan should be evaluated. **The DEIS does not consider conflicts with plans developed by Lincoln County or the City of Caliente.**

50 **2.8.5 Distributional Equity** – In comments to the scope of the EIS, Lincoln County and the City of Caliente substantiated the propensity for Clark County and the metropolitan Las Vegas area to garner a disequitable share of economic benefits associated with activities at the Nevada Test Site. The County and City pointed out that unlike many other projects, the construction and operation of the repository system is characterized by clearly discernable risks and benefits. The County and City further noted that unlike many other industrial activities, the spatial and temporal distribution of these risks and benefits has the potential to be disequitable between places and periods of time. The County and City concluded that the distribution of risks and benefits associated with DOE activities in Nevada during the past 30 years has not been fair.

In their comments, Lincoln County and the City of Caliente worried that development and operation of the repository system within Nevada has the potential for extending and perhaps exacerbating this disequitable distribution of risks and benefits. They suggested examples of practices which DOE might adopt which can widen the risk/benefit gap including: use of union workers, most of whom reside in urban areas, provision of subsidized bussing of repository workers electing to reside in Clark County, and purchase of goods and services from vendors located in urban areas, among other possibilities. Lincoln County and the City of Caliente suggested that the repository EIS should evaluate the distributional equity implications of various options for system development and operation. The County and City recommended that the evaluation should consider the cumulative aspects of risks and benefits associated with other DOE activities likely to occur within Nevada (ie. LLRW management). They concluded that this information should be used to inform identification and analysis of alternatives for mitigating the disequitable distribution of repository system risks and benefits. **The DEIS does not consider the potential for disequitable distribution of repository system economic benefits, fiscal impacts and risk to public health and the environment among Nevada's geographic areas. As a consequence no measures to mitigate disequitable distribution of benefits and costs are identified or presented within the DEIS.**

51... **2.8.6 Expected Effects**

In comments to the scope of the EIS, Lincoln County and the City of Caliente concluded that DOE must consider the positive implications of DOE and contractor spending in Lincoln County. In addition, the County and City felt that the EIS must include a thorough analysis of the fiscal consequences of repository system

51... development and operation upon Lincoln County, City of Caliente, and the Lincoln County School District.

123 Lincoln County and the City of Caliente also provided information during scoping which demonstrated given average wind speeds in the vicinity of Yucca Mountain of 7.4 miles per hour (mph) and peak recorded gusts of 60 mph, it is possible that airborne radioisotopes could be transported to the proximity of Lincoln County communities within 1.5 to 8 hours.<sup>15</sup> The City and County pointed out that the short airborne emission travel time is in part why DOE has previously declared portions of Lincoln County as within the "Off-site Uncontrollable Area" (OSUA). The County and City urged DOE to assess the potential for and related impacts of off-site exposures to residents and the economy of the County. **The DEIS does not consider off-site exposure of communities within Lincoln County.**

52 In scoping comments, the County and City demonstrated that a transportation accident characterized by extensive media coverage might result in stigmatization of area tourist destinations. As a component to comments to the scope of the EIS, the County and City referenced County sponsored research which evaluates the consequences of the accident at Three Mile Island and applies possible outcomes to a transportation accident.<sup>16</sup> The County and City encouraged DOE to consider the potential for and impacts of media induced stigmatization of Lincoln County tourism assets. **The DEIS does not consider stigma or perceived risk nor impacts related thereto.**

53... County and City comments to the scope of the EIS pointed out that risks associated with transportation of radioactive wastes through the County and City have been an important topic of local inquiry. The City and County pointed to research they sponsored which was performed by the University of Nevada, Las Vegas Transportation Research Center to evaluate the risks of transporting waste by highway and by rail through the area.<sup>17</sup> The study did conclude that the total accident risk (person rem) in the County for rail and highway transport was significantly greater than that estimated for other like areas around the United States. Total risk associated with rail and highway waste transport in rural areas of the County was also found to be significantly than that estimated for other like areas across the United States. In their comments, the County and City noted that although absolute levels of risk may be considered low, this study clearly indicates that residents of Lincoln County may be exposed to significantly greater levels of risk. The County and City urged DOE to recognize that the repository EIS must consider these differences as a means to ascertain viable options for reducing risk to levels commensurate with other regions of

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the United States. The DEIS does not provide a comparative assessment of transportation risks through Nevada, or more importantly Lincoln County and other regions of the United States. As a consequence important differences between levels of risk are not revealed. Within Nevada, the DEIS does demonstrate that risks of transporting waste through rural areas is riskier than through urban areas. However, the DEIS does not provide sufficient identification and evaluation of measure to mitigate greater risk levels in rural areas.

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**2.8.7 Characterization of Effects** - To ensure that the repository EIS focused upon those issues posing the most threat to existing environmental conditions, the County and City recommend in comments to the scope of the DEIS that DOE seek to categorize prospective impacts as to their probability of occurrence and their degree of consequence. The County and City reasoned that this course of action would help to encourage a draft NEPA compliance document, which was most responsive to issues perceived important by stakeholders. In their comments, the County and City referenced their study of potential repository system impacts, which addressed socioeconomic effects.<sup>18</sup> **The DEIS does not include a categorization of impacts as to their probability of occurrence and their degree of consequence. As a result, the DEIS lends no indication as to where efforts to mitigate impacts should be initiated to afford greatest benefit.**

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**2.9 MITIGATION OF EFFECTS** – In comments to the scope of the EIS, Lincoln County and the City of Caliente reviewed NEPA requirements for addressing mitigation. The County and City pointed out that NEPA regulations require that DOE identify and evaluate all potentially feasible options for mitigation of impacts. Mitigation measures should not be eliminated from consideration in the EIS because they are outside the jurisdiction of the lead agency or because they are not likely to be adopted or enforced by DOE. The probability of each mitigation measure being implemented must be addressed within the EIS. (40 CFR 1502.16 (h), 1502.2) Five categories of mitigation, which must be considered by the Department, include avoidance, minimization, rectification, reduction and compensation. Based upon the requirements of NEPA, Lincoln County and the City of Caliente observed in their comments to the scope of the EIS that they would consider DOE proposed mitigation measures of the following types to be insufficient:

1. "DOE will consult with..."
2. "DOE will conduct further studies..."
3. "DOE will prepare a plan to mitigate..."

55 cont.

4. "DOE will strive to protect the resource..."
5. "DOE will monitor the problem..."
6. "DOE will submit a recommended solution for review by..."

The County and City reminded DOE that NEPA requires that all of the specific impacts of the system (whether or not "significant") be considered, and where feasible, related mitigation measures developed. (40 CFR 1502.14(f), 1502(h), 1508.14). The County and City encouraged DOE to identify mitigation measures both by type (ie. avoidance) and by waste system component and phase. Lincoln County and the City of Caliente encouraged DOE to ensure that every effect on the existing environment have a corresponding set of mitigation options identified within the DEIS. **Contrary to NEPA, the DEIS contains several proposed mitigation measures which are simply studies or simply describes studies which will lead to identification of mitigation measures. For most impacts identified within the DEIS, but characterized by DOE as non-significant (ie. population growth in Lincoln County and City of Caliente and related growth in government expenditures), the DEIS simply does not provide any suggested mitigation measures. In completing the FEIS, DOE should evaluate all listed mitigation measures against the types listed above to discern those which are of an unacceptable form under NEPA.**

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### **3.0 DOE PROCESS FOR NEPA COMPLIANCE**

**3.1 Responses to Comments to the DEIS** – DOE is encouraged to meet with representatives of affected units of local government to review proposed agency responses to comments to the DEIS. Such a meeting would help to ensure that local government comments are understood by the Department and if proposed responses are responsive to the comments. DOE is encouraged to provide individual responses to all comments provided so that commentors can easily ascertain what effect, if any, their comment had on the form of the FEIS.

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**3.2 Record of Decision** – In comments to the scope of the EIS, Lincoln County and the City of Caliente noted that it is imperative that any and all feasible mitigation measures identified during preparation of the EIS be included in the Record of Decision to be developed subsequent to completion of the EIS. The Record of Decision must include the following: statement explaining the decision; explanation of alternatives that were considered and those that are environmentally preferable; factors considered by DOE in making its decision; explanation of which mitigation measures, if any, were adopted, and if mitigation measures were not adopted, an explanation of why not; and a monitoring and enforcement program for any adopted mitigation measures. (40 CFR 1505.2) Lincoln County will take a dim view of a DOE decision to only address

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57 cont. mitigation apart from the Record of Decision, for example in a stand-alone mitigation plan. Lincoln County places great significance upon the institutional and legal stature of the Record of Decision. The County believes that commitments to mitigation not contained within the Record of Decision will not be commitments at all.

58 **4.0 Relationship to DOE Proposed Revisions to 10 CFR 960**

The Department of Energy proposes to revise 10 CFR 960, "Siting Guidelines for Geologic Repositories. Comments on the DOE's proposed revisions are due February 28, 2000. The proposed revision to 10 CFR 960 calls for elimination of the requirement that DOE consider environmental, socioeconomic, and transportation issues in determining the suitability of the Yucca Mountain site as a geologic repository. The proposed rule states that justification for the elimination of these criteria is found in the fact that DOE is preparing an environmental impact statement, the results therein, which would be available to the Secretary of Energy in developing and defending a site recommendation report to the President.

Lincoln County and the City of Caliente have reviewed the DEIS for Yucca Mountain and find the consideration of environmental, socioeconomic and transportation issues to be wholly insufficient to support a major federal decision such as recommending the site to the President. IF DOE is looking to the Yucca Mountain EIS to provide the Secretary of Energy with the substantive information needed to support a decision to recommend the site to the President, then significant revision to those sections of the DEIS concerning environmental, socioeconomic and transportation issues is required. IF DOE does not intend to make significant revisions to the DEIS, then proposed revisions to 10 CFR 960 that depend upon content in the DEIS which will not be available need to be reconsidered. **Lincoln County and the City of Caliente encourage DOE to strengthen environmental, socioeconomic and transportation sections of the DEIS (as indicated by other comments contained herein) or rescind the proposal to eliminate those provisions of 10 CFR 960 regarding consideration of environmental, socioeconomic and transportation issues in making a site suitability determination and in recommending the Yucca Mountain site to the President.**

**5.0 Comments to Specific Section of the DEIS**

**5.1 Purpose and Need for Agency Action**

59 Page 1-1 The purpose and need of the environmental impact statement described here should make explicit reference to the potential use of the document in informing the Secretary of Energy, the President and the Congress regarding the need for new legislation.

- 60 Page 1-3 Section 1.1, 2<sup>nd</sup> paragraph states, "DOE believes that the EIS provides the information necessary to make decisions regarding the basic approaches (for example, mostly rail or mostly truck shipments), as well as the choice among alternative transportation corridors. As is demonstrated throughout these comments, Lincoln County and the City of Caliente do not agree that the DEIS provides the information necessary to make transportation mode and routing decisions. Indeed, the County and City are concerned that if such decisions are based upon the information contained within the DEIS that unnecessary and unmitigated environmental, socioeconomic and public health and safety impacts will result. Further, the County and City do not believe that DOE has considered all reasonable alternatives (ie. rail to legal weight truck) and that absent such consideration, decisions may be less than optimal.
- 124 Page 1-3 Last sentence (continuing to Page 1-4) states, "... low-level radioactive wastes could require disposal in a monitored geologic repository". The DEIS does not appear to consider under what circumstances and in what quantities low-level waste would be disposed of at Yucca Mountain. The DEIS contains no assessment of the transportation requirements associated with transportation of low-level waste to the site.
- 61 Page 1-8 First sentence notes that DOE could emplace surplus weapons-useable plutonium in the repository. The DEIS does not appear to consider the unique transportation requirements with such a waste product. Issues such as pre-notification, enhanced security and enhanced risk of sabotage or terrorism and local emergency preparedness should be considered explicitly in the DEIS regarding shipments of weapons-useable plutonium.
- 62 Page 1-8 Section 1.3.1 would benefit from a discussion of previous repository siting initiatives at Lyons, Kansas. In particular, discussion of why the site did not go forward, characterization of any local issues or controversy, and lessons learned from that siting experience would improve the decision-support nature of the DEIS.
- 63... Page 1-11 The last paragraph on this page states, "DOE has used the 0.5-MTHM-per-canister approach since 1985." The fact that this is the approach that DOE has used and changing might be difficult is not a valid reason to support this key assumption. Given the highly regulated nature of the nuclear energy field, utilities, the Department of Defense and the DOE should have very good information on the precise inventory of radioactive wastes to be disposed of at Yucca Mountain. There have been numerous shipments of spent nuclear fuel and other high-level radioactive wastes in

- 63 cont. which precise measurements of the MTHM within canisters was available. The DEIS should present evidence that the 0.5 MTHM assumption is valid. It is important to note that a minor variation in actual MTHM per canister could produce significant variances in the number of canisters needing to be shipped and subsequently disposed of. While repository performance may not vary, transportation impacts could be significantly altered. In addition, waste emplacement operations and waste retrieval could be affected by overestimating the MTHM per canister.
- 64 Page 1-17 3<sup>rd</sup> paragraph. It is not clear in reviewing the DEIS whether DOE has made a finding as to whether the repository is capable of accommodating all of the various waste volumes potentially needing disposal at the Yucca Mountain site. Can the Yucca Mountain site handle all of the waste described in this paragraph?
- 65 Page 1-23 1<sup>st</sup> full paragraph. This section implies that only Nye County responded to DOE's request for documents setting forth perspectives and views on a variety of issues of local and regional concern. In fact, in response to DOE request representatives of Lincoln County and the City of Caliente met with DOE and DOE contractor staff in Las Vegas and spent several hours presenting a variety of documents prepared by and/or for the County and City reflecting issues of local and regional concern. In addition, the County and City provided DOE and DOE contractor staff with diskettes containing economic impact models developed by the University of Nevada for Lincoln County. DOE was encouraged to utilize all of this information in preparing the DEIS. Lincoln County and the City of Caliente provided this briefing and related documents with the specific understanding that they were responding to DOE's request for perspectives and views. The County and City are very concerned that DOE has not used the variety of information provided to it as evidenced by the lack of specific references to only one document provided by the County and City (ETS 1989).
- 66... Page 1-24 Section 1.5.1.2. Here, the text notes that "...at this time, DOE regards these routes (Caliente-Chalk Mountain rail and heavy-haul truck) as non-preferred alternatives." Does this mean that other routes are preferred alternatives? Is there a preferred alternative route or mode? Is the issue of U.S. Air Force concerns the only factor in discriminating between routes and modes? If so, how does DOE intend to choose among other alternatives? Clark County, the City of Las Vegas, Nevada's Governor and Nevada's Congressional Delegation all oppose routes through the Las Vegas Valley. Why then are not the routes through the Las Vegas Valley also considered non-preferred? With regard to the phrase "at this time", what would have to change for the DOE to remove the non-preferred label for the Caliente-Chalk Mountain route? The FEIS should provide answers to each of these questions.

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## 5.2 Proposed Action and No-Action Alternative

67 Page 2-1 Figure 2-1 refers to the Secretary of Energy's site recommendation report to the President. The text on this page indicates that the Proposed Alternative includes transportation of SNF and HLW to the Yucca Mountain site. The text does not indicate whether the Secretary's site recommendation report will address transportation. The DEIS should be very clear about what factors would and would not be included in the site recommendation report to the President. Without such clarification, it not possible to know what the proposed action is and what might or might not be the subject of a subsequent Record of Decision.

Page 2-1 The last sentence of the 5<sup>th</sup> paragraph on this page indicates that a great deal of additional field work, consultations and NEPA compliance activity will be required to make specific decisions regarding rail alignments, intermodal station locations within a site, etc. It is possible that such detailed studies and activities will determine that a selected mode or alternative in infeasible. These studies will need to be completed before DOE knows with certainty whether it has a route to ship waste to the site or not. Given this uncertainty, is it possible for the Secretary of Energy to proceed with a site recommendation report in advance of these more detailed studies? The DEIS needs to provide a more explicit explanation of the linkages and timing of the site recommendation report and detailed transportation siting studies and decisions.

68 Page 2-5 Figure 2-4. This figure should include a rail to legal-weight truck alternative.

69 Page 2-15 Figure 2-9. This figure portrays unrealistic schedule assumptions, which imply that repository construction may precede prior to resolution of transportation routing and modal decisions. In the worst case, transportation of waste to a repository could proceed along routes, which do not serve to minimize risk because transportation issues and related construction might not be completed in 2010. Further, this schedule does not appear to reflect the length of time that will be required to resolve the certain (given deficiencies in this DEIS) legal challenges to the sufficiency of this DEIS that will occur. Such legal challenges will likely be filed in the winter of 2000 and will probably not be resolved for 18 to 24 months. At that time DOE may be required to prepare a supplement to the EIS. Under these timeframes, the site recommendation could not be made until early 2003 (particularly given proposed revisions to 10 CFR 960, which defer to the EIS for information on environmental, socioeconomic and transportation issues). A more realistic schedule should be included within the FEIS.

- 70 Page 2-43 Section 2.1.3.2.2, 2<sup>nd</sup> paragraph. The text here should indicate whether there will be any pre-notification of shipments given to state and local authorities and whether escorts will be used with each shipment.
- 71 Page 2-43 Section 2.1.3.2.3, 2<sup>nd</sup> paragraph. Is the DEIS intended to support a DOE decision between use of dedicated versus general freight trains. Following sections of the DEIS do not appear to provide the information necessary to support such a decision. The text here should indicate whether the DEIS is intended to support a decision between dedicated trains or general freight trains.
- 72 Page 2-44 Section 2.1.3.3, 1<sup>st</sup> paragraph. The assumption regarding availability of the northern leg of the Las Vegas Beltway is potentially invalid. The DEIS should have included with and without beltway availability analysis. One must assume that the without beltway analysis would result in greater levels of transportation risk in the Las Vegas Valley. This information would appear critical to the ability of DOE to make route decisions.
- 73 Page 2-44 Nevada Transportation - Transportation is the major source of interest/concern to the people living in Lincoln County. This is due to the extreme likelihood that shipments to Yucca Mountain will pass through our county. Based upon objections expressed by Nevada leaders and actions taken related to DOE low-level waste transportation routing it is unlikely that any of the final routes, rail or highway, will go through Clark County. Likely routes whether legal weight truck, heavy-haul truck or rail will be through the rural areas of the State. The Draft EIS identifies a number of impacts resulting from transportation of nuclear material. However, there is no mention of mitigation measures that will be taken to minimize these impacts. It is essential that the EIS address mitigation plans in detail. Examples of potential mitigation measures are included in a number of the comments below.
- 74... Page 2-49 Section 2.1.3.3.2.1. This section should have included a description of the relevant FRA rail safety standards. Will the rail be built to minimum standards? Would design and construction at beyond minimum standards result in significant reductions in accident risk? Could this be a possible mitigation measure? Without discussion of the relevant standards it is not possible to discern whether above-standard design might make sense.
- Page 2-50 Section 2.1.3.3.2.2. The text here would benefit from a description of the number of cars per train, which would be expected. In addition, an estimate of the

74 cont. | number of cars of other materials per week or per train going to the site is needed here. Absent this information, the reader has no idea of the volume of cars moving along a prospective spur.

Page 2-50 Rail Line Operations - This section discusses how the branch rail line would be operated. The discussion includes shipments by dedicated trains or in general freight. The Union Pacific Railroad has indicated that even if the spent fuel and high-level-waste casks were shipped in general freight, they would separate the cars carrying the radioactive material at a main switch yard like Salt Lake City and that they would then be brought to an intermodal transfer or switching station using dedicated locomotives. The Union Pacific has indicated that they would not tie up a general freight train while switching out the cars carrying the radioactive material. This is just one of several indicators that in conducting overall planning DOE is not adequately involving/consulting with key operational level players/stakeholders. DOE needs to consult with officials of the Union Pacific Railroad prior to identifying alternatives. We believe that the general freight alternative in the EIS is not feasible based upon our understanding of the Union Pacific Railroads views concerning radioactive waste cargo transfers.

75 | Page 2-51 Section 2.1.3.3.3.1. The description of intermodal transfer stations should be refined to address 1) the length of siding required to accommodate waste shipments as well as other materials destined for Yucca Mountain; 2) the number of locomotives required to perform operations in the; 3) whether the types of support facilities which would be required at the site include maintenance of rail equipment; 4) the number of tractors and trailers required; 5) when and where tractor and trailer inspection would occur; 6) what, if any, emergency first response capabilities would resident at the intermodal station.

76 | Page 2-51 Section 2.1.3.3.3.2. This section to provide an indication of maximum and minimum speeds that heavy-haul trucks will travel. The length of time to complete the trip for each route should be discussed.

77 | Page 2-54 Apex/Dry Lake and Sloan/Jean Routes. The assumption here that the northern and southern legs of the beltway would be available is inappropriate. This highway will be owned by Clark County and will not necessarily be available for use by heavy-haul shipments. The analysis of routing through the Las Vegas Valley should be confined to existing roadways (I-15, U.S. 95 etc.).

125... | Page 2-54 Highway Routes for Heavy-Haul Shipments - It is unacceptable to Lincoln

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cont.

County that the DOE is only considering adding up to 4 feet to the existing shoulders. Some of the existing shoulders are only 2-3 feet wide which means at a maximum the shoulder would be only 7 feet wide. With the heavy-haul truck and cask being up to 10 ½ feet wide, DOE should insure that the shoulders are at least 12 feet wide so that the vehicle could be safely and completely removed from the main part of the road. This section also discusses the routes from each of the intermodal transfer stations to Yucca Mountain. Having to modify intersections in the vicinity of Hiko, SR 375 and U.S. 6 to accommodate the 220 foot long heavy-haul trucks should be relatively easy, however, if any of the intersections at I-15, the new beltway, U.S. 93 or U.S. 95 are inadequate to handle the transporter, both in terms of weight or geometry, this could be a show stopper. DOE needs to evaluate these intersection carefully before considering them to be feasible routes.

Also, DOE needs to consult with the Nevada Department of Transportation to determine if NDOT would issue a heavy-haul permit on these routes.

Furthermore, turnouts located every 20 miles is not acceptable and would adversely impact commerce, tourism and general transportation in Lincoln County and create potentially unsafe passing conditions. This issue would be mitigated via construction of dual lanes in each direction on any highway in Lincoln County used for heavy-haul transport.

- 78 Page 2-58 Section 2.1.5. It is not clear whether Table 2-5 includes costs already incurred by DOE for the Yucca Mountain site. The text and table should so indicate. The costs already incurred should be specifically identified in the text and on the table.
- 79 Page 2-59 Section 2.2. In addition to serving as a baseline, the text here should also recognize that the No-Action Alternative is a choice that could be selected for implementation by the Secretary of Energy in a subsequent Record of Decision.
- 80 Page 2-61 Section 2.2.2.1. The text here should indicate for how long waste could be safely stored in dry-cask storage. What do the terms long-term and long periods mean? The cost and risk management benefits of on-site storage need to be introduced here and assessed in detail within the EIS. Ultimately, a simple comparison of the costs and risk management benefits of the Preferred and No-Action alternatives should be provided somewhere in the DEIS. This section should also discuss issues such as institutional control and sabotage and terrorism. Introduction of these concepts here is critical to subsequent analysis contained in latter sections to the DEIS.
- 81 Page 2-65 Section 2.2.2.2. The assumption of 10,000 years of institutional control seems inconsistent with NRC licensing guidance which encourage licensees to not assume institutional control beyond 300 years. This scenario should be revised to assume institutional control for 300 years (which is also consistent with the Preferred Alternative for Yucca Mountain).
- Page 2-66 Section 2.2.2.3. The assumption of loss of institutional control after 100 years is not consistent with NRC licensing guidelines nor with assumptions associated with the Preferred Alternative (institutional controls at Yucca Mountain for 300 years). No-Action Scenario 2 should be deleted from the DEIS.
- 82... Page 2-69 Table 2-6. Comparison of Tables 2-5 and 2-6 suggests that the No-Action Alternative may be more costly to implement than the Preferred Alternative. The information in Table 2-7 suggests that the No Action Alternative is more risky than the Preferred Alternative. Collectively, these tables suggest that the Nation saves money by transferring risks from the 77 sites with waste inventories to Nevada. The savings to the Nation appears to be on the order of \$23 to \$28 billion. Given this magnitude of potential savings coupled with the transfer of risk to Nevada, the DEIS must discuss the issue of equity between locales where risk will be reduced and where risk will be concentrated. The concept of compensation of those areas to which risk will be concentrated by those areas in which risk will be reduced or eliminated must be

- 82 cont. discussed within the DEIS. Conceptually, up to 100 percent of the savings between the No Action and Preferred alternatives should be considered as compensation to those areas in which risk will be concentrated.
- 83 Page 2-74 Section 2.4.1. The use of the word "small" to describe impacts is not consistent with NEPA terminology. Although DOE considers impacts to be small they may yet be significant. For example, a small absolute change might represent a 50 percent increase or decrease in given parameter. The DEIS must evaluate impacts and risks on the basis of their significance not their absolute value. Further, NEPA requires that impacts, even if "small", be mitigated.
- 84... Page 2-75 Table 2-7. This table should be revised to include a comparison of the population likely to accrue the risks associated with the No Action and Preferred alternatives. For example, what is the number of persons potentially exposed to risks associated with the No Action Alternative (ie. population near on-site storage and transportation routes). This information would be helpful in evaluating the extent to which the alternatives tend to concentrate risks among persons exposed to them. This concentration of risk is an important impact, which must be considered for mitigation or compensation.
- Page 2-76 Table 2-7. Under No Action Alternative estimates of Radiological Latent Cancer Fatalities why is not a range of estimates given similar to estimates for the Preferred Alternative. Absent a range, does this imply a lack of uncertainty in the estimates under the No Action alternative, which is not available for the Preferred Alternative. The presentation of comparative data in Table 2-7 for each parameter for each alternative should be consistent.
- Page 2-76 Table 2-7. As the analysis in Table 1 of these comments illustrates, the number of fatalities associated with the Proposed Action No Action alternatives. This is due to the fact that transportation is the key source of risk during the first 100 years. This analysis suggests that for at least 100 years the No Action serves to better protect public health and safety. The analysis in Table 1 also suggests that if the Preferred Action is implemented that during the first 100 years there will be a disequitable distribution of risk from existing storage sites to primarily Nevada, and in particular, communities located along transportation routes. The DEIS must consider the temporal and geographic distributions of risk associated with the Preferred and No Action alternatives. The DEIS must consider methods to mitigate risks transferred to Nevada. The DEIS must recognize that the Preferred Action does not minimize risk during the first 100 years of repository operation.

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85 Page 2-81 2<sup>nd</sup> bullet. This finding suggests that inclusion of a rail to legal-weight truck alternative may be reasonable and may provide the best risk management/cost benefit. The FEIS must consider a rail to legal-weight truck alternative.

86 Page 2-81 3<sup>rd</sup> bullet. Given that the analysis of environmental impacts does not appear to aid in discriminating among transportation alternatives, it not clear on what basis DOE would make a route and mode choice. The DEIS should indicate the basis upon which transportation routing and modal choices will be made. What additional studies will be required to enable DOE to make and defend transportation decisions?

87 Page 2-81 Section 2.5. Lincoln County and the City of Caliente are very concerned that the DOE has apparently determined that the more than 40 studies sponsored by the County and City and provided to DOE do not "represent a substantive view" and therefore did not warrant incorporation of these views into the EIS nor inclusion of references to the studies in the document. To the contrary, the documents provided by the County and the City represented many substantive views on a wide variety of topics germane to the DEIS. DOE's failure to recognize the relevancy of these views is a foundational cause of the insufficiency of the DEIS as a NEPA compliance document.

### 5.3 Affected Environment

88 Pages 3-1 and 3-2 The listing of topics included in the description of the affected environment is not consistent with the topics assessed in the environmental consequence section. For example, under socioeconomic, housing and community services were considered as affected environment. In the environmental consequences section for Nevada transportation no estimates of the consequences to housing and community services is provided. This implies that the analysis of environmental consequences is incomplete in that it has not considered all aspects of the affected environment.

89... Page 3-10 Section 3.2.1. The text should make clear why an 80 km radius was selected around the Yucca Mountain site for air quality impact analysis. Given wind patterns is a consistent radius appropriate for determining potential impacts.

Page 3-12 Section 3.1.2.2. The choice of 60 meters as a maximum for wind

89 cont.

measurements (see Figure 3-3) may not be appropriate to determine potential for dispersion under conditions of volcanism. If wind velocities at greater heights were used for atmospheric dispersion modeling, such differing heights should be identified here. This section would also benefit from a table showing dispersion times from the site to community areas off-site (in all directions). The table should indicate how long dispersion from the site would take to reach communities located in all counties surrounding Yucca Mountain.

90...

Page 3-71 Section 3.1.7. The evaluation of impacts in Section 6 for transportation include impacts to real disposable income, gross regional product and government expenditures. In order to define magnitude of impact data for these parameters need to be included in the Affected Environment section of the DEIS.

Page 3-71 Section 3.1.7. The factors considered under socioeconomics is not adequate to enable a comprehensive assessment of impacts. At a minimum other factors needing to be included are age distribution of residents; other community services including water and waste water, solid waste, and emergency management and emergency medical services. Local government expenditures for these services needs to be considered. The baseline "without repository" projections of population, housing, employment, school enrollment, local government revenues and expenditures, and various community service capacities and demands should be at least through 2033 or better yet closure of the repository. Currently, the DEIS lacks sufficient information to enable a determination of the significance of impacts over projected without repository baseline to be determined.

Page 3-74 3<sup>rd</sup> paragraph. Text here indicates that Lincoln County had a 13 percent decline in employment between 1990 and 1995. The text should indicate what this was attributed to. This decline is inconsistent with the findings in Section 4, Environmental Consequences that a 1.9 to 5.8 percent increase in employment and population would be "within the range of historic changes in the county". Either the data in Section 3-74 is not accurate or the finding in Section 4 is inappropriate.

Page 3-76 Section 3.1.7.3. To enable a comparison with projected levels of PETT and to enable the reader to understand how past and future PETT levels were determined, the text here needs to explain how past PETT payment levels were derived, by County. The text should also identify any inconsistencies between derivation of PETT payments from one jurisdiction to another. Without such information any projection of PETT in Section is unsupported. (Section 4 does not

**Table 1.**  
**Draft Yucca Mountain Environmental Impact Statement**  
**Comparison of Proposed Action to No Action Alternatives**  
**Total Fatalities Per Year**  
 (derived from data in Table 2-7 of Yucca Mtn. DEIS)

Alternative	0-24yrs.	24yr. Total	25-100yrs.	75yr. Total	100yr. Total	101-10,000yrs.	9,900yr. Total
Proposed	.75-2.69	18.70-67.13	.04-.06	3.01-4.53	21.70-71.66	5 X 10 <sup>-8</sup> -5.3 X 10 <sup>-8</sup>	5 X 10 <sup>-5</sup> -5.3 X 10 <sup>-4</sup>
No Action #1	.25	6.35	.25	19.06	25.4	.11	1,095
No Action #2	.25	6.35	.25	19.06	25.4	.33	3,300

**Table Conclusions<sup>1</sup>**

1. During the period 0-24 years Proposed Action is 3-10 times riskier than the No Action alternatives.
2. During the period 25-100 years No Action #1 is 4-6 times riskier than the Proposed Action
3. During the first 100 years Proposed Action is a little less to nearly three times riskier than No Action alternatives.
4. During the period 101 - 10,000 years No Action Alternative is 1,000 to 3,000 times riskier than the Proposed Action
5. During first 24 years of repository operation, transportation is the source of over 95 percent of all fatalities, with most being from highway accidents rather than exposure to radiation

1/ Proposed Action - disposal at Yucca Mountain  
 No Action Alternative #1 - on-site storage of wastes with long-term institutional controls  
 No Action Alternative #2 - on-site storage of wastes without long-term institutional controls

90 cont.

provide any estimates of PETT payments and this is a deficiency in the DEIS.)

Page 3-77 Table 3-26. Because the text on Page 3-73 indicates that the population of Lincoln County will increase 2 to 4 percent per year during the next decade, an explanation is needed as to why school enrollments in Lincoln County are projected to decline between 1997 and 2001. These two trends appear inconsistent, unless there are extenuating factors (ie. aging of the population, reduced birth rates, etc.). Because Section 3 includes school enrollment, Section 4 should include a projection of school-age children resulting from population growth. In addition, Section 4 should consider the need for additional school facilities to accommodate enrollment growth.

Page 3-78 Table 3-27. The year 2000 population forecasts for Lincoln County are not consistent with those of the Nevada State Demographer (4,410).

Page 3-78 Health Care. The description of hospitals should indicate whether these facilities are currently capable of handling patients contaminated by radiation. In the case of the Grover C. Dils Medical Center in Caliente, that facility is currently not capable of effectively handling a patient contaminated with radiation.

Page 3-78 Law Enforcement. The description of law enforcement should indicate whether each police or sheriff department is currently trained and equipped to respond to emergencies involving radiation hazards. The Lincoln County Sheriff Department is not currently trained or equipped to respond to such a hazard.

Page 3-78 The description of fire protection and emergency management should indicate whether each department and/or jurisdiction is currently trained and equipped to respond to emergencies involving radiation hazards. None of the volunteer fire departments or emergency medical service providers in Lincoln are currently trained or equipped to respond to such a hazard.

Page 3-98 Section 3.2.1.1. The last sentence of this section indicates that population densities were derived to estimate health risks. The methodology used to estimate potentially impacted population as described on Page J-40 has resulted in an underestimation of population in rural areas such as Lincoln County. This results from the fact that population densities used were derived from Census Block data. In Lincoln County Census areas are very large relative to total population within the area. Most persons residing in the Census areas reside near to transportation infrastructure. As a result, it is necessary to adjust population densities prior to multiplying each by the 1.6 kilometer region of influence. Research completed by the University of Nevada, Las

- 90 cont. Vegas, Transportation Research Center has documented the need to make such an adjustment in population density.<sup>19</sup>
- 91 Page 3-98 Section 3.2.1.1. The second paragraph of this section indicates that final transportation mode and routing decisions will be made on a site-specific basis during the transportation planning process, following a decision to build a repository at Yucca Mountain. This statement implies that the Secretary of Energy's site recommendation to the President will be made prior to resolution of site-specific mode and routing decisions. This would seem contradictory to the guidance contained within existing 10 CFR 960 and inconsistent with the proposed revisions to 10 CFR 960, which infer the availability of EIS-based transportation information for use, by the Secretary in preparing a site recommendation to the President. In the event that site-specific transportation decisions are deferred until after a decision to build Yucca Mountain is made, such transportation decisions may not be made until 2005, the year DOE anticipates receiving a construction authorization (see Figure 2-9). Such a schedule will provide DOE with just five-years to complete necessary field studies and surveys, complete environmental documentation, complete necessary final designs, construct necessary rail and/or highway infrastructure and provide necessary training and equipment to emergency first responders along selected routes. Lincoln County and the City of Caliente do not agree with a DOE decision to defer making site-specific transportation decisions until after a decision to build Yucca Mountain is made. The County and City recommend that the DEIS include a phased schedule for making site-specific transportation decisions which begins now so as to avoid decision-making under the pressure of unnecessarily tight time constraints. Further, the County and City do not agree with the apparent DOE assumption that if a repository site is approved for construction that transportation issues will be resolved and that a satisfactory transportation route and mode will be available to serve the site. Rather, the DEIS should include a schedule and approach to making transportation decisions which will enable minimization of related risks. The current approach described (or inferred) within the DEIS does not support risk minimization.
- 92 Page 3-101 Table 3-33. This table does not appear to reflect Bureau of Indian Affairs lands that would be crossed in the vicinity of U.S. 95 north of Las Vegas.
- 93... Page 3-107 Section 3.2.1.4. This section should include reference to the Southwest Willow Flycatcher (*Empidonax trillii extimus*) which was listed by the U.S. Fish and Wildlife Service as endangered in February 1995. Habitat for this species may be found proximate to the Caliente, Caliente-Chalk Mountain, Carlin, Jean and Valley Modified rail routes.

94 Page 3-113 Table 3-36. This table is misleading in that it only reflects the number of sites identified to date and does not make clear that not 100 percent of each corridor has been surveyed. The table should be revised to reflect the percent of each route surveyed to date.

Page 3-114 Section 3.2.2.1.6. The description of the affected environment with regard to socioeconomic issues is incomplete. See comments to Page 3-71, Section 3.1.7.

95 Page 3-115 4<sup>th</sup> paragraph. The second sentence in this paragraph appears to be incomplete.

96 Page 3-116 Section 3.2.2.1.8. This section needs to describe BLM designated wilderness study areas (WSA) proximate to transportation corridors. Section 4, environmental consequence needs to consider visual impacts to and from designated WSA's.

Page 3-120 3<sup>rd</sup> full paragraph. See comments to Page 3-98, Section 3.2.1.1 which describes problems with the approach used in the DEIS to derive population densities along transportation corridors.

Page 3-127 Section 3.2.2.4. See comments to Page 3-107, Section 3.2.1.4.

97 Page 3-129 2<sup>nd</sup> paragraph. The Caliente intermodal site is the location of the City of Caliente's wastewater treatment facility. Lands on the site are irrigated with effluent. The site is fully developed. Moist areas are likely the result of irrigation and are not springs or wetlands. This site has been previously cleared through NEPA for construction of wastewater treatment facilities using federal funding.

98 Page 3-130 The text here implies that heavy-haul routes are in proximate parallel location to flowing surface waters. This is not the case at all. In most cases, these routes are 800 or meters from any flowing surface water, except for the occasional spring. Additional field work and revision to this section is needed.

99... Page 3-133 Section 3.2.2.2.5. The fourth line of the 2<sup>nd</sup> paragraph of this section should reflect that archaeological sites are "at or near" sites. The Caliente site has been developed as the City of Caliente's wastewater treatment facility. The site has been wholly disturbed. The significance of cultural resources as an issue at this site

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99 cont. needs to be reconsidered within the DEIS.

100 Page 3-134 Section 3.2.2.2.7. 3<sup>rd</sup> paragraph. The Caliente Route is located several miles from the community of Hiko. Reference to Hiko in this paragraph should be deleted.

101 Page 3-142 Section 3.3.3. It appears as though the analysis of impacts to water sources for the No Action and Preferred alternatives use quite different assumptions. An appendix describing and comparing the assumptions needs to be included. For example, the Rancho Seco site is shown located on the Sacramento River watershed. However, the site is actually several miles from any river. In fact the Folsom-South Canal had to be constructed over at least 30 miles to bring water to the site. Most of the water used in the vicinity of Rancho Seco is from individual domestic wells. This analysis and assumptions appear to be highly suspect. The DEIS must be revised to explain the details of this analysis if it to be considered credible and useful for decision-support purposes.

This section of the DEIS should indicate how the analysis used here is consistent with or deviates from accepted methods used by NRC for licensing of commercial power plants. If such a methodology were used it is doubtful any such plants would have ever been licensed.

#### **5.4 Environmental Consequences of Repository Construction, Operation and Monitoring, and Closure**

102 Page 4-3 1<sup>st</sup> full paragraph. The first sentence of this paragraph should end with "and Congress authorizes construction and appropriates funding to build the repository." As written, the sentence misleads the reader to believe that all that is needed is NRC approval.

103 Page 4-3 4<sup>th</sup> full paragraph. This section should describe what factors will be used to determine whether a 50 or 300 year performance confirmation period will be utilized. The length has implications for PETT payments and timing of possible retrieval and related transportation activities.

104 Page 4-4 3<sup>rd</sup> full paragraph. A fourth bullet needs to be added for Rail to Legal-Weight Truck. Such a scenario must be considered in the FEIS.

105... Page 4-9 Radiological Impacts to Air Quality from Construction - The DEIS

105 cont. discusses the potential of radio nuclide releases of radon-222 through the ventilation system. To provide protection to the people that are down wind from the site, DOE should install adequate filters to remove the radioactive particles from any exhaust release.

106 Page 4-82 2<sup>nd</sup> bullet. What is the definition of unacceptable. Who will decide? Unacceptable to whom?

107 Page 4-88 Section 4.1.15.4. Sites for cask manufacturing should have been considered within Nevada. The FEIS should consider sites along transportation corridors in Nevada. The description of environmental setting for these facilities belongs in Section 3, Affected Environment.

### **5.5 Environmental Consequences of Long-Term Repository Performance**

108 Page 5-6 Section 5.2. The postulated sequence of events does not include the potential for atmospheric releases due to volcanism, gaseous releases, and human intrusion. Other possible sequences of events relating to atmospheric pathways should be described and analyzed in the DEIS.

Page 5-16 3<sup>rd</sup> paragraph. Why did the DEIS not consider the potential for portions of the content of a waste package to be brought to the surface as a result of drilling induced human intrusion? Such an occurrence seems more plausible than release to the water table and would likely occur prior to drilling reaching the water table. In practice, a drill penetrating a cask would likely result in fatal exposure to the drill crew at the surface and drilling would likely not proceed to the water table.

Page 5-49 Section 5.10. Table 5-19 should also show LCF's during the year of projected peak dose, which is expected to be some time after 10,000 years.

### **5.6 Environmental Impacts of Transportation**

109 Page 6-37 Socioeconomic Section - This section only seems to include the positive aspects of socioeconomic impacts but should also include the impacts to the quality of life in these rural communities as a result of the proposed action, in particular, heavy-haul transport of the large nuclear fuel shipping casks having to go through populated areas in Lincoln County.

110 Page 6-37 Noise Section - This section identifies that, "The region of influence

- 110 cont. considered in the analysis included inhabited commercial and residential areas where noise from construction and noise from trucks or trains would have the potential to exceed 45dBA." Then on Page 6-97, in the section related to noise, the DEIS identifies that the 45dBA could occur at a distance of about 2100 feet. That's almost half a mile, and there are certainly residential areas within a half a mile of the identified heavy-haul routes. It would seem that the impact to residences might not be as casual as the DEIS implies if one were living within 50 feet from the highway and this noise level occurs 4-5 times each day during the week for years. DOE needs to evaluate what can be done to mitigate noise levels that exceed what is considered safe limits. This may include constructing sound deadening walls between the road and residences.
- 111 Page 6-57 Socioeconomic Section - In the discussion of the socioeconomic impacts associated with construction of the branch line in the Caliente corridor, the Draft EIS identifies that the annual average number of construction workers to be 500 to 560 and that there would be 5 construction camps. It would seem that some of the camps will be in the vicinity of the rural communities in Nevada and could have a significant economic impact on the community, in terms of setting up the camps, during construction and when the construction work is completed. We feel that this impact needs to be addressed in the socioeconomic section and how these impacts could be mitigated needs to be included. Some of the measures taken would be to provide temporary living facilities and classrooms, if many of the workers plan to stay in the community for the construction period and have school age children.
- 112 Page. 6-57 Table 6-20 identifies impacts to workers from industrial hazards during construction and operation. In rural Nevada, access to emergency medical care is limited and challenging. These communities need financial assistance from DOE to be able to have the appropriate facilities and personnel to provide proper medical help for ill or injured workers and their families.

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113 Page 6-84 Impacts of Nevada Heavy-Haul Truck Transportation Implementing Alternatives - In this section DOE evaluates the impacts in Nevada for each heavy-haul and associated intermodal transfer station. The evaluation addresses 1) upgrading highways to accommodate frequent heavy-haul truck shipments, 2) constructing and operating an intermodal transfer station, and 3) making heavy-haul truck shipments. It appears that this subject is being addressed in a partial vacuum. Before you can perform a thorough and worthwhile evaluation, you need to consult on a serious basis with the Nevada Department of Transportation to get a realistic evaluation of what it would take to obtain permits in order to conduct heavy-haul shipments. The State of Nevada has the authority to grant or withhold heavy-haul permits. As this is a very long term, high intensity shipping campaign of a hazardous material, you need to determine specifically what it would take to get the necessary state heavy-haul permits before you even consider whether these routes are feasible and what the impacts will be. DOE should consult with the State of Nevada Department of Transportation before considering heavy-haul transport of the spent nuclear fuel and high level waste as a viable option. The explanation in the DEIS of what it will take to operate heavy-haul trucks on the Nevada highways is grossly simplified. DOE may well be required to construct by-passes around rural communities and four lane highways on the U.S. highways and not just pull-outs periodically. This could well end up costing as much or more than constructing a branch rail line and could have more impact on rural communities.

114 Page 6-94 Cultural Resources Section - The Draft EIS discusses the impacts of heavy-haul of the large rail casks. The DEIS identifies that no additional direct or indirect impacts would be likely to historic sites from operations of heavy-haul trucks along any of the routes. Older historic buildings close to the highway could be adversely impacted. Especially when you consider there may be 4-5 heavy-haul trucks/day going through these rural communities every weekday for at least 24 years. This may also require building heavy-haul by-passes around some communities.

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115 Page 6-95 Occupational and Public Health and Safety Section - The Draft EIS discusses traffic fatalities along the heavy-haul routes. What about traffic related injuries? Injuries should also be addressed. The potential increase in accidents where there are large, slow moving truck convoys along two lane highways where people are used to traveling at high rates of speed needs to be carefully considered.

116 Page 6-96 Socioeconomic Section discusses the impacts of heavy-haul of the large rail casks - This section fails to address potential impacts to the quality of life of residents living along highways in the rural communities resulting from 4-5 of these large trucks, along with their remaining convoy, traveling communities every week day for 24 years. This area needs to be addressed by DOE. One method to mitigate this impact would be to construct heavy haul by-passes around these communities working with each community as to where by-pass should be located.

117 Page 6-97 In the Section regarding noise from heavy-haul trucks, you identify that under certain conditions, the noise level would be 45 dBA at about 2100 feet from the road (that's almost a half mile). There are residences much closer to the highway than that. What would the noise level be 30-50 feet from the highway Also, what would be the vibration levels in the buildings? This could be very disturbing people living or working along the route. In addition, at least one of the intermodal transfer sites is near a residential area. Measures to be taken to reduce the noise level need to be addressed. This may include the construction of sound deadening walls between the residences and the highway.

### 5.7 Environmental Impacts of No-Action Alternative

118 Page 7-1 Section 7. Scenario 2 of the No Action Alternative should be deleted from the DEIS as it is not a reasonable alternative. See previous comments.

### 5.8 Cumulative Impacts

119 Page 8-87 Section 8.4.2.1. This section should recognize that before the Caliente Intermodal site could be used by DOE the existing City of Caliente wastewater treatment facilities would have to be relocated. A site for such relocation would need to be obtained by DOE.

## 5.9 Management Actions to Mitigate Potential Adverse Environmental Impacts

120 Page 9-1 Section 9. In general, the treatment of mitigation in the DEIS is entirely insufficient. Many impacts identified within the DEIS have no mitigation measures identified for them at all (ie. additional school enrollment in Lincoln County due to transportation activities). In preparing the FEIS, DOE needs to identify all impacts described within the DEIS and the FEIS must identify options for mitigation of all impacts.

Contrary to NEPA, the DEIS contains several proposed mitigation measures which are simply studies or simply describes studies which will lead to identification of mitigation measures. For most impacts identified within the DEIS, but characterized by DOE as non-significant (ie. population growth in Lincoln County and City of Caliente and related growth in government expenditures), the DEIS simply does not provide any suggested mitigation measures. In completing the FEIS, DOE should evaluate all listed mitigation measures against the types listed above to discern those which are of an unacceptable form under NEPA.

121 Page 9-19 Section 9.3.4.1. The 3<sup>rd</sup> and 4<sup>th</sup> bulleted actions are inconsistent with the recently adopted Clark County multispecies habitat conservation plan. Clearance surveys have come to be of marginal value since the disposition of collected tortoises is often euthanasia.

122 Page 9-21 Section 9.3.4.2. This section does not include any measures to replace vegetation or animal unit months (AUM's ) of forage lost to rail spur construction.

### Endnotes

1. United States, Council On Environmental Quality, "Memorandum: Scoping Guidance", April 30, 1981.
2. Governor Kenny Guinn, *Letter to Chairman Julio Costello of the White Pine County Commission Dated August 24, 1999*, State of Nevada, Office of the Governor, Carson City, Nevada.

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3. Lincoln County/City of Caliente, Repository EIS Scoping Report: Issues Raised by Lincoln County and the City of Caliente Needing to be Addressed Within the Repository EIS, December 1995.
  4. See 40 CFR 1502.14(c) for regulatory guidance on the relationship of NEPA compliance documents to congressional decision-making.
  5. Goble, Robert, Perspectives on Risks from the Nevada Test Site: Feasibility and Methods for Assessing Cumulative Radiological Exposure Risks Associated with Department of Energy Activities at the Nevada Test Site, Center for Technology, Environment and Development of the George Perkins Marsh Institute on the Human Dimensions of Global Environmental Change, Clark University, Worcester, MA. June 1994.
  6. TRW Environmental Safety Systems, Inc., Nevada Potential Repository Preliminary Transportation Strategy Study 1, Prepared for U.S. Department of Energy, Office of Civilian Radioactive Waste Management, April 1995.
  7. Krannich, R. and R. Little, Baseline Community Social Profiles for Communities in Nye, Esmeralda, Lincoln and Clark Counties, (3 volume), prepared for the State of Nevada, Nuclear Waste Projects Office, 1987. See also, Krannich, R. and R. Little, Ethnographic Summary Report: Eastern Lincoln County, prepared for the State of Nevada, Nuclear Waste Projects Office, 1988. See also, Krannich, R. and R. Little, Ethnographic Summary Report: Pahrnagat Valley, prepared for the State of Nevada, Nuclear Waste Projects Office, 1988. See also, Krannich, R. and R. Little, 1988 Rural Community Surveys: updated Background Report, prepared for the State of Nevada, Nuclear Waste Projects Office, 1989. See also, Krannich, R. and R. Little, Analysis of Key Sociocultural Relationships in Seven Southern Nevada Rural Communities, prepared for the State of Nevada, Nuclear Waste Projects Office, 1989.
  8. McCracken, B. Lincoln County Oral History Series, oral histories of various County residents prepared for the Lincoln County Nuclear Waste Project Office, 1990 through 1993.
  9. Intertech Services Corporation, Media Amplification of Risks: Implications for Hazardous Materials Transport, prepared for Lincoln County and the City of Caliente, May 1991.

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10. See Lincoln County/City of Caliente Emergency Preparedness Inventory and Analysis (1985); and Lincoln County/City of Caliente Emergency Preparedness Inventory and Analysis (1991), each prepared for Lincoln County and the City of Caliente.
  11. Intertech Consultants, Radiological Emergency Response in Small Communities: A Report on Capabilities and Constraints, prepared for Lincoln County and the City of Caliente, June 1989.
  12. Intertech Services Corporation, "Emergency Management Issue Ranking: Lincoln County Repository Oversight Program", technical memorandum prepared for Lincoln County and the City of Caliente in consultation with their Local Emergency Planning Committee, May 1994.
  13. ETS Pacific, Inc., Pilot Study and Analysis of 46 Mile Rail Corridor in Lincoln County, Nevada, prepared for the Board of Lincoln County Commissioners, October 1986. See also ETS Pacific, Inc., Condition Update of 46 Mile Rail Corridor in Lincoln County, Nevada, prepared for the Board of Lincoln County Commissioners, June 1989.
  14. Goble, Robert, Perspectives on Risks from the Nevada Test Site: Feasibility and Methods for Assessing Cumulative Radiological Exposure Risks Associated with Department of Energy Activities at the Nevada Test Site, Center for Technology, Environment and Development of the George Perkins Marsh Institute on the Human Dimensions of Global Environmental Change, Clark University, Worcester, MA. June 1994.
  15. U.S. Department of Energy, Draft Environmental Assessment: Yucca Mountain Site, Nevada Research and Development Area, Nevada, Office of Civilian Radioactive Waste Management, December 1984.
  16. Intertech Services Corporation, Tourism Impacts of Three Mile Island and Other Adverse Events: Implications for Lincoln County and Other Rural Counties Bisected by Radioactive Wastes Intended for Yucca Mountain, prepared for Lincoln County and the City of Caliente, August 1990.
  17. Sathisan, Shasi et. al., Risk Analysis for Spent Nuclear Fuel Transportation Through Lincoln County Volume I: Rail Shipments, Volume IIA: Highway Shipments, Volume IIB: Technical Appendix, Transportation Research Center, Howard Hughes College of Engineering, University of Nevada, Las Vegas, February 1995.

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18. Intertech Services Corporation, The Yucca Mountain High-Level Radioactive Waste Repository and Lincoln County: Characterization of Socioeconomic Impacts and Framework for Assessment of Effects, prepared for Lincoln County and the City of Caliente, October 1994.
  19. Sathisan, Shasi et. al., Risk Analysis for Spent Nuclear Fuel Transportation Through Lincoln County Volume I: Rail Shipments, Volume IIA: Highway Shipments, Volume IIB: Technical Appendix, Transportation Research Center, Howard Hughes College of Engineering, University of Nevada, Las Vegas, February 1995.