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THE WILDERNESS SOCIETY NATIONAL PARKS CONSERVATION ASSOCIATION

February 27, 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, NV 89036-0307

VIA INTERNET EMAIL: <http://www.ymp.gov>, FAX & U.S. MAIL

RE: 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,

Thank you for the opportunity to comment on the aforementioned draft Environmental Impact Statement (DEIS). The Wilderness Society (TWS) is a national conservation organization with 200,000 members nationwide, including 1,000 members in the State of Nevada, and 30,000 members in California. The National Parks Conservation Association (NPCA) is America's only non-profit, private citizens organization dedicated solely to protecting, preserving and enhancing the country's National Park System. Founded in 1919, NPCA currently has over 400,000 members.

Both of our organizations are deeply concerned about the proposed Yucca Mountain high-level nuclear waste repository, and the adverse effects it may have on the natural resources of Death Valley National Park (DVNP) and surrounding wildlands, as well as on Inyo County's tourism-based economy. We further believe that the DEIS is inadequate, and that it should be revised and recirculated for additional public review and comment.

We believe the DEIS is inadequate for the following reasons:

- The DEIS fails to address the potentially devastating ecological impacts of the project on the natural resources of Death Valley National Park and the surrounding region;
- The DEIS fails to detail and analyze the transportation corridors that will be utilized to transport high-level nuclear waste to Yucca Mountain, which are an integral part of the repository project;

- The DEIS fails to address health and socio-economic impacts to human communities from possible downgradient groundwater and surface water contamination in the Death Valley region and from reasonably foreseeable transportation accidents;
- The DEIS fails to close numerous information gaps. There are references throughout the document to incomplete or unavailable information, information which is essential to ensuring that DEIS is a thorough and accurate review of the project;
- The DEIS fails to consider a reasonable range of alternatives.

Below, we offer specific comments to as to why the DEIS is inadequate in light of the above. We urge the Department of Energy (DOE) to address these and other fundamental flaws in the document,¹ in compliance with the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.), and to revise and recirculate the DEIS. Once the DEIS is revised and reissued, the DOE should hold additional public hearings and take additional public testimony in potentially affected communities in both California and Nevada.

1...

1. The DEIS fails to address the potentially devastating ecological impacts of the project on the natural resources of Death Valley National Park and the surrounding region.

The DEIS fails to adequately address possible impacts of the proposed action on natural resources in and around Death Valley National Park (DVNP). At 3.3 million acres, Death Valley is without question America's most spectacular desert National Park. Nearly 3.2 million acres of the Park are designated Wilderness. The mandate of the National Park Service Organic Act of 1916 is that national parks shall be protected such that they "remain unimpaired for the enjoyment of future generations." The DEIS prepared by the DOE completely and utterly fails to ensure that Death Valley National Park will indeed remain unimpaired for future generations. Similarly, the proposed project fails to ensure that the integrity of Wilderness Areas designated by the California Desert Protection Act of 1994 will be protected, or that National Wildlife Refuge (NWR) system lands will be adequately protected from degradation. The document must be revised to assess possible impacts of the proposed action on National Park System lands, Wilderness lands, and the Ash Meadows NWR, and must detail how these critical wildlands will be protected for future generations.

The DEIS does not correctly identify the current boundaries of Death Valley National Park.² The Park was created in 1994 (see P.L. 103-433), and expanded at that time from its previous smaller size as a National Monument. Wilderness areas both within the Park and on Bureau of Land Management (BLM) lands in the region surrounding the National Park were also designated at that time (see *ibid.*). The additional National Park Service (and Wilderness) lands that could be impacted by contamination from the repository must be disclosed in the final draft, and the potential impact of the project on the *all* the lands within this unit of the National Park System - including possible radioactive leakage to groundwater and surface water resources of the Park, as well as possible impacts on resources within the expanded Parklands from accidents involving transport of high level nuclear waste - must be analyzed. Without accurately identifying the boundaries of DVNP, or of designated Wilderness areas, it is impossible for the

¹ We understand that, additional to the issues we have raised which are of critical concern to our organizations, the document contains many other flaws which are being addressed by other organizations and agencies.

² Nor does it identify Wilderness lands that may be affected by the proposed project.

1 cont. DEIS to contain a complete and thorough analysis of possible impacts of the project on the resources contained within DVNP and surrounding wildlands.

DVNP proper contains spectacular mountain ranges and vistas, desert bighorn sheep and other wildlife, and riparian resources including Salt Creek, Saratoga Springs, and numerous springs and seeps, all of which are the lifeblood for numerous plant, animal, bird and fish species, many of them unique to Death Valley. The Devil's Hole Detached Unit of DVNP and the Ash Meadows NWR, both in the Amargosa Valley, contain an amazing system of natural springs and seeps at Ash Meadows. This extensive above-ground aquifer harbors threatened and endangered species including the Devil's Hole pupfish and other endemic flora and fauna. The DEIS not only does not contain an adequate description of these resources, it provides little, if any, analysis of the proposed project on impacts to the natural environment.

3.2 million acres of Death Valley National Park are designated Wilderness. Additional BLM Wilderness areas surround Death Valley. Places like the Kingston Range Wilderness, Resting Spring Wilderness, the Nopah Range Wilderness and Pahrump Valley Wilderness not only contain important natural resources (e.g., springs, flora and fauna, wildlife habitat, archaeological resources), these Wilderness provide outstanding opportunities for primitive recreation including hiking, backpacking, hunting and nature study. Yet the DEIS has failed to acknowledge possible impacts of the proposed action on these wilderness lands and on wilderness-related recreation.

Water-Dependent Resources

2... The DEIS completely fails to address potential impacts of the Yucca Mountain storage project on the water resources of Death Valley National Park and surrounding wildlands. It is clear that the repository may still constitute a dangerous source of radiation even after its projected 10,000 year life-span. The radionuclides in the proposed waste packages have half-lives ranging from 24,000 years (Plutonium 239) to 2,100,000 years (Iodine 129). Neptunium 237, which is projected to pose a serious health threat, has a half-life of 2.1 million years. The potential of this project, over time, to destroy the ecological integrity of DVNP and other wildlands must be addressed.

The DEIS does not address the fundamental question of overall risks of contamination of groundwater or downgradient natural resources from the repository site. Should a leak occur from the proposed repository site, it will likely migrate and contaminate groundwater and springs within Death Valley National Park, the Devils Hole Detached Management Unit of DVNP, the Ash Meadows National Wildlife Refuge, designated Wilderness areas, and the many natural resources contained in these specially-designated areas.

The DEIS admits there exists significant uncertainty over the actual risk of leakage of radioactive material into the groundwater aquifer that contains the Amargosa River system and which underlies portions of DVNP. Numerous studies demonstrate that the regional groundwater flow system runs from the Yucca Mountain area toward the Furnace Creek wash area in Death Valley National Park. This obvious pathway for groundwater contamination is not adequately considered in the DEIS; in fact the DEIS flatly and unjustifiably ignores the information contained in hydrological studies other than its own. Of particular note, studies

2 cont. conducted by Inyo, Esmeralda and Nye counties have established a direct connection between the aquifer underlying Yucca Mountain and surface springs in Death Valley National Park. See, e.g., 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). These same studies indicate that communities in Amargosa Valley utilize groundwater that may be hydrologically contiguous to the Yucca Mountain aquifer.

Additional study will clearly be necessary to fully understand the nature of the groundwater flow system. This basic knowledge will be required to accurately determine the potential environmental impacts of the Yucca Mountain repository project. Effective modeling must also consider a response of the flow system to a number of likely variables, including continued development, increased groundwater withdrawals, variations in precipitation, and groundwater recharge. Absent that kind of data and analysis, the DEIS will not be able to conclusively determine potential environmental impacts of the proposed project, and is therefore incomplete.

The DEIS implies that groundwater moves very slowly in the Yucca Mountain area, giving the false impression that impacts to the environment from groundwater movement will be negligible. Numerous studies, however, indicate that zones in this regional aquifer are highly transmissive. The constant discharge, high volume springs at Ash Meadows and Death Valley further indicate that the area around these springs may be surrounded by accelerated groundwater transmissivities. Any contamination originating at the Yucca Mountain Site could thus quickly be transported to Death Valley and Ash Meadows contrary to the claims of the DEIS.

The DEIS also fails to assess the impacts of expected climate change over the next 10,000 years on the transport of groundwater between the repository site and Death Valley National Park. In the past 10,000 years, there have been significant climatic changes, including periods much wetter than today. Studies that have reviewed the effects of increased filtration that may result from a wetter climate (e.g., global warming, as predicted by scientists) have direct bearing on the repository proposal. A wetter climatic regime could both increase the rate of corrosion of waste canisters and speed the travel of groundwater, which would result in greater and more rapid dispersal of radionuclides to the environment.

In addition to groundwater impacts, the project also poses a very real threat to surface water resources. The document fails to consider the potential impacts from radioactive leaks from the repository manifesting in surface-water springs, or from transportation-related accidents of shipments containing high-level radioactive waste, to the surface-water resources of Death Valley National Park, Ash Meadows NWR, designated Wilderness areas, and the Amargosa River. Nor have the impacts of such contamination of surface water on the wildlife, vegetative and human communities dependent on those surface waters been adequately assessed.

Bighorn Sheep

3... The DEIS fails to adequately assess possible impacts of the proposed project on desert bighorn sheep in the region. Besides the obvious threats to bighorn from ingesting contaminated water at surface springs in Death Valley and surrounding wildlands inhabited by the wild sheep,

3 cont. | there may be adverse impacts to bighorn sheep from the transport of high-level nuclear waste. Bighorn sheep frequently must cross the primitive roads and highways in the region (e.g., State Route 127) in order to migrate from one mountain range to the next. Increased mortality to sheep could result from an increase in heavy truck traffic along such routes. Additionally, the State highway system may need to be upgraded in order to make transport of high-level nuclear waste safe along intended routes of travel. If such is the case, increased fragmentation of desert bighorn habitat could result. These and other possible impacts to this signature California desert species must be analyzed in the revised DEIS.

4... **2. The DEIS fails to detail and analyze the transportation corridors that will be utilized to transport high-level nuclear waste to Yucca Mountain, which are an integral part of the repository project.**

The DEIS fails to adequately address the issue of transport of high-level radioactive waste along state and U.S. highway systems, saying that it is not relevant to the decision being made. Without a decision to store radioactive waste at Yucca Mountain this EIS would not be prepared, thus not only is the issue of waste transport relevant, it must be analyzed in *this* EIS. See 40 CFR 1508.25 (Re: Scope of an EIS. Connected actions, e.g., those which are interdependent part of a larger action and depend on the larger action for their justification, should be analyzed in the *same* impact statement.) Without a detailed assessment of proposed routes for the transportation of high-level radioactive waste, it is impossible for the reader of the document or the decisionmaker to fully understand the (in this case) likely and significant impacts of the proposed action on the human and natural environment.

For instance, it is our understanding that State Route (SR) 127 is one of the routes of choice for transport of waste to Yucca Mountain. How will transport of high-level radioactive waste along this key access route to DVNP affect visitation to the Park? How, in turn, will a possible decrease in visitation to DVNP via SR 127 affect the economies of communities that lie along the transportation corridor (e.g., Tecopa, Shoshone, Death Valley Junction)? Is SR 127 a feasible route for transport of high-level radioactive waste from an engineering standpoint? Are the communities along SR 127 adequately equipped, from an emergency response standpoint, to handle likely catastrophic consequences to both humans and the environment in the event of a reasonably foreseeable accident-related spill? The DEIS has failed to address and resolve these significant issues.

Impacts to natural resources of DVNP, Ash Meadows NWR and designated Wilderness from a transportation-related accident could likewise be disastrous and should be considered in the revised EIS. Were a spill to occur in or near the Amargosa River it would destroy this important desert riparian system. Spills could - and would - decimate vegetation and kill wildlife. Death Valley National Park is likewise put at risk, since much of SR 127 constitutes the boundary of Death Valley National Park.

It is unclear what other routes of travel might be used beyond SR 127. Information indicates that Great Basin National Park and Lake Mead National Recreation Area might also enjoy the dubious distinction of being within the realm of transport of high-level nuclear waste. What are possible impacts to these protected areas in the event of a hazardous spill? Beyond the

4 cont. possible impacts to the human and natural environments from a hazardous spill, how might transport of high-level waste adjacent to other protected places in the country affect visitation to Parks and local attractions, local economics, etc?

In conclusion, the threat of disastrous accidents from transportation-related spills is very real, and needs to be comprehensively addressed in this document. The revised DEIS needs to include a clear description of transportation routes that reflects a careful consideration of potential hazards and problems with each selected route, and a thorough description of the stringent safety and mitigation measures that will be adopted in order to ensure protection of both natural resources and communities in the Death Valley region and beyond.

5 **3. The DEIS fails to address health and socio-economic impacts to human communities from possible downgradient groundwater and surface water contamination in the Death Valley region and from reasonably foreseeable transportation accidents.**

Waterborne radioactive contamination from the Yucca Mountain site, and possible human and watershed contamination from transportation-related accidents in which high-level radioactive waste is being transported, pose a very real threat to residents of and visitors to the Death Valley National Park region. Residents of the region include federal, state and County employees, members of the Timbisha Shoshone Tribe, and other citizens of small communities in Eastern Inyo County and Nevada counties. Yet the DEIS appears to discount the potentially fatal impacts of surface and groundwater contamination on these U.S. and Indian Nation citizens, because the population is so sparse. While the population of eastern Inyo County and nearby Nye County may be miniscule in comparison to nearby cities like Las Vegas, these human lives are no less significant.

6 The DEIS also fails to analyze the impacts to Inyo County's tourism-based economy from implementation of the proposed action. DVNP receives over 1.4 million visitors annually, and contributes significantly to Inyo County's economy. Tourists come from all over the world, in all times of year, to experience the strange wonders and spectacular beauty of American's greatest desert Park. One Inyo County official reported recently that Death Valley's contribution to the Transient Occupancy Taxes (TOTs) of Inyo County is greater than from the rest of the communities in the County combined. Yet the DEIS contains little, if any, analysis of the possible effects of either ground or surfacewater contamination, or transportation accidents, on the economies of communities in the Death Valley region.

7 Finally, the DEIS does not adequately analyze the indirect economic impacts to gateway communities from possibly decreased travel to Death Valley and environs due to the "fear factor" invoked by the specter of high-level radioactive waste contamination to surface waters or via transportation accidents. Were a Park survey to be conducted asking visitors their reaction to the proposed nuclear waste repository at Yucca Mountain, we are certain that visitors would express justifiable anxieties about traveling to and fully enjoying DVNP given the risks to human health involved.

The revised DEIS must examine in depth the potential impacts to both residents of and visitors to the Death Valley region from possible contamination of water sources *and* due to likely transportation-related accidents involving shipments carrying high-level radioactive waste.

8... **4. The DEIS contains numerous information gaps. There are references throughout the document to incomplete or unavailable information, information which is essential to ensuring that DEIS contains a thorough and accurate review of the project.**

The DEIS is rife with examples where scientific information is either incomplete, unavailable, or in dispute. The failure of DOE to fully acknowledge and resolve such controversies makes the document vulnerable to legal challenge.

As an example, the DEIS fails to address the safety of the repository containers in the instance of seismic activity. In fact, the DEIS states that the "DOE needs to complete additional investigations of ground motion site effects before it can produce the final seismic design basis for the surface facilities." The same section indicates that there may be higher crustal strain rates than would be predicted by reviewing the area's Quaternary volcanic and tectonic history. In other words, the DOE indicates that there may be a need for additional studies and those that have been done could have significantly underestimated the potential volcanic and seismic hazards at the site. If a problem results from the fact that this project is being sited in a geologically active system, protected National Park, NWR and Wilderness resources are downstream and are likely to suffer from contamination from a leak at the repository site. Even if the chances of such an accident are small, the impact would be so profound that this risk mandates thorough analysis and scrutiny.

Another example of incomplete information is the need to more thoroughly understand the groundwater resource and relationships between Yucca Mountain and the aquifer underlying DVNP and environs. As noted *supra*, the DEIS fails to acknowledge the existence of other hydrological information which may contradict DOE-generated information. There is little question that additional study will be necessary to fully understand the groundwater flow system, and this basic knowledge will be required to accurately determine the potential environmental impacts of utilizing Yucca Mountain as a repository for high-level radioactive waste. Effective modeling must also consider a response of the flow system to a number of likely variables, including continued development, increased groundwater withdrawals, variations in precipitation, and groundwater recharge. Absent that kind of data and analysis, the DEIS will not be able to conclusively determine potential environmental impacts, and is therefore incomplete.

In sum, the DEIS contains numerous references to incomplete or unavailable information. Repository functions are based on computer models and like much of the analysis in this document, the data are incomplete and are being fed into untested models. There is sufficient scientific uncertainty surrounding the proposed project that additional study needs to be conducted. The controversial nature of the scientific studies conducted regarding the project (i.e., varying results and interpretation) also warrants further discussion in the revised DEIS.

8 cont.

NEPA case law is instructive in this regard. An EIS must provide sufficient detail and analysis to fulfill the requirement of NEPA to "ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 CFR 1500.1(b). NEPA requires the federal agency to "consider every significant aspect of the environmental impact of a proposed action" Vermont Yankee Power Corp. v. Natural Resources Defense Council, 435 U.S. 519, 553 (1978), and to ensure "that the agency will inform the public that it has indeed considered environmental concerns in its decision making process." Baltimore Gas and Electric Company v. NRDC, 462 U.S. 87, 97 (1983).

CEQ regulations place specific requirements on federal agencies when NEPA review is based on incomplete or unavailable information:

"When an agency is evaluating reasonably foreseeable significant adverse impacts on the human environment or in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall cost of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

(b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

(1) A statement that such information is incomplete or unavailable; (2) a statement of the foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community."

40 CFR 1502.22.

The aforementioned provision requires the "disclosure and analysis of the costs of uncertainty [and] the costs of proceeding without more and better information." Southern Oregon Citizens Against Toxic Sprays, Inc. v. Clark (SOCATS), 720 F.2d 1475, 1478 (9th Cir. 1983). "On their face these regulations require an ordered process by an agency when it is proceeding in the face of uncertainty." Save Our Ecosystems v. Clark, 747 F.2d 1240, 1244 (9th Cir. 1984).

Thus, 40 CFR 1502.22 imposes three mandatory obligations on the DOE in the face of uncertainty: (1) a duty to disclose the uncertainty; (2) a duty to complete independent research and gather information if no adequate information exists (unless the costs are exorbitant or the means of obtaining the information are not known); and (3) a duty to evaluate the potential, reasonably foreseeable impacts in the absence of relevant information, using a four-step process. The DOE has failed to meet the requirements of 40 CFR 1502.22 in the face of uncertainty regarding many of the foreseeable environmental impacts of the proposed project.

8 cont.

The Ninth Circuit Court determined that "Section 1502.22 clearly contemplates original research if necessary" and held that "NEPA law requires research whenever the information is significant. As long as the information is . . . essential or significant, it must be provided when the costs are not exorbitant in light of the size of the project and the possible harm to the environment." Save Our Ecosystems, 747 F.2d at 1244 n.5. See also SOCATS, 720 F.2d at 1479 (40 CFR 1502.22(a) requires the BLM to independently assess the safety of the herbicides it uses if existing data is inadequate). Although NEPA does not mandate substantive results, its action-forcing procedural provisions "are not highly flexible, [and] establish a strict standard of compliance." Calvert Cliffs Coordinating Comm. v. United States Atomic Energy Comm'n, 449 F.2d 1109, 1112 (D.C. Cir. 1971).

The duty to delay finalization of NEPA documentation when faced with incomplete or unavailable information ensures that agencies comply with NEPA's central purpose -- "to obviate the need for speculation by insuring that available data is gathered and analyzed prior to the implementation of the proposed action." Save Our Ecosystems, 747 F.2d at 1248-49. NEPA "envisions that program formulation will be directed by research results rather than that research programs will be designed to substantiate programs already decided upon." Id. See also 40 CFR 1500.1(b) (NEPA procedures ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken).

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5. The DEIS fails to consider a reasonable range of alternatives.

The alternatives analysis in the DEIS is seriously flawed. Other than the preferred alternative, only two variations on the "no action" alternative are considered. DOE states that these two alternatives are untenable, and are included for comparison purposes only. Thus, in effect, there is only *one* alternative considered in the DEIS, the preferred alternative.

The DOE could have and should have explored other alternatives besides these two alternatives, including the following alternatives: permanent on-site storage of waste at existing facilities around the country (i.e., *in situ*), storage at one or more centralized locations around the country, a waste volume reduction alternative, and an alternative that incorporates other technologies for storage of high-level nuclear waste. NEPA allows for, and in fact encourages, consideration of alternatives outside the scope of the current analysis (i.e., the Congressionally-authorized study of the Yucca Mountain site), because the analysis and findings contained in the EIS may further inform Congress and serve as the basis for modification of Congress' current directive.

Conclusion

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In light of the grave deficiencies contained within the DEIS, TWS and NPCA urge the DOE to revise the DEIS and recirculate it for public review. The revised DEIS should: incorporate additional information and analysis, contain baseline information on natural resources within and adjacent to Death Valley National Park, Ash Meadows National Wildlife Refuge and designated Wilderness areas and analyze possible effects of various nuclear waste storage alternatives on those resources, delineate transportation corridors to be used and include an in-depth analysis of transportation impacts associated with the project, assess economic and other impacts to Inyo County and other affected counties, and include an improved range of

10 cont. alternatives. [Once the document has been revised and recirculated, the DOE should hold a new round of public hearings in potentially affected communities throughout California and Nevada, including *all* communities, no matter how large or small, that may be affected by transport of high-level radioactive waste.]

Thank you for the opportunity to comment on the DEIS. Please place The Wilderness Society and National Parks Conservation Association on your mailing list, at the addresses below, and send us all relevant documents.

Sincerely



Sally Miller
Regional Conservation Representative
The Wilderness Society
P.O. Box 442
Lee Vining, CA 93541



Helen Wagenvoort
Associate Director, Pacific Region
National Parks Conservation Association
P.O. Box 1289
Oakland, CA 94604

CC: Senator Barbara Boxer
Senator Dianne Feinstein