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September 18, 2001

Carol Hanlon  
S&ER Products Manager  
U. S. Department of Energy  
Yucca Mountain Site Characterization Office  
P.O. Box 30307 M/S 025  
North Las Vegas, NV 89036-0707

**RE:** Inyo County's Comments on the *Yucca Mountain Preliminary Site Suitability Evaluation*, the U.S. Department of Energy's *Yucca Mountain Site Recommendation Hearing Process*, and DOE's "*Suggested Topics for Public Comment on Yucca Mountain*".

Dear Ms. Hanlon,

The County of Inyo, State of California, is an Affected Unit of Local Government under the Nuclear Waste Policy Act of 1982, as amended. Inyo County has prepared and is transmitting via this letter its response to the U.S. Department of Energy's (DOE's) Yucca Mountain Preliminary Site Suitability Evaluation. Further, we are commenting on DOE's attempt to comply with the provisions of Section 114 of the Nuclear Waste Policy Act requiring hearings on the Yucca Mountain Site Recommendation. We are also, as requested, responding to the "Suggested Topics for Public Comment on Yucca Mountain" provided to us August 28, 2001 by OCRWM Acting Director Lake Barrett.

*Yucca Mountain Preliminary Site Suitability Evaluation*

The release of the Preliminary Site Suitability Evaluation (PSSE), a document which makes conclusory statements regarding the Yucca Mountain site's suitability for development of a deep geologic repository, is premature in light of the fact that the U.S. Department of Energy has yet to complete NEPA proceedings on the Yucca Mountain proposal. Until a Final Environmental Impact Statement has been completed for use by the Department in evaluating the possible impacts of the repository on the geology and hydrology of the region, DOE has no legitimate basis for making a preliminary suitability determination for the site. We recognize that development and public review of the PSSE is not required by the Nuclear Waste Policy Act, however, if such a document is to be provided and utilized by DOE in the site recommendation process, it must, if it to have any real value to the public or utility to DOE and reviewing agencies, take into account the findings of the Final EIS and be released after the FEIS.

Release of the PSSE or any similar document making statements about site suitability is premature given that key scientific studies regarding waste package corrosion processes are still underway and the site's saturated zone, unsaturated zone and regional alluvial geology is only generally understood. Most of the conclusory statements in the PSSE originate from the results of the application of the Total System Performance Assessment Process (TSPA) utilized by DOE for integration of subsystem performance findings. TSPA relies on a limited amount of scientific information on and innumerable assumptions regarding subsystem performance, uncertainty levels for which may vary by more than an order of magnitude. Our review of the Science & Engineering Report, the Draft EIS, the Supplemental EIS and discussions taking place among DOE, the Nuclear Waste Technical Review Board and the Nuclear Regulatory Commission evidence the persistence of high levels of uncertainty in the behavior of virtually all geologic, hydrologic and proposed engineered systems.

Ongoing, proposed and future studies have the potential to reduce uncertainties to reasonable levels and provide DOE and the public a better-grounded scientific and technical basis from which to evaluate site suitability, however sufficient information is not before DOE at this time to warrant even the most preliminary conclusions regarding the site's ability to function as intended by the Nuclear Waste Policy Act or meet EPA release standards for the 10,000-year licensing period. Given this circumstance, a scientifically sound determination of site suitability cannot be made at this juncture, nor anytime in the near future.

As you are well aware, DOE's ongoing attempts to evaluate site suitability are based on *proposed* site suitability guidelines, not those site evaluation guidelines currently in place and legally in effect. It seems obvious to most observers that site suitability explorations must revolve around those officially adopted, legally binding guidelines already in place, not the proposed, hypothetical, hopeful and legally meaningless guidelines which have served as a framework for the PSSE.

### Yucca Mountain Site Recommendation Consideration Hearings

The current set of scheduled Site Recommendation Consideration Hearings are premature, inadequate and a clear violation of the letter and intent of the Nuclear Waste Policy Act. They are premature for the same reason that the PSSE is premature (discussed in the previous section). The hearings are inadequate as locating all hearings in Nevada ignores Inyo County's unique status as the ultimate destination for those radionuclides that will, under all repository design variants under consideration by DOE, escape from the repository block and travel via groundwater and perhaps surface water, into the Southern Amargosa Valley and Death Valley National Park. California's Inyo and San Bernardino Counties contain major sections of the aquifers through which radionuclides are predicted to travel as well as the Amargosa River system that may serve to transport these same materials via surface water.

Given that the Yucca Mountain Project constitutes a serious threat to an established National Park (that is located almost entirely within California and makes up one-half of the surface area of Inyo County), our status and the magnitude of these future impacts warrant specific and timely attention to Inyo County's concerns – concerns which are equally California and national issues. We have placed a request with Secretary Abraham that one or more hearings be conducted in Inyo County (please see Attachment A). Our request has the support of California Senator Feinstein and Congressman Jerry Lewis (please see Attachment B).

Section 114 (a)(1) of the Nuclear Waste Policy Act, as amended, specifies that:

“The Secretary (*DOE*) shall hold public hearings in the vicinity of the Yucca Mountain site, for the purposes of informing the residents of the area of such consideration (*consideration of site suitability*) and receiving their comments regarding the possible recommendation of such site.”

Inyo County, whose border lies just 17 miles from the Yucca Mountain site and who will receive via groundwater radioactive materials leaking from Yucca Mountain, certainly qualifies as being in the vicinity of the site. Indeed, in our role of receiving radioactive materials and retarding the transport of radionuclides to the populated sections of the Southern Amargosa and Death Valleys, we may legitimately be considered functionally part of the Yucca Mountain project itself. There is no doubt that the NWPA obligates DOE to provide a hearing in Inyo County. Further, the above referenced section points to a hearing process that is limited to receiving comments from residents of “the area” and their elected representatives. Testimony should be limited to parties within or representative of the “vicinity” of the site i.e. from Inyo, San Bernardino, Nye and Clark Counties. DOE failed to seriously attempt or achieve compliance with NWPA Section 114(a)(1) at the September 5, 2001 public hearing in Las Vegas, Nevada, and would be well advised to comply fully with this requirement at future California hearings.

### *DOE Suggested Topics for Public Comment on Yucca Mountain*

On August 28, 2001 we received from OCRWM Acting Director Lake Barrett a list of suggested topics which might, in the context of the Yucca Mountain Site Recommendation process, form the basis for a constructive public dialogue concerning Yucca Mountain, the site recommendation process, and possible means to meet the Nation’s need for the storage of spent fuel and high-level radioactive waste. We welcome the opportunity to address the nuclear waste issue at this level and appreciate Mr. Barrett’s request. The following section responds to each topic in a general manner.

DOE TOPIC #1: Please provide your views concerning whether the Yucca Mountain Preliminary Site Suitability Evaluation (PSSE) and other scientific documents produced by the Department provide an adequate basis for finding that the Yucca Mountain site is suitable for development of a repository. If you believe that certain aspects of the PSSE are inadequate, please detail the basis for this belief and indicate how the documentation might be made adequate with respect to these aspects.

RESPONSE TO DOE TOPIC #1: As discussed above, the PSSE itself is premature and should be developed after completion and release of the Final EIS. While individual scientific documents may or may not be adequate to the degree to which they concretely define whatever TSPA parameter they are designed to illuminate and quantify, in general terms the scientific basis necessary to support a positive or negative site recommendation does not exist. Given the short time frames within which the materials studies have been conducted and the limited understanding of the impact of the repository packages on near-field geologic conditions and through-repository water flow, and minimal information on far-field hydrologic phenomenon, the state of knowledge on the proposed repository is rife with uncertainties which in turn are being incorporated into the TSPA process to produce less than credible results. These in turn form the basis of the PSSE and will, unfortunately, likely serve as the shaky foundation of Secretary Abraham’s site recommendation.

DOE TOPIC #2: If the Secretary determines that the scientific analysis indicates that the Yucca Mountain site is likely to meet the applicable radiation protection standards established by the Environmental Protection Agency and Nuclear Regulatory Commission, do you believe that the Secretary should proceed to recommend the site to the President at this time? If not, please explain.

RESPONSE TO DOE TOPIC #2: The EPA's radiation protection standards allow for the destruction of those aquifers that provide sustenance for humans and Federally-protected natural habitat in both the Amargosa Valley and Death Valley National Park. These standards are entirely unacceptable to Inyo County. No proposal/design that allows the release of radioactive materials from the repository should be recommended to the President. DOE should concede that the necessary hydrogeologic prerequisites necessary to isolate nuclear waste from the human environment are not present at the Yucca Mountain site and, to the extent possible given that it is working directly under a specific Congressional mandate not of its own choosing, seek further direction from Congress regarding the issue of long-term handling of spent fuel and high-level nuclear waste.

DOE TOPIC #3: Are there any reasons that you believe should prevent the President from concluding that the Yucca Mountain site is qualified for the preparation and submission of a construction license application to the Nuclear Regulatory Commission?

RESPONSE TO DOE TOPIC #3: See responses to DOE TOPIC #1 and DOE TOPIC #2 above.

DOE TOPIC #4: If you believe that the Secretary should not proceed with a recommendation to develop a repository at Yucca Mountain, what measures should the Nation consider for assuring safe disposal of spent nuclear fuel and high-level radioactive waste?

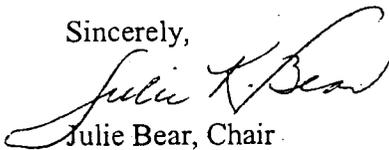
RESPONSE TO DOE TOPIC #4: In May, 2001 DOE released the documents "Nuclear Waste Fund Fee Adequacy Report" and "Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program". These documents reveal that the total expected cost of the Yucca Mountain Project is projected to be 56 billion dollars, of which about 7 billion dollars have been spent to date. A general estimate of the cost to store spent nuclear fuel in NRC-certified aboveground dry casks (casks with an estimated useful life of 50-100 years each) is reported in the Total System Lifecycle Cost Report as \$100,000 per metric ton, or about 7 billion dollars to encase the entire inventory of spent fuel anticipated to be emplaced in Yucca Mountain (70,000 metric tons). If we assume, for the sake of argument, that the entire process of manufacturing and transporting dry casks, retrofitting nuclear generator, DOE and DOD sites to meet NRC on-site storage license requirements, and development and implementation of monitoring and security measures for all sites totals out at \$15 billion dollars, we can see a clear, relatively inexpensive and expedient path to meet the Nation's long-term storage needs without building a centralized repository, without incurring the transportation (health and terrorism) risks associated with a 24-year spent fuel transportation campaign, and without extracting the entire 56 billion dollars from nuclear power consumers. In addition, the spent fuel would remain packaged in accessible, readily monitored, repaired and replaced containers for future reprocessing, transmutation, or burial as necessary to our future needs and priorities.

DOE TOPIC #5: Please provide any other comments concerning any relevant aspect of the Yucca Mountain site for use as a repository, or that are otherwise relevant to the consideration of a possible recommendation to the Secretary.

RESPONSE TO DOE TOPIC #5: In response to this question we incorporate by reference those comments submitted by Inyo County on the Yucca Mountain Draft EIS (Attachment C) and the Supplemental EIS (Attachment D). These documents discuss significant uncertainties regarding project safety and site suitability as well as several fundamental and litigable defects in DOE's attempt to comply with the National Environmental Policy Act.

If you have any questions about this submittal or require additional information, please feel free to contact Andrew Remus, Project Coordinator, Inyo County Yucca Mountain Repository Assessment Office at (760) 878-0447.

Sincerely,



Julie Bear, Chair

Inyo County Board of Supervisors

cc: Senator Dianne Feinstein  
Senator Barbara Boxer  
Congressman Jerry Lewis  
Governor Gray Davis  
State of Nevada  
San Bernardino County Board of Supervisors  
Nye County Board of Commissioners  
Clark County Board of Commissioners



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Clerk of the Board

PATRICIA GUNSOLLEY  
Assistant Clerk of the Board

September 4, 2001

The Honorable Spencer Abraham, Secretary  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, D.C. 20585

**RE: Request for Extension of Comment Period on the Yucca Mountain Preliminary Site Suitability Evaluation and for a Site Recommendation Consideration Hearing in Inyo County.**

Dear Secretary Abraham,

On behalf of Inyo County and concerned agencies and individuals of the State of California, we are requesting a 90-day extension of the comment period for the recently released "Yucca Mountain Preliminary Site Suitability Evaluation". We are further requesting that the Department of Energy conduct a Site Recommendation Consideration Hearing at Furnace Creek, in Death Valley National Park, at a date subsequent to September 18, 2001, and that the Secretary of Energy be present at said hearing to gain firsthand knowledge of the views and concerns of Inyo County and its residents. As the ultimate resting place of radioactive materials anticipated (by DOE's current range of repository designs) to escape from the proposed Yucca Mountain Repository, *Inyo County is distinguished by its status as the most seriously impacted of all jurisdictions potentially affected by the development, operation and closure of the Yucca Mountain facility.*

We were notified August 21, 2001 of DOE's decision to limit public hearings on the Preliminary Site Suitability Evaluation (PSSE) to three locations in Nevada and to establish a September 20, 2001 deadline for public comment on the PSSE. Inyo County - and more specifically - Death Valley National Park, is recognized to be the ultimate destination of those radioactive materials expected by DOE to escape the repository. Our status as a directly impacted County and our proximity to the Yucca Mountain Site certainly place us within the "vicinity" of Yucca Mountain and therefore eligible for a public hearing as specified by the Nuclear Waste Policy Act. The offer of providing in-County teleconferencing of the September 12, 2001 public hearing at Amargosa Valley is neither adequate to our needs nor respectful of our status with respect to the importance of the Site Suitability Evaluation process.

Our staff is currently reviewing the large body of documentation that has been released since the opening of the Science and Engineering Report comment period on May 4, 2001. The recent release of extensive supplementary analyses and the PSSE combine with short notice on the establishment of the September 20 comment deadline to create an unreasonable burden on our County's analytical resources. The September 20 deadline also unduly restricts the Board of Supervisor's opportunities to publicly discuss and adopt a response to the PSSE recommendation evaluation, in fact limiting the Board's options to making a decision at a single meeting (September 18, 2001). Due to this limitation, we are requesting that our hearing take place after September 18<sup>th</sup> in order to provide us with an opportunity to present our findings in the context of a public hearing.

If you have any questions regarding this request, please contact Andrew Remus, Project Coordinator, Inyo County Yucca Mountain Assessment Office at (760) 878-0447.

Very truly yours,



Linda Arcularius, Vice-Chair  
Inyo County Board of Supervisors  
Inyo County, California

cc: Senator Dianne Feinstein  
Senator Barbara Boxer  
Congressman Jerry Lewis  
Governor Gray Davis  
Lake Barrett, Acting Director, OCRWM  
J.T. Reynolds, Superintendent, Death Valley National Park  
Affected Units of Local Government

Congress of the United States  
House of Representatives  
Washington, DC 20515

September 10, 2001

The Honorable Spencer Abraham  
Secretary of Energy  
1000 Independence Ave., SW  
Washington, DC 20585

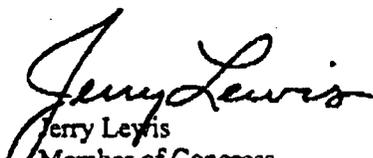
Dear Mr. Secretary:

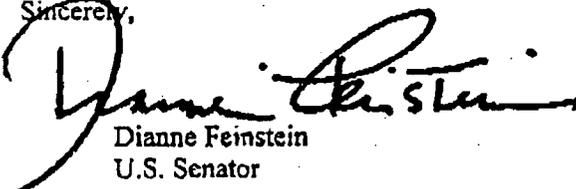
As you may know, the Inyo County Board of Supervisors in California was notified on August 21, 2001 of the DOE's decision to limit public hearings on the Preliminary Site Suitability Evaluation (PSSE) to three locations in Nevada and to establish a September 20, 2001 deadline for public comment on the PSSE. Such short notice, as well as the decision to limit hearings to Nevada is, in our view, unacceptable. We are writing to request a 60-day extension of the comment period for the recently released "Yucca Mountain Preliminary Site Suitability Evaluation." Further, we are asking that the Department of Energy specifically conduct a PSSE hearing in California.

Inyo County is recognized by the federal government as an affected unit of local government and receives funds to conduct external oversight responsibilities relating to the Yucca Mountain site. Few locations will more be more directly impacted by the site than Inyo County and Death Valley National Park. As a result, we believe it is essential that the Department schedule a public Site Recommendation Consideration hearing in California in the proximity of Inyo County. Furnace Creek in Death Valley National Park presents a viable location for such a hearing.

Inyo county is presently in the process of reviewing significant amounts of material relating to the Science and Engineering Report, extensive supplementary analyses, and the PSSE. The September 20, 2001 deadline for public comment, and limited financial resources, restrict the County from reviewing relevant materials and its ability to publicly discuss and adopt a response to the PSSE recommendation evaluation. Such a deadline would limit the Board to making a final decision on September 18. The Inyo County Board, and this process, would be far better served by a hearing after September 18 so that Inyo County Board can make its conclusions in the context of a public hearing. A 60-day extension of the comment period would achieve this goal.

Thank you, Mr. Secretary, for your timely consideration. Should you have any additional questions or concerns, please do not hesitate to have your staff contact Dave LesStrang (Lewis) at 202-225-5861 or Warren Weinstein (Feinstein) at 202-224-3841.

  
Jerry Lewis  
Member of Congress

Sincerely,  
  
Dianne Feinstein  
U.S. Senator



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COUNTY OF INYO

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ATTACHMENT C

MEMBERS OF THE BOARD  
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RENÉ L. MENDEZ  
Clerk of the Board

PATRICIA GUNSOLLEY  
Assistant Clerk of the Board

January 24, 2000

Wendy R. Dixon  
Yucca Mountain Site Characterization Office  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
P.O. Box 30307, Mail Stop 010  
North Las Vegas, Nevada  
89036-0307

**RE: Inyo County's Comments on the Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada.**

Dear Ms. Dixon,

Inyo County, as a designated Affected Unit of Local Government under the Nuclear Waste Policy Act, is charged with oversight of Federal activities relating to the proposed Yucca Mountain Nuclear Waste Repository. In accordance with our responsibilities regarding the proposed repository, we have reviewed the Draft Environmental Impact Statement (DEIS) issued by the Department of Energy (DOE) for the proposed Yucca Mountain Repository. Inyo County's comments on the DEIS, as adopted by the Inyo County Board of Supervisors on January 24, 2000, are attached along with two County-sponsored hydrologic reports which, as specified in the text of our comments, are incorporated by reference into our response to the DEIS.

Inyo County has serious concerns over the completeness and utility of the DEIS. We find DOE's evaluation of the transportation component of the proposal overly generalized and fundamentally inadequate to the task of providing the public and decision makers with sufficient information to comprehend the implications of repository development on national and local transportation risks, emergency response infrastructure, and overall project costs. The DEIS fails to address transportation routing in sufficient detail to allow local and regional agencies to objectively analyze the project's affects on their constituents' health and economic welfare.

The DEIS's discussion of the range of possible repository designs and the behavior of affected geologic and hydrologic systems leads us to the conclusion that the proposal constitutes a critical departure from DOE's original intent to design and construct a facility which would permanently isolate radioactive materials from humans. The DEIS lacks mitigation measures adequate to address

the contamination of the regional aquifer and associated demise of the economy of the Amargosa Valley, the communities of Death Valley Junction, Shoshone and Tecopa, and the destruction of surface and groundwater sources crucial to Death Valley National Park.

Our evaluation of the project and DOE's mandate under the Nuclear Waste Policy Act reveal that DOE has failed to effectively and objectively exercise its authority and obligation under the National Environmental Policy Act (NEPA) to develop and analyze realistic project alternatives on a level equal to that provided for the proposed repository. Treatment of cumulative impacts and indirect effects under NEPA are also seriously compromised.

As you will see from our comments, the deficiencies of the DEIS are fundamental and widespread. We request that the Department of Energy, in consultation with all affected agencies, amend the DEIS to address these concerns and recirculate the document for public review.

If you have any questions about this submittal or require additional information, please feel free to contact Andrew Remus, Project Coordinator, Inyo County Yucca Mountain Repository Assessment Office at (760) 878-0447.

Sincerely,



Michael Dorame, Chair  
Inyo County Board of Supervisors

cc: Senator Dianne Feinstein  
Senator Barbara Boxer  
Governor Gray Davis  
Congressman Jerry Lewis

# INYO COUNTY, CALIFORNIA

## COMMENTS ON

### **The Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada**

Adopted January 24, 2000

Inyo County Board of Supervisors

Inyo County, California

The County of Inyo, State of California, is an Affected Unit of Local Government under the Nuclear Waste Policy Act of 1982, as amended. Inyo County has prepared its response to the U.S. Department of Energy's (DOE's) *Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada* (DEIS). This response expands upon and supplements the comments made by Inyo County officials at the November 4, 1999 U.S. Department of Energy hearing on the Yucca Mountain Draft Environmental Impact Statement (held in Lone Pine, California).

The County has identified a number of issues regarding the Draft Environmental Impact Statement which should be addressed by the Department of Energy in the course of developing the Final Environmental Impact Statement. These issues are discussed below, organized by general topic area. Directly following each subsection - where appropriate - is a recommendation specifying the concerns that need to be addressed by DOE.

#### ***Compliance With the National Environmental Policy Act***

##### **Treatment of Project Alternatives**

Inyo County recognizes that the proposed Yucca Mountain Nuclear Waste Repository is provided significant exceptions to normal NEPA requirements via the Nuclear Waste Policy Act of 1982, as amended. Specifically, DOE is exempt from considering the need for a repository, the timing of availability of the repository, alternatives to geologic disposal, or alternatives to the Yucca Mountain site. The Department of Energy, in developing its NEPA evaluation for the proposed repository is, however, obligated to evaluate reasonable alternatives outside the scope of what Congress has approved or funded because the findings of the Environmental Impact Statement may serve as the basis for modifying the Congressional mandate. This is part of the Congress-informing function of NEPA necessary to placing the proposal in a proper context for purposes of decision-making.

The NEPA exemptions provided by Congress have been interpreted by DOE to limit analysis of project alternatives to a discussion of a range of repository designs, generic

treatment of varying combinations of rail and truck transport, and inclusion of two variations of a "No-Action Alternative". The No-Action Alternatives are stated to be (in the DEIS itself) untenable and included simply for comparison with the proposed action. DOE recognizes that neither of the no-action alternatives is likely to be implemented should the repository not be built. The development of improbable and/or unreasonable alternatives runs counter to DOE's obligation under NEPA to rigorously explore and objectively evaluate all reasonable alternatives, even when such alternatives are outside the jurisdiction of the Department of Energy (40 CFR 1502.14 (a), (c)).

The inclusion of two project alternatives - in the form of variations of a "No Action Alternative" serves as recognition, by DOE, of its obligation to analyze alternatives to construction of the repository, but the analysis of these alternatives is not on a par with that of the proposed repository itself. In fact, the DEIS does not even begin to develop and evaluate project alternatives at a level of detail equivalent to that provided for the proposed action. Such treatment of project alternatives cripples decision-makers in any attempt to discern how development of the repository compares, in the terms of cost, time, resource commitment and risk, to technologically feasible alternatives to Yucca Mountain. Per Council on Environmental Quality (CEQ) Regulations, an EIS *should present the environmental impacts of the proposal and alternatives in comparative form...sharply defining issues and providing a clear basis for choice among options by decisionmakers and the public* (40 CFR 1502.14).

Lacking the detailed alternative project descriptions, environmental risk, and fiscal impact analysis necessary to develop and compare alternatives to the proposal, the DEIS fails to meet that section of NEPA which requires the study, development and description of *appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources* (42 USC Section 4332 (E)).

The statement of underlying need determines the range of alternatives in the DEIS (40 CFR Section 1502.13). An action is proposed to meet the underlying need. Alternatives that do not meet the underlying need have no place in the DEIS. The "no-action" alternatives "...mean the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternate activity to go forward" (CEQ, Forty Questions, 51 Federal Regulation 15618).

Ultimately, the unresolved conflict is whether the deep geologic repository called for in the Nuclear Waste Policy Act can and will be developed, or will be displaced by some other method of solving the problem of storage of spent nuclear fuel. This lack of meaningful, well-developed alternatives supportive of rational decision-making violates the spirit and intent of NEPA. It is well within DOE's purview to provide Congress with analysis of a range of feasible alternatives which achieve both the purposes of NEPA and the intent of the Nuclear Waste Policy Act. Absent a balanced and comprehensive approach to complying with NEPA, the DEIS leaves decision-makers without the information necessary to weigh options and alternatives for disposal of spent nuclear fuel and high-level radioactive waste.

Specific Recommendation: DOE should eliminate the current project alternatives described in the DEIS and develop a range of reasonable project alternatives, providing analysis of each at a level of detail matching that provided for the proposed repository. Alternatives should include: 1) a no-action alternative that assumes permanent on-site storage of existing and future stocks of spent fuel and high-level waste; 2) an alternative which redirects DOE resources towards waste-volume reduction and consolidation of spent nuclear fuel and high-level waste at *existing* DOE storage facilities; and 3) any other alternative which can be implemented using available knowledge and technology which meets the need for storage of spent nuclear fuel and high-level waste expressed in the Nuclear Waste Policy Act. Alternatives must be screened to ensure they meet the underlying need.

### Indirect Effects

CEQ regulations concerning treatment of direct and indirect project effects require *that indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable* be analyzed by the EIS (40 CFR 1508.8). The DEIS fails to address a number of impacts which DOE may view as indirect effects of the project. These impacts are discussed in detail in later sections of this commentary. By way of example, the most obvious effect of the project - which DOE apparently considers indirect and unworthy of analysis at this time - is the extensive transportation campaign necessary to move nuclear waste to Yucca Mountain. Operation of the proposed repository unquestionably includes the creation of new risks accruing to transportation of spent nuclear fuel and high-level radioactive waste to the repository site from locations all across the United States. The transportation campaign required to move waste into Yucca Mountain is later in time, generally further removed in distance, and unquestionably foreseeable, yet the DEIS does not attempt to quantify the impact of the transportation campaign or develop the range of transportation alternatives necessary to compare risks to human populations and infrastructure. Even if the Department of Energy considers the transportation impacts associated with development and operation of the repository *indirect effects* of the project, the DEIS must include meaningful analysis of indirect effects of the project if the DEIS is to be considered a credible attempt to comply with NEPA. The NEPA exemptions provided DOE by the Nuclear Waste Policy Act do not include exemption from addressing such effects.

### Consideration of Cumulative Impacts

The DEIS treats both geohydrologic and transportation impacts of the proposed repository as "stand alone" issues without recognition of the fact that the repository would operate in an environment already heavily impacted by past and ongoing nuclear waste activities. Territory adjacent to the Yucca Mountain site is heavily contaminated by radioactive materials as a result of decades of Atomic Energy Commission (AEC)/Department of Energy nuclear testing, while many of the roadways and rail corridors expected to be used for transport of spent nuclear fuel and high-level nuclear waste are already in service for the transport of low level and defense wastes to the Nevada Test Site and the Waste Isolation Pilot Plant in New Mexico. Operation of the Yucca Mountain repository would be one in a series of similar, linked actions undertaken by a single agency: the Department of Energy. The additional risks which Yucca

Mountain would place on groundwater resources, human populations and national and regional transportation resources must be analyzed and weighted within the context of past, present and foreseeable non-Yucca Mountain-related AEC/DOE actions in order to meet the intent of NEPA and allow decisionmakers and the public to place the proposed action in the proper context. The NEPA exemptions provided DOE by the Nuclear Waste Policy Act do not include exemption from addressing cumulative impacts.

**Specific Recommendation:** The DEIS should be amended to include description of the environmental context within which repository operations and transportation of nuclear waste will take place. Specifically, the DEIS needs to map and quantify the current level of environmental contamination in the region, and current and projected non-Yucca Mountain nuclear and hazardous waste shipment activity. This information needs to be compiled in a manner such that the incremental increase in risk posed by the repository and the total risk to humans and natural resources posed by the sum of DOE activities is clearly discernable.

## *Transportation*

### *Deferral of Waste Routing Designations*

The DEIS does not identify specific primary, secondary or emergency transportation routes for nuclear waste traveling through California, although the means for identifying appropriate routes are readily available. Specific routing decisions, in terms of the use of rail or trucks, designation of primary and alternate routes through Nevada and California, and analysis of the impacts of making the road, rail and emergency response improvements necessary to safely accommodate the waste transportation campaign are all deferred to the indefinite future.

Highway routes can be identified by applying national highway routing regulations to these shipments, and rail routes can be identified by examining available rail lines and their classification. The DEIS could have analyzed impacts specific to national transportation after first identifying the routes based on available information. Instead, DOE performed a limited generic transportation analysis that avoided analysis of specific conditions, impacts, and hazards along the routes and the controversy associated with such determinations.

**Specific Recommendation:** DOE needs to apply current spent nuclear fuel and high-level nuclear waste transportation restrictions and requirements to the current national transportation system to determine which transportation corridors could be used for Yucca Mountain waste. An inventory of populations, emergency response capabilities, geographic and infrastructural limitations etc. must be developed preparatory to completion of a national-scale comprehensive risk analysis for eligible roadways and rail. The risk analysis methodology should be subject to public review as part of the revised DEIS and should provide a range of transportation-risk options and associated fiscal impact estimations.

### California State Route 127

Given that Low Level Nuclear Waste is currently being transported on State Route 127 through Inyo and San Bernardino counties and shipments from DOE's Fernald, Ohio uranium plant cleanup operation are scheduled to begin using SR127 in 2000 to move waste packages to the Nevada Test Site, a precedent is now being set for expanded use of the route for high-level waste and spent fuel. The DEIS, however, does not acknowledge or project the role California corridors will play in moving high-level waste and spent fuel to Yucca Mountain.

State Route 127 is not an engineered route, to the extent that most of SR127 originated as a wagon trail that was paved over a period of time. Our recent survey of the route from its junction in the south with Interstate 15 at Baker to its junction with Nevada Route 95 in the north revealed numerous unbanked, unsigned high-speed turns, blind rises where visibility is nil, sustained grades in excess of modern standards and dozens of washes crossing both over and under the pavement. The road does not include turnouts or wide shoulders. State Route 127 variously parallels, crosses and recrosses the Amargosa River, a shallow desert river of considerable drainage which originates near Yucca Mountain and terminates in Death Valley. The Amargosa is typical of arid region streams, being dry most of the year, yet subject to rapid flooding and pronounced erosion and sedimentation. The route passes through four towns, two of which include sharp 90-degree turns in the middle of the town. There are few alternate routes useful to diverting commercial and passenger traffic around accident or clean-up sites.

In response to questions raised at the November 4, 1999 Yucca Mountain DEIS Hearing in Lone Pine, California, DOE staff clearly stated that the State of California would have to authorize the Department of Energy to use State Route 127 for transport of Yucca Mountain waste. This statement embodies a significant departure from DOE's practice in transporting low level nuclear waste on this route (which does not require State approval). The DEIS should explain what Yucca Mountain Repository-specific procedures are proposed to be put in place which would give States veto power over the use of their routes, and map the routes affecting by these same provisions.

**Specific Recommendation:** The DEIS needs to identify all California roadways and rail corridors eligible for use as primary, secondary or emergency routes for transport of waste to Yucca Mountain. Procedures for selecting routes and the role of state and local agencies in route selection and transport notification should be explained. Unless California State Route 127 is to be definitively excluded from carrying Yucca Mountain shipments, the DEIS should discuss the role State Route 127 could play in the Yucca Mountain transportation campaign.

### Risk Analysis

Route choice will affect the safety, cost and timing of transport operations. DOE needs to engage in a comprehensive study of this issue in order to develop a scientifically defensible, least-risk-based determination of routes. Private carriers should not be burdened with the responsibility to evaluate and choose routes. The preferred corridors should be mapped by DOE and the required roadway and emergency response

improvements identified. Narrowing the number of potential routes via risk analysis allows evaluation of road, emergency response improvements, identification of impacted jurisdictions, quantification of costs and start up and maintenance requirements. Without such information, it is impossible to objectively choose among transportation options, for which the levels of risk and cost no doubt would vary greatly.

DOE's risk analysis for the proposal relied upon the RADTRAN4 computer program to calculate radiological impacts to populations along transportation routes under both normal and accident conditions. The DEIS does not discuss the specific origins of this model, its assumptions, or if and how the model remains applicable to conditions on undeveloped routes where transport vehicles operate slowly on narrow roadways passing through populated areas where there is limited clearance between businesses or residences and the radioactive cargo.

**Specific Recommendation:** The DEIS should include results of a comprehensive national-scale risk analyses to determine least-risk based solutions to the question of which roadway and rail corridors to use to increase the predictability of waste transportation operations. The risk analysis should provide the quantitative information necessary to confirm or deny the value of each reasonable potential transportation scenario. Impacted populations and resources should be clearly identified in the DEIS. DOE should use the results of this analysis to systematically dictate routes to private carriers. The value of the Chalk Mountain Route for achieving major reductions in risk to civilian populations should be quantified and discussed. The specific assumptions used by the RADTRAN4 model should be discussed by the DEIS.

#### Emergency Response & Section 180(c) Considerations

Communities along State Route 127 constitute the most isolated populations in Inyo County. Assistance with roadway incidents must come from the Inyo County Sheriff Unit at Shoshone, Park Service Rangers dispatched out of Cow Creek near Furnace Creek, or California Highway Patrol also coming out of Death Valley or out of Pahrump, Nevada. Most of the route lies one to three hours from any public assistance. To deal with major roadway incidents, County Sheriff units are sent from Lone Pine, which is three hours away from the closest segment of SR127.

Currently, the State Route 127 towns of Tecopa, Shoshone, and Death Valley Junction are served by a single Volunteer Fire Protection District that is without adequate funding. In case of a serious toxic or radiological release in Inyo County, specialist response teams must be brought in from either San Bernardino or Bakersfield, a process which takes a minimum of three to four hours, assuming that the response team is not occupied elsewhere. The closest medical facility of any note is in Pahrump, which is a minimum of thirty minutes from the closest segments of the road and several hours away from the furthest. The closest fully equipped hospital is in Las Vegas, which is at least two hours away from the closest sections of SR127.

State Route 127 serves much of the tourist traffic flowing into Death Valley National Park from Las Vegas and Southern California, with recent estimates showing park usage on the order of 1.4 million visitors/year. Considerable increases in traffic volume are

expected to accompany the growth of California and of both Pahrump and Las Vegas, Nevada (the Nation's fastest-growing medium-size and large cities, respectively). Also, there are approximately 1000 acres of land in the vicinity of the town of Death Valley Junction (intersection of SR127 and SR190) that may be released to the Timbisha-Shoshone tribe for their use. If developed to mixed residential and commercial uses, this territory could host an unknown number of additional residents and contribute significantly to traffic on Route 127. Per information received from Caltrans, the route is not scheduled for major improvements through 2015.

The Nuclear Waste Policy Act, Section 180(c) calls for Federal action to provide improvements in emergency response training and capability along routes designated for the transport of high-level nuclear waste and spent fuel. The virtual absence of emergency response capability on Route 127 and the isolated character and the current configuration of this roadway promise to make compliance with this part of the Act an involved and expensive exercise on the part of the Federal Government. The DEIS makes no attempt to configure or estimate the required dedications of Federal resources necessary to meet its obligations under Section 180(c).

Other necessary improvements prerequisite to regular use of SR 127 include complete reconstruction of some sections of the roadway and the construction, equipping and staffing of emergency response stations. The County and the State will be saddled with significant new costs to safeguard its residents. The EIS fails to address, in any manner, the significant fiscal and possibly significant environmental impacts of meeting these obligations. These impacts are inseparable from the issue of the repository itself and need to be quantified by the EIS.

**Specific Recommendation:** Based on the results of the previously mentioned transportation risk analysis, DOE must identify roadway and emergency response improvements necessary to safeguard residents and resources in the vicinity of California State Route 127, consistent with implementation of Section 180(c) of the Nuclear Waste Policy Act. The costs of these improvements and their maintenance for the duration of the Yucca Mountain repository transportation campaign should be estimated as part of the *fiscal impact analysis* necessary to compare and eventually designate waste transport corridors for the project.

#### Rail Transportation

Due to the lack of information in the DEIS on the relative risks posed by the possible range of rail-truck transportation scenarios, it is impossible at this time to determine whether a rail or truck-focused transportation campaign will best serve the need to mitigate the risks associated with the proposed repository. Inyo County does, however, have a preference for development and use of the Chalk Mountain Route for waste shipments originating east of California. Dedication of this route to nuclear waste transport would make extensive use of secure Federal lands directly north of the repository site and could significantly reduce the number of shipments on southern routes (Interstate 15, Interstate 40, Nevada Routes 95 and 160 and California State Route 127)

### Transportation-Specific NEPA Evaluation

The transportation campaign is an integral part of the Yucca Mountain project. It is inseparable from the operation of the proposed repository. Consideration, in detail, of transportation impacts cannot reasonably be deferred to future analysis any more than other off-site impacts. Without detailed information on likely primary and secondary routes in California and the staging of shipments, it is impossible for Inyo County to evaluate the impacts of the shipping campaign on our area. While it is DOE's contention that the DEIS is sufficient to serve as the "umbrella" environmental impact document for future Federal transportation decisions, the DEIS fails to include the data, mapping and analysis sufficient to compare routes and support even general route designations. Absent transportation specific impact analysis in the DEIS, it is impossible to determine the suitability of a repository at Yucca Mountain.

### **Groundwater**

#### Inyo County Hydrologic Studies

The DEIS recognizes uncertainties about groundwater flow boundaries among sub-basins within the Death Valley groundwater basin. Contamination of the deep regional aquifer, which appears to underlie both Yucca Mountain and the Tecopa-Shoshone-Death Valley Junction area, poses the most significant long-term threat to the citizens and economy of Inyo County. Inyo County, in conjunction with Nye and Esmeralda Counties (Nevada) and the USGS, have engaged in groundwater research which points to a direct connection between water in the deep 'Lower Carbonate Aquifer' beneath Yucca Mountain and surface discharges (springs) in Death Valley National Park ("*An Evaluation of the Hydrology at Yucca Mountain: The Lower Carbonate Aquifer and Amargosa River*", Inyo & Esmeralda Counties, 1996, and "*Death Valley Springs Geochemical Investigation*", Inyo County, 1998, provided as Attachments A & B). These studies were funded with DOE grant money and done to a high standard of scientific accuracy, being subject to Federal (USGS) quality assurance and quality control measures.

The 1996 study of the Lower Carbonate Aquifer suggests a significant degree of hydrologic connectivity between the Lower Carbonate Aquifer lying beneath the proposed repository and surface manifestations of the same formation within Death Valley National Park. The study also indicated that populations in Amargosa Valley (including the California towns of Death Valley Junction, Shoshone, and Tecopa) utilize groundwater that may be hydrologically contiguous to a southward extension of the Lower Carbonate Aquifer.

The 1998 investigation of the geochemistry of spring waters in the mountains east of Death Valley (some of which are developed to serve domestic and commercial uses in Death Valley) gave indications that these spring waters may be dominated by input from the Lower Carbonate Aquifer, perhaps via relatively fast pathways through fractures in the formation. It should be noted that these same springs also sustain populations of a number of threatened and endangered species.

The Draft Environmental Impact Statement does not address our findings, either to acknowledge or deny the implications of these studies with regard to potential pathways for contaminants to reach human populations or a National Park. Our studies, which have been available to DOE for some time, are absent from the estimated 50,000 pages of technical background material which went into development of the DEIS. We are formally including, by reference, these studies into our comments on the DEIS.

The County considers this a critical oversight on the part of DOE, which should be rectified by serious consideration of our scientific work and placement of our findings in the proper context.

The entire range of available scientific studies on groundwater flow in the Amargosa Valley, including applicable groundwater dating methodologies and flow velocity measurements, should be discussed. Competing models and methods and their results should be compared by the DEIS to provide a clear view of the current state of knowledge on the region's hydrology. The discussion of subsurface transport mechanisms of radionuclides needs further development, comparing the potential roles of colloidal, suspended particulate, and solution transport of contaminants under a range of assumptions about climate and subsurface conditions.

**Specific Recommendation:** DOE should review the above-cited research products for merit, incorporating the information into the hydrology database compiled for purposes of evaluating potential impacts to regional aquifers. If our reports have been submitted using a format or methodology not acceptable to DOE, Inyo County should be informed immediately to allow the County to redirect our research and reporting efforts. The DEIS should utilize the entire range of available hydrologic models and methods to bound projections of groundwater flow, contaminant transport concentrations, and velocity in the region potentially impacted by release of radioactive contaminants from the repository.

## ***Repository Design & Performance***

### ***Selection of a Repository Design***

It is recognized that the repository design is still evolving outside of the EIS process and that the specific design of the repository is not yet known. In order for the EIS to be useful to the Nuclear Regulatory Commission in its consideration of DOE's license application for construction of the repository, the specific impacts of the chosen specific design will need to be determined, to the extent possible, and incorporated into the Final EIS.

Assuming that the impacts of the design chosen for the repository remain within the bounds of those environmental impacts considered in the DEIS (i.e. the EIS remains valid for the chosen design), the Final EIS should include a detailed description of the selected repository design and an analysis of its potential impacts, including a comparison with reasonable alternatives that were considered and discussion of any impact mitigation measures which were incorporated into the design subsequent to distribution of the DEIS.

### Groundwater Impacts

After release of the DEIS, DOE - in response to a Nuclear Waste Technical Review Board critique of the original proposal for a "hot" (high thermal loading) repository - opted for a "cool" design. The choice of a low thermal loading design appears, to the best of our knowledge, to be based on DOE's finding that the cooler design is easier to model, not because there is evidence that this is an otherwise superior alternative.

The change of repository design from a "hot" repository to a "cool" repository has major and insufficiently researched implications for groundwater flow and groundwater chemistry. A hot repository has the potential to intercept and boil off groundwater infiltrating through the tuffaceous material above the emplacement blocks, thereby heading off the input of contaminated liquids into the saturated zone. A hot repository also, however, may accelerate waste package disintegration and increase the density and size of local rock fractures, accelerating contamination of the saturated zone. There is insufficient information on the behavior of the hydrology and geology of Yucca Mountain to develop a balanced design that minimizes or avoids contact between water and waste materials. This being the case, the current state of knowledge and information available to preparers of the DEIS is inadequate to development of a NEPA document sufficient to support a decision on repository design.

It is DOE's contention that the DEIS is sufficiently broad in its treatment of repository design variations to cover the switch to a cooler repository, however, recent technical discussions on repository performance conducted by the Advisory Committee on Nuclear Waste and the Nuclear Waste Technical Review Board reflect considerable uncertainty in our understanding of how the repository will behave under the cooler design. We do not believe that the current state of knowledge on repository performance lends itself to a determination that the DEIS is adequate to support a decision on which design should be adopted.

**Specific Recommendation:** Given the inadequate state of knowledge on the viability of the various design variations described in the DEIS, the current DEIS cannot be used as the basis for choosing the specific design to be submitted to the NRC for licensing. Choice of repository design must be deferred until sufficient research has been completed to allow for an informed choice. The selection process should be subject to separate NEPA treatment at the appropriate time.

### Mitigation of Groundwater Impacts

All of the design alternatives considered in the EIS lead, ultimately, to a repository that is expected to leak (albeit at different rates depending on the particular choice of tunnel configuration, waste packaging, assumptions regarding geology, climate, and the response of the waste packages to the repository environment). Given the scale and complexities of the aquifers subject to potential contamination by the project, mitigation of impacts to these resources will range somewhere between extremely expensive to completely impossible. The DEIS should explain DOE's stance on providing mitigation, and either consider the adoption of feasible mitigation measures or state that such impacts cannot or will not be mitigated by the Federal government.

### Waste Package Design

It is recognized that the Nuclear Regulatory Commission has recently initiated a new program of cask testing which proposes to subject transportation cask prototypes to an expanded range of physical tests. Since the nature and, of course, results of these tests are at present unknown and cask options cannot be evaluated via the NEPA process at this time, the current Yucca Mountain DEIS cannot be used as a base document from which to tier off a NEPA evaluation of possible cask designs. Further discussion of cask designs at this time is therefore unwarranted.

### Monitoring and Retrieveability

DOE's proposal calls for backfilling of the emplacement drifts and closure of the repository between 50 and 300 years after disposal operations begin. Backfilling and closing the repository prohibits monitoring of the waste packages for structural integrity and increases the difficulty and cost of retrieving the waste should a radioactive release occur or new findings and technologies emerge which provide for safer forms of storage or reuse of the nuclear material.

Contrary to the expectation incorporated into DEIS that significant radioactive releases from the repository are inevitable, DOE must adopt as its goal complete and permanent isolation of radioactive material from humans. In our estimation, the only way to both meet this goal and to mitigate the many uncertainties associated with repository performance is to have a permanently open and thoroughly monitored facility. DOE should not attempt to anticipate a closure date for the repository and should quantify, to the extent possible, the fiscal impact of funding a closely monitored facility capable of retrieving and replacing failed waste packages.

The project should provide, as a mitigation and risk-reduction measure, for on-site third party monitoring of the repository both during and after the emplacement phase. It is recommended that either the National Science Foundation or Nuclear Regulatory Commission be specified as the third party and provided the necessary funding via the Nuclear Waste Policy Act.

### Economic Development Considerations

Groundwater modeling used as the basis for the DEIS does not take into account the potential for accelerated transport of radionuclides due to projected increases in regional groundwater extractions. Growth in Pahrump, the Amargosa Valley, and possible development of pending regional groundwater claims by the City of Las Vegas may lead to significant changes in the direction and volume of groundwater flow from Yucca Mountain. It is well within the ability and purview of DOE to attempt a reasonable projection of the effects of urban development on the regional groundwater system and to incorporate these expectations into the groundwater models utilized in development of the DEIS.

**Specific Recommendation:** Groundwater modeling conducted in support of the repository site evaluation process should be reworked to incorporate reasonable projections of future regional groundwater usage. The likely effects of regional groundwater development on contaminant plume paths, velocity, and radionuclide concentrations should be projected and mapped.

### *Socioeconomic Impacts*

Socioeconomic impact analysis in the DEIS is limited to regional impacts on employment, housing and other standard economic indicators. There is no analysis of potential socioeconomic disturbances due to repository operation and transportation under both normal and accident conditions. Conversely, the DEIS lacks discussion of the impact of socioeconomic changes on the operation of the repository. Growth rates and development expectations along transportation corridors, and the implications of same for the evolution of new transportation risks during the 30-year span of repository operations are not considered.

The knowledge that nuclear waste transportation or accidents are associated with particular locations/roadways can have adverse economic impacts to those locations due to accumulating stigma. Inyo County, with its tourism-based economy revolving around the use of Death Valley National Park, is particularly vulnerable to the economic impacts of stigma. The same holds true for risks associated with possible contamination of the regional aquifer serving commercial uses in Death Valley. In light of the economic benefits received by the County and the State of California from Death Valley National Park (which on average receives 1.4 million visitors per year), the security and public perception of State Route 127 is of utmost importance. The EIS should consider the potential socioeconomic impacts of stigma associated with the proposed action and evaluate potential mitigation options.

The project could also affect property values in the southeastern portion of the County, an area that is likely to experience considerable growth during the 30-year time-span for which the repository would accept waste. The DEIS, if it is to truly function as a tool for analyzing the impact of the repository, must attempt to project the economic consequences of the designation of specific waste hauling routes and of repository contamination of the regional groundwater system on local economies.

### *Conclusory Remarks*

The DEIS admits to significant uncertainties in 1) the final repository design; 2) the expected performance of both natural and man-made barriers to radionuclide release; 3) the response of the natural environment (transport mechanisms) to inputs of radioactive materials; and 4) the health impacts of the expected radiological contamination of the regional aquifer. The DEIS fails to address in a meaningful way issues of transportation or socioeconomic impacts and does not provide well-developed alternatives for consideration by the public or decision makers. None of the design options result in a repository that isolates radionuclides from the accessible environment. Cumulatively, the current level of uncertainty associated with the project and the lack of

scientific information necessary to reduce some of the major uncertainties makes it difficult to imagine that the document will be found adequate for use by the Nuclear Regulatory Commission in its consideration of DOE's application for a license to construct a repository.

The absence of meaningful treatment of the environmental impacts of the transportation component of the project is a major flaw in the Draft Environmental Impact Statement which will eventually require that DOE develop a second Environmental Impact Statement specific to transportation issues. This being the case, Inyo County objects to the use of the current DEIS as the basis for future decision-making on waste transport and requests that DOE amend the Environmental Impact Statement to address the full range of impacts accruing to construction and operation of the repository.

The DEIS as a whole is narrowly scoped, to the degree that comprehensive analysis of the impact of the proposal is impossible. Taking into account those NEPA exemptions granted by Congressional action, the development of project alternatives in the DEIS remains unnecessarily restricted, obstructing attempts to weigh the costs and benefits of the proposed repository. It is unclear whether a Supplemental EIS or a new EIS is needed. Typically, a Supplement needs to be prepared if new information or circumstances become apparent. In the case of Yucca Mountain, the information DOE would require to correctly draft an EIS is either: 1) already available or readily developed (e.g. data prerequisite to rail and road corridor risk analysis); or 2) unlikely to be available in the near future (such as statistically significant data on waste package, emplacement drift or aquifer behavior). The revised DEIS needs to differentiate clearly between the known and the unknowable for the benefit of both reviewers and future decision-makers.

## ATTACHMENT D



### BOARD OF SUPERVISORS COUNTY OF INYO

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June 19, 2001

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Yucca Mountain Site Characterization Office  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
P.O. Box 30307, Mail Stop 010  
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89036-0307

**RE: *Inyo County's Comments on the Supplement 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, Nye County, Nevada.***

Dear Ms. Summerson,

The County of Inyo, State of California, is an Affected Unit of Local Government under the Nuclear Waste Policy Act of 1982, as amended. Inyo County has prepared its response to the U.S. Department of Energy's (DOE's) *Supplement 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, Nye County, Nevada (SEIS)*.

The County has identified several issues regarding the Supplement to the Draft Environmental Impact Statement that should be addressed by the Department of Energy in the course of developing the Final Environmental Impact Statement. Our comments on the SEIS are supplemental to our comments on the DEIS (adopted by the Inyo County Board of Supervisors January 24, 2000 and submitted to DOE prior to the deadline for comment on the DEIS). Inyo County Board of Supervisors comments on the SEIS in no way supercede the Board of Supervisors' comments on the Draft EIS.

#### *Limited Scope of the SEIS*

At the May 4, 2001 Affected Unit of Local Government meeting in Las Vegas, Nevada, DOE staff indicated, in response to direct questioning, that DOE does not intend to release any Supplement to the Draft EIS to address transportation impacts accruing to operation of the repository. In response, we would like to reiterate that CEQ regulations concerning treatment of direct and indirect project effects require *that indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable* be analyzed by the EIS (40 CFR 1508.8).

Operation of the proposed repository unquestionably includes the creation of new risks accruing to transportation of spent nuclear fuel and high-level radioactive waste to the repository site from locations all across the United States. The transportation campaign required to move waste into Yucca Mountain is later in time, generally further removed in distance and unquestionably foreseeable, yet DOE has made scant attempt to quantify the impact of the transportation campaign or develop the range of transportation alternatives necessary to compare risks to human populations and infrastructure. Even if the Department of Energy considers the transportation impacts associated with development and operation of the repository *indirect effects* of the project, the EIS must include meaningful analysis of indirect effects of the project if the EIS is to be considered a credible attempt to comply with NEPA.

The current SEIS is limited in scope to changes in repository design and discussion of newly proposed surface facilities. Failure to address transportation impacts in detail via a second SEIS seems to commit DOE to defer addressing such impacts until the Final EIS. A critical problem arises from the fact that adequate treatment of transportation impacts in the FEIS will require that DOE (if it hopes to comply with CEQ regulations) provide detailed information on and discussion of transportation impacts and alternatives, without the benefit of public and public agency input into the evaluation of environmental impacts accruing to the transportation campaign and proposed alternatives (40 CFR 1508.18). It seems that DOE's current approach would expose DOE to litigation for noncompliance with NEPA, as the Nuclear Waste Policy Act NEPA exemptions for the project do not specifically exclude consideration of transportation impacts of the Yucca Mountain project.

### Repository Design & Surface Water Impacts

The addition - to the proposed repository design - of extensive surface facilities for the temporary wet and dry storage of spent nuclear fuel (to accommodate fuel-blending necessary to reduce waste package heat output) is not adequately analyzed in the SEIS. Flood events, earthquake activity or on-site accidents have the potential to damage temporary storage structures and possibly release radionuclides to surface waters and introduce such materials into the regional drainage system. Surface water from Yucca Mountain flows to the Amargosa river basin, past the California communities of Death Valley Junction, Shoshone and Tecopa, eventually terminating - if not completely infiltrated into the ground in transit - within Death Valley National Park. Extreme flood events in the Amargosa basin are well documented. The SEIS needs to be specific with respect to the design of temporary storage surface structures and conduct and appropriately discuss - in the context of the NEPA evaluation - statistical study of the frequency and potential magnitude of flood events at and near the proposed surface facilities, project the likelihood of release of radioactive or toxic materials to the accessible environment, and propose mitigation measures/design modifications as needed to protect the public and on-site workers. Exposure of proposed temporary surface storage facilities to significant damage by natural or man-made agents is a "reasonably foreseeable accident" as defined in the SEIS and warrants the detailed study necessary to quantify to risk associated with this new design feature.

### Repository Design & Groundwater Impacts

The Science and Engineering Report (SER) flexible design proposed by the SEIS to replace the range of design (thermal-loading) alternatives presented in the DEIS addresses several of Inyo County's concerns regarding repository behavior. The SER flexible design concept allows for a low-temperature repository design that minimizes (to a greater extent than the low-temperature alternatives discussed in the DEIS), uncertainties regarding the behavior of geologic, hydrologic and engineered systems. We encourage DOE to continue to quantify the uncertainties associated with

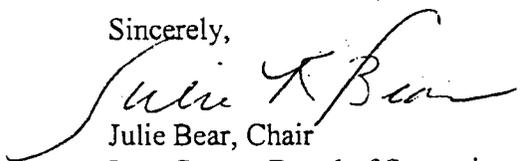
repository performance and guide the design selection and licensing process to that particular design which provides the greatest level of confidence and security to potentially impacted resources and populations. While a *specific design alternative* will probably have to be adopted by DOE as the candidate for NRC licensing purposes, the SER flexible design concept reflects an appropriately conservative and dynamic approach to making mid-course "corrections" in the configuration and operation of the repository should scientific findings during the construction and/or emplacement phase argue for modifications to the project.

As with the design alternatives considered in the DEIS, the entire range of design alternatives allowed by SER flexible design used as the basis for the SEIS leads, ultimately, to a repository that is expected to leak (albeit at different rates than the design alternatives analyzed by the DEIS). DOE's NEPA efforts should incorporate, attempt to estimate costs for, and discuss in some detail an aggressive, open-ended monitoring, retrieval and contamination mitigation program suitable for the post-emplacement phase, without expectation that the repository will close during the licensing period (10,000 years).

The Southeast Area Citizen Advisory Committee, a volunteer committee composed of residents of the Inyo County portions of the Amargosa Valley and Death Valley National Park, submitted oral comments on the SEIS at the May 31, 2001 hearing in Amargosa Valley. On behalf of the Committee, we are forwarding for your consideration the Committee's comments in written form (please see attached).

If you have any questions about this submittal or require additional information, please feel free to contact Andrew Remus, Project Coordinator, Inyo County Yucca Mountain Repository Assessment Office at (760) 878-0447.

Sincerely,



Julie Bear, Chair  
Inyo County Board of Supervisors

cc: Senator Dianne Feinstein  
Senator Barbara Boxer  
Governor Gray Davis  
Congressman Jerry Lewis



County of Inyo  
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May 31, 2001

Jane R. Summerson  
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89036-0307

**RE: *Inyo County SOUTHEAST AREA CITIZEN ADVISORY COMMITTEE Comments on the Supplement 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, Nye County, Nevada.***

Dear Ms. Summerson,

The County of Inyo, State of California, is an Affected Unit of Local Government under the Nuclear Waste Policy Act of 1982, as amended. The Inyo County Board of Supervisors established, in 1998, a citizen advisory committee, the **Southeast Area Citizen Advisory Committee**. One of the tasks assigned this Committee is to review and advise the Board on issues relating to the proposed Yucca Mountain Nuclear Waste Repository. The Committee submits the following two-part response to the U.S. Department of Energy's (DOE's) *Supplement 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, Nye County, Nevada* (SEIS). The first section are comments from Committee member Jennifer Viereck, the second section includes comments from Committee Chair Jann Rucquoi. These comments have been endorsed by our committee.

[1] We are extremely appreciative of the enormous volume of research and work that has gone into the further evolution of the repository design since the release of the first Draft EIS in 1999. It seems clear that the DOE has attempted to be responsive to some of the criticisms of that original document. However, several unresolved issues come immediately to the forefront of our concerns:

- a. If the design is still so totally in a state of fluctuation, or "evolution", why are we being asked to respond to it, and why is the EIS process moving forward? There are not clear definitions of the design put forward for the Proposed Action, nor are there clear alternatives for comparison. There are a number of variables and parameters that can be combined in different ways like a soup recipe, all still in a very exploratory stage, but no clear conclusions for us to evaluate. This report and this process is completely premature. We don't believe that this premature and incomplete approach to the EIS process is even legal, let alone ethical or responsible to the taxpayers or residents of this region.
- b. The time period allowed for hearings and responses to this Supplement, with its enormous but rather sketchily outlined new scheme, 45 days, is completely inadequate. We are not radiation professionals- we are juggling jobs and families, in addition to trying to review this technical material that has tremendous implications to our lives in the future. Since the Radiation Regulations for the Proposed Repository have not been decided, therefore delaying indefinitely the final EIS report and the Site Recommendation process, there seems to be no logical reason for this rushed process. In addition, many people should have the right to review and comment on these broad changes to a huge national policy.
- c. This Supplement does not take into account a number of serious discrepancies in the original document that have been pointed out about this region, such as population and employment figures in Nye county. Therefore, how can the dose calculations be accurate?
- d. This supplement spells out, in extremely outline form, a number of entirely new facilities and waste handling processes that have enormous implications: a cooling pool, an above ground storage facility that would operate for up to 50 years, mixing and repackaging waste, etc.
- e. If storing waste on the surface for the next 50 years is now part of the Yucca Mountain plan, why is it not being stored on site, thus eliminating transportation dangers to the public and to residents of this area, while the DOE figures out a truly safe solution? Is exposing our region to this incomplete plan merely being done to avoid litigation from nuclear utility companies?
- f. The margin for human error, in record keeping alone, seems enormous. Potentially deadly problems that have happened at nuclear reactor sites already, such as cranes getting jammed while lifting rods out of pools, lids being dropped or gases threatening explosion, would be greatly magnified. The analysis of the potential impacts of these new facilities is very incomplete. The accident scenario for the

Waste Handling Facility doesn't appear to include the storage pool or the rods that would be in it. It seems highly unlikely that this above ground facility could even be licensed by the NRC independently, if it were held to the same criteria as other sites under consideration.

- g. The only thing that does seem completely clear to us from this document is that it is completely impossible for this project to meet its original mission, "to isolate high-level nuclear waste from the biosphere". On page S-7, it states that the mean annual dose will continue to rise after the arbitrary 10,000 year licensing period, that the peak dosage could range from 120 millirems to 260 millirems, right up the road at the freeway junction, some 550, 000 years from now. Has any other federal project, let alone one that is currently estimated to cost \$56 billion dollars, ever guaranteed its own failure, right from the start?
- h. Lastly, we would ask the DOE to take into account a recent study by the US Geological Survey about storm drainage in our area. Apparently the already radioactive effluent from the Nevada Test Site, and potentially contaminated effluent from the Yucca Mountain area, runs directly into our Amargosa River, impacting Death Valley Junction, Shoshone, Tecopa, the Timbisha Shoshone Tribe, and the 1.4 million visitors each year to Death Valley National Park. These above ground nuclear storage and handling facilities would directly impact surface water, unlike the original deep repository design. We are extremely concerned about much speedier contamination of our watershed than previously thought.

[2] The EIS lacks treatment of cumulative effects from both Yucca Mountain and the Nevada Test Site. Surface water from both these projects comes into the Amargosa Valley and beyond, all the way to Death Valley. The new design requires aboveground storage of large quantities of spent nuclear fuel in pools and in casks. This surface storage is being proposed to take place over a period of decades – these facilities themselves are obviously a risk to surface water. There is a real possibility of earthquake damage to the site. Tecopa is considered Seismic Zone 3, and Yucca Mountain is considered potentially more active than Tecopa.

Based on DOE's recently released cost report, on-site dry cask storage would cost under \$10 billion. The Yucca Mountain project has to date spent \$7 billion, and the projected cost to complete the project is estimated at \$49 billion. It seems worthwhile to examine this situation based on cost effectiveness. On-site storage would obviate the risks of required transportation of high-level nuclear waste over long distances and on many problematic roads, such as California State Route 127 which is a possible transport route for waste to Yucca Mountain.

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On behalf of the Inyo County Southeast Area Citizen Advisory Committee