

TABLE OF CONTENTS

I.	Introduction (¶¶ 1-15)	3
II.	Jurisdiction and Venue (¶¶16-17)	9
III.	The Parties (¶¶18-22)	10
IV.	Statutory Background (¶¶23-32)	12
V.	Failure to Secure and Respond to Nevada’s Comments by Deliberately Withholding Final EIS from Nevada and the Public (¶¶33-37)	15
VI.	Failure to Provide 30-Day Circulation Period (¶¶38-43)	17
VII.	Failure to Prepare a Record of Decision (¶¶44-46)	19
VIII.	Recommendation of a “Proposed Action” Contravening NEPA and the NWPA (¶¶47-56)	20
IX.	Unstable and Inaccurate Definition of the “Proposed Action” (¶¶57-63)	25
X.	Inclusion of a Statutorily Prohibited Design Option (¶¶64-71)	28
XI.	Exclusion from the “Proposed Action” of Wastes from at Least 54 U.S. Sites, and Failure to Evaluate Such Wastes (¶¶72-74) ...	31
XII.	Failure to Specify a Basic Repository Design in the “Proposed Action” (¶¶75-78)	32
XIII.	Faulty Assessment of the “No Action” Alternative (¶¶79-90)	36
XIV.	Failure to Assess the PECO “No Action” Alternative (¶¶91-98)	40
XV.	Faulty Assessment of Project Impacts (Including Cumulative Impacts) (¶¶99-102)	44
XVI.	Faulty Analysis of Sabotage in Spent Fuel Transport (¶¶103-110)	45
XVII.	Failure to Recirculate the EIS (¶¶111-115)	50
XVIII.	Incomplete or Unavailable Information (¶¶116-117)	52
XIX.	Arbitrary and Capricious Action (¶¶118-119)	53
XX.	Conclusion and Prayer for Relief	53

I. Introduction

1. Pursuant to Rule 15(a) of the Federal Rules of Appellate Procedure and Section 119 of the Nuclear Waste Policy Act (“NWPA”), 42 U.S.C. § 10139, the State of Nevada (“Nevada”) hereby petitions the Court for review of a Final Environmental Impact Statement prepared pursuant to that Act, entitled *Final 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* (“FEIS”). DOE published and released the FEIS to Nevada and the public for the first time on February 14, 2002. The FEIS served as the environmental document framing final decisions by the Secretary (“Secretary”) of the U.S. Department of Energy (“DOE”) and the President of the United States (“President”) made on February 14 and 15, 2002, respectively.

2. The decisions of the Secretary and the President made in reliance upon the FEIS (appended, respectively, as Attachments A and B) purport to approve the Yucca Mountain candidate site in Nevada for development as the only repository for the nation’s high-level radioactive waste and spent nuclear fuel. As detailed below, the FEIS framing these decisions is contrary to the National Environmental Policy Act (“NEPA,” 42 U.S.C. § 4321, *et seq.*), its implementing regulations, closely related provisions of the Nuclear Waste Policy Act (“NWPA,” 42 U.S.C. § 10101 *et seq.*), and other applicable provisions of law. The NWPA anticipates and requires

compliance with NEPA in all circumstances pertaining to this petition. This petition challenges the FEIS, as well as reliance upon that document in final decisions of the Secretary and President. It also challenges those decisions to the extent they involve review and circulation of the FEIS and other matters relating to compliance with NEPA.

3. The proposed action referenced in the Final EIS and in the final determinations relying on that document would constitute the most environmentally significant, irreversible decision in the Nation's history, unprecedented in its costs and in the scope and duration of its potential risks to the human environment. Official estimates place the cost of the project at over \$70 billion. The wastes from the Yucca Mountain repository will remain lethally radioactive for at least 250,000 years, and may continue to present risks to human health and safety for over one million years. DOE expects the peak doses of radiation to exceed groundwater standards established by the U.S. Environmental Protection Agency ("EPA") by a factor of 350 to 2300 times. The proposed action and final determinations present unprecedented risks to the safety of Nevada and its citizens, and threaten the biosphere extending into California and other states.

4. Yucca Mountain is located less than a hundred miles from Las Vegas, whose metropolitan area ranked in United States Census Bureau statistics as the fastest growing region in the country during the past decade. Repository operation

would involve tens of thousands of truck, rail and barge shipments to the repository site. Over a 38-year period, nuclear wastes would travel through Nevada and as many as 44 other states, 109 cities, and 703 counties with a combined population of more than 123 million.

5. Nuclear wastes would initially be stored above ground at Yucca Mountain for up to 100 years. That storage would constitute the world's largest single concentration of lethal radionuclides. The wastes would eventually be placed 1000 feet underground in man-made waste packages, subject to the licensing standards of the U.S. Nuclear Regulatory Commission ("NRC") and the EPA.

6. In the NWPA, Congress mandated geologic isolation as the primary form of containment for any federal nuclear waste repository. But DOE's extensive studies of Yucca Mountain, including those completed prior to publication of the FEIS, demonstrated that the site is incapable of achieving geologic isolation as its primary form of containment. Numerous independent reviewers have corroborated DOE's own findings in this respect.

7. Nevertheless, on February 14, 2002, the Secretary submitted to the President his recommendation that the Yucca Mountain project should proceed, relying in part on the FEIS to support his conclusion that the selection of the Yucca Mountain site was scientifically sound. However, this conclusion is contrary to findings of numerous other independent reviewers of Yucca Mountain, whose

analyses cast doubt upon the premise that science presently supports a determination of site suitability. Those reviewers include the Congressionally created Nuclear Waste Technical Review Board, the NRC's Advisory Committee on Nuclear Waste, the National Academy of Sciences, the International Atomic Energy Agency, the Nuclear Energy Agency of the Organization for Economic Cooperation and Development ("OECD"), the General Accounting Office, and even the former Director of DOE's Yucca Mountain program. NRC has concluded that an additional 293 studies are needed by DOE in 19 critical areas before DOE can complete a license application for Yucca Mountain.

8. The Secretary's February 14, 2002, recommendation to the President was accompanied by the FEIS, purportedly supporting the recommendation. The FEIS, although not published prior to that recommendation, was completed in final form more than a month earlier. No member of the public, including the Governor of Nevada, had the opportunity to review this document in advance of the Secretary's final recommendation. That document was withheld from Nevada even though several federal agencies were provided an opportunity to review and privately comment on the FEIS more than a month in advance of its release to Nevada and the public.

9. The Secretary failed to proceed as required by mandatory procedures specified in NEPA, closely related provisions of the NWPA, and DOE's regulations.

He did not review and respond to required comments from Nevada prior to making his final site recommendation; did not provide a mandatory 30-day circulation period prior to issuance of a final decision; and did not adopt a Record of Decision addressing the environmental implications of this major federal action.

10. The FEIS states that “[u]nder the Proposed Action, DOE would construct, operate and monitor, and eventually close a geologic repository for the disposal of 70,000 metric tons of heavy metal (MTHM) of spent nuclear fuel and high-level nuclear waste at Yucca Mountain. The Proposed Action would include the transportation of spent nuclear fuel and high-level radioactive waste from commercial and DOE sites to the Yucca Mountain site.”

11. The FEIS fundamentally distorts and misrepresents the nature of the “proposed action” itself, failing to inform Nevada, other agencies and members of the public of essential details necessary to make an elementary comparison between the “proposed action” and the “no project” alternative. It fails to disclose that the Yucca Mountain site would not be a “geologic” repository as defined in the NWPA. It arbitrarily excludes from the “proposed action” the handling, transportation and disposition of radioactive waste from at least 54 sites in the United States.

12. The faulty presentation of the “no action” alternative in the FEIS vitiates the ability of this document to provide a baseline from which to compare adoption of the proposed action with the reasonably foreseeable consequences of its

rejection. Instead of identifying those consequences, the FEIS frames its “no action” alternative around two stylized hypothetical scenarios that it recognizes as having no serious likelihood of occurrence. The FEIS fails even to acknowledge as a reasonably foreseeable consequence an option that DOE is already implementing at one nuclear utility, designated below as the “PECO No Action Alternative.”

13. The FEIS fails to include changes in the proposed action never evaluated in any prior report, and fails to assess new information known to DOE and never circulated for public review. It also fails to identify which information is still incomplete or unavailable, fails to assess critical impacts of the proposed action (including cumulative impacts), and arbitrarily distorts its assessment of sabotage in spent fuel transport. Given the fundamentally distorted thresholds infecting the FEIS, the Secretary’s reliance on this document in his final recommendation constituted a failure to proceed as required by NEPA, as well as a failure to take the “hard look” required by NEPA of the environmental consequences of the proposed action.

14. The President approved the Secretary’s recommendation on February 15, 2002, determining after less than a day’s review that the Yucca Mountain site was qualified for application for a construction authorization for a nuclear waste repository. Relying on the FEIS that had been published and released to the public

just one day earlier, the President submitted a formal recommendation to that effect to the Congress.

15. On April 8, 2002, Nevada exercised its notice of disapproval of the site designation under Section 116 of the NWPA, 42 U.S.C. § 10134, commencing the period allowed under Section 115 (90 days of continuous session) for Congress to pass, or decline to pass, a resolution of repository siting approval. 42 U.S.C. § 10135(c). Notwithstanding that determination, the Secretary and President's decisions are already final under Section 119 of the NWPA, 42 U.S.C. § 10139.

II. Jurisdiction and Venue

16. Section 119(a)(1) of the NWPA, 42 U.S.C. § 10139(a)(1), provides the United States Courts of Appeals with original and exclusive jurisdiction over this action. Under that provision, this Court has jurisdiction over any civil action for review of any final decision or action of the Secretary or the President under the NWPA, and review of any Environmental Impact Statement prepared under NEPA with respect to any action under the NWPA. That provision provides the Court with jurisdiction to address NEPA violations made in the course of addressing the requirements of the NWPA. The decisions of the Secretary and the President on February 14 and 15, 2002, respectively, constitute their final decisions under Section 119 of the NWPA, 42 U.S.C. § 10139(a)(1)(A).

17. Venue is proper in this Circuit pursuant to Section 119(a)(2) of the NWPA, 42 U.S.C. § 10139(a)(2).

III. The Parties

18. The Petitioner State of Nevada is a sovereign State of the United States. On February 2, 1983, the Governor and Legislature of Nevada were notified pursuant to Section 116(a) of the NWPA (42 U.S.C. § 10136(a)) that a repository for the disposal and storage of high-level nuclear waste and spent nuclear fuel may be located at Yucca Mountain in southeastern Nevada. That notification created substantial rights under the NWPA in Nevada to participate in each phase of the proposed siting process.

19. The State of Nevada, through its Agency for Nuclear Projects, has a statutory mandate to represent the people of Nevada in all matters related to the Yucca Mountain Project to protect the public health, safety and welfare of the citizens of Nevada. The Agency for Nuclear Projects, whose office is in the State of Nevada, is required by law to carry out the duties imposed on the state by the NWPA, 42 U.S.C. § 10101, *et seq.* See Nevada Revised Statutes (“NRS”) 459.0093-459.0098. Nevada also has federal statutory rights to participate in certain decisions relating to the proposed repository at Yucca Mountain, including its right to participate and consult with DOE in its Yucca Mountain site characterization activities; to disapprove any presidential decision to proceed with repository

development, subject to Congressional override; and to participate as an interested state in licensing proceedings before the NRC. See 42 U.S.C. § 2021; 42 U.S.C. §§ 10133, 10135.

20. Nevada submitted extensive and timely comments on the Draft EIS issued in July 1999. Nevada also submitted extensive and timely comments on the Supplemental EIS issued in May 2001. Notwithstanding voluminous and specific oral and written comments submitted by Nevada, other government agencies, and members of the public, DOE failed to prepare and approve its FEIS in compliance with NEPA. DOE also failed to prepare any Record of Decision for the final determinations challenged in this petition, and failed to fulfill the requirement that it withhold its decision until 30 days after EPA's publication of notice of the FEIS's availability in the *Federal Register*.

21. Respondent in this action, Spencer Abraham, in his official capacity as Secretary of the United States Department of Energy, is responsible for DOE's FEIS and the Secretary of Energy's February 14, 2002, final site recommendation to the President, incorporating and relying upon the FEIS.

22. Respondent George W. Bush in his official capacity, the President of the United States, is responsible for the President's final decision dated February 15, 2002, to recommend the Yucca Mountain repository site to Congress.

IV. Statutory Background

23. In 1982, Congress enacted the Nuclear Waste Policy Act to provide for a coordinated federal effort to address the national problem associated with the accumulation of high-level nuclear waste currently being stored at the nation's commercial nuclear reactors and at federal defense installations. Principally administered by DOE, the NWPA also assigns specific responsibilities to the EPA and other federal agencies.

24. A key feature of the NWPA provides for the assessment and potential development of an underground repository designed to geologically isolate high-level nuclear waste from the human environment. Reflecting this overarching statutory purpose, Section 112(a) of the NWPA requires that the statutorily mandated guidelines for the recommendation of "candidate sites" for repositories "shall specify detailed geologic considerations that shall be *primary criteria* for the selection of sites. . . ." (Emphasis added.)

25. The extensive legislative history of the NWPA, as well as the original and longstanding interpretations of these NWPA requirements by DOE and the NRC, which must license the repository pursuant to the NWPA, repeatedly confirm their understanding that the repository is required by Congress to be "primarily" a deep *geologic* repository, with engineered containers and barriers providing additional protection during earlier years of operation.

26. In enacting the NWPA, Congress found that “high-level radioactive waste and spent nuclear fuel have become major subjects of public concern, and appropriate precautions must be taken to ensure that such waste and spent fuel do not adversely affect the public health and safety of the environment for this or future generations.” 42 U.S.C. § 10131(a)(7). A central purpose of the NWPA is therefore to “provide a reasonable assurance that the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste and such spent nuclear fuel as may be disposed of in a repository.” 42 U.S.C. § 10132(b)(1).

27. Under provisions of the 1982 NWPA, Congress prescribed a complex process for selecting proposed sites for development of high-level waste repositories. In 1987, the NWPA was amended to name the site at Yucca Mountain as the only candidate site to be characterized for the development of a proposed high-level nuclear waste repository. 42 U.S.C. § 10133.

28. Three federal agencies share responsibility for the assessment and potential development of a proposed repository. That responsibility includes establishing standards, licensing, and building the proposed repository under the NWPA and related federal statutes. If duly authorized, DOE is to design, build and operate the repository. 42 U.S.C. § 10134. NRC has the responsibility under the NWPA to reject or license the repository in accordance with the Yucca Mountain

Rule. 42 U.S.C. §10134(d). Under its licensure powers, NRC regulates the construction of the repository, licenses the receipt and possession of high-level radioactive waste at the repository, and authorizes the closure and decommissioning of the repository. *See* 42 U.S.C. § 10141(b).

29. The third federal agency, EPA, is charged with statutory responsibility to set public health and safety standards governing the proposed radioactive storage and disposal facility at Yucca Mountain. That authority is assigned under Section 801 of the Energy Policy Act of 1992 (Public Law 102-486), Section 161 of the Energy Policy Act of 1954 (42 U.S.C. § 2201(b)), and the Reorganization Plan No. 3 of 1980. That authority is also referenced in Section 121(a) of the NWPA, 42 U.S.C. § 10141(a).

30. After conducting detailed site characterization studies, the Secretary must make a recommendation to the President concerning the final site approval. Before DOE recommends the site it must prepare an environmental impact statement, hold public hearings, and notify the affected state [Nevada] or Indian tribe.

31. The NWPA expressly mandates compliance with NEPA, including the preparation of an FEIS. 42 U.S.C. § 10134(a)(1)(D), (f). Together with any site recommendation under Section 114 of the NWPA, the Secretary must submit to the President a comprehensive statement of the basis for his recommendation. That

statement must include, among other required components, an FEIS prepared for the Yucca Mountain site pursuant to subsection (f) and NEPA, 42 U.S.C. § 4321, *et seq.* The NWPA's NEPA procedure differs from that otherwise applicable only in that the Secretary is not required in the EIS to consider "the need for a repository, the alternatives to *geologic disposal*, or alternative sites to the Yucca Mountain site." 42 U.S.C. § 10134(f)(1). (Emphasis added.)

32. If the President recommends the Yucca Mountain site, it becomes the approved site for the first repository after 60 days, unless Nevada or an affected Indian tribe submits to Congress a notice of disapproval. 42 U.S.C. § 10135(b). If such notice of disapproval is received, the site is disapproved unless, during the first 90 days after receipt of the notice, Congress passes a resolution of repository siting approval. 42 U.S.C. § 10135(c).

V. Failure to Secure and Respond to Nevada's Comments by Deliberately Withholding Final EIS from Nevada and the Public

33. NWPA Section 114(a)(1)(F) requires that any recommendation by the Secretary to the President recommending the Yucca Mountain candidate site for development must include "the views and comments of the Governor and legislature of any State . . . together with the response of the Secretary to such views." 42 U.S.C. § 10134(a)(1)(F). Nevada never even saw, let alone commented on, the multi-volume FEIS for the Yucca Mountain Project, or the preliminary engineering

specifications for the facility, prior to the Secretary's site recommendation to the President on February 14, 2002.

34. The Secretary made his recommendation to the President without the comments of Nevada on these critically important baseline documents, and without the Secretary's response to those comments, in violation of Section 114(a)(1)(F) of the NWPA.

35. The Secretary withheld the FEIS from Nevada and the public for more than a month after completing it and allowing several federal agencies, including the Council on Environmental Quality ("CEQ"), Department of Interior, and EPA, secretly to review and submit comments on that document. Nevada, as well as other federal agencies that had submitted critical comments on the proposed action at Yucca Mountain, including but not limited to the superintendent of nearby Death Valley National Park, did not receive such an opportunity.

36. Section 114(A)(1) of the NWPA requires the Secretary to "make available to the public, and submit to the President" a comprehensive statement of the basis of his site recommendation. That statement must include not only the "final environmental impact statement," but also the comments of several agencies "concerning such environmental impact statement." 42 U.S.C. § 10134(a)(1)(D).

37. The Secretary's final decision based on that FEIS violated NEPA, since in the course of completing environmental review of the proposed action, the

Secretary disregarded the closely related statutory requirements of the NWPA. The Secretary's withholding of the FEIS from Nevada, despite its timely availability to other federal agencies, violated NEPA and undermined his ability to review and respond to Nevada's comments in accordance with Section 114(a)(1)(F) of the NWPA.

VI. Failure to Provide 30-Day Circulation Period

38. Section 114(f)(1) of the NWPA provides that “[a]ny recommendation made by the Secretary under this section shall be considered a major federal action significantly affecting the quality of the human environment for purposes of the National Environmental Policy Act of 1969 (42 U.S.C. § 4321 *et seq.*)”

39. The Secretary's final decision recommending the Yucca Mountain repository constituted “major federal action” under both the NWPA and NEPA, significantly affecting the quality of the human environment and requiring preparation of an Environmental Impact Statement (“EIS”). 42 U.S.C. § 10134(f)(1) (NWPA); 42 U.S.C. § 4332 (NEPA).

40. DOE has adopted NEPA regulations promulgated by the CEQ. 10 C.F.R. § 1021.103 (adopting CEQ regulations in 40 C.F.R. Parts 1500 through 1508). The CEQ regulations direct the EPA to “publish a notice in the *Federal Register* each week of the environmental impact statements filed during the

preceding week. The minimum time periods set forth in this section shall be calculated from the date of publication of this notice.” 40 C.F.R. § 1506.10(a).

41. The CEQ NEPA regulations also provide, in pertinent part, that “no decision on the proposed action shall be made or recorded under § 1505.2 by a Federal agency until . . . [t]hirty days after publication of the notice [described in § 1506.10(a)] . . . for a final environmental impact statement.” 40 C.F.R. § 1506.10(b)(2). DOE’s own NEPA regulations echo the requirements of the CEQ regulations. 10 C.F.R. § 1021.315(a). Neither the NWPA nor any other law exempts the Secretary from following this rule of timing prior to rendering his final decision recommending the Yucca Mountain repository.

42. In violation of the rules of timing set forth in 40 C.F.R. § 1506.10(b)(2) and 10 C.F.R. § 1021.315(a), the Secretary rendered the Department’s final decision recommending the Yucca Mountain site without waiting thirty days after publication of the EPA’s *Federal Register* notice of availability of the Yucca Mountain FEIS. Instead, DOE failed to file the notice with the EPA, and neither its publication nor DOE’s required 30-day waiting period took place.

43. The Secretary’s failure to abide by the mandatory 30-day circulation rule deprived other federal agencies of the opportunity to refer the Yucca Mountain FEIS to CEQ pursuant to 40 C.F.R. § 1504.1, and deprived Nevada and members of

the public of the opportunity to argue, based upon the defective EIS and its legal inadequacy, that the Secretary not make his final recommendation.

VII. Failure to Prepare a Record of Decision

44. NEPA regulations adopted by the CEQ provide that “at the time of its decision,” a federal agency “shall prepare a concise public record of decision.” 40 C.F.R. § 1505.2. Among other requirements, the Record of Decision (“ROD”) should identify the decision and state whether all practical means to avoid or minimize environmental harm from the decision have been adopted. Where applicable for any mitigation, a monitoring and enforcement program should be adopted. *Id.* DOE’s own regulations implementing NEPA also require the preparation of a ROD prior to taking action on a proposal covered by an FEIS. 10 C.F.R. § 1021.315(b).

45. No provision of the NWPA exempts the Secretary from the requirement that a ROD accompany his final decision to recommend the Yucca Mountain repository to the President.

46. The Secretary made his final decision recommending the Yucca Mountain repository without preparing the mandatory federal Record of Decision, violating NEPA and DOE’s and CEQ’s NEPA regulations. 40 C.F.R. § 1505.2 and 10 C.F.R. § 1021.315(b). As a consequence of this failure, the Secretary in his final

determination did not address all practicable means to avoid the proposed action's significant environmental effects, nor all practicable means to mitigate those effects.

VIII. Recommendation of a "Proposed Action" Contravening NEPA and the NWPA

47. To comply with NEPA, the environmental review and approval of a proposed action must take into account existing statutory obligations. Actions that threaten "a violation of federal, state or local laws or requirements imposed for the protection of the environment" are by definition significant impacts under NEPA. 40 C.F.R. § 1508.27.

48. For more than two decades, the NWPA and its supporting studies and environmental documentation have consistently adhered to the understanding that the "repository" defined in the Act can only refer to a system that may be used for "the *permanent deep geologic disposal* of high-level radioactive waste and spent nuclear fuel." 42 U.S.C. § 10101(18) (NWPA § 2(18)). (Emphasis added.) As detailed below, the Yucca Mountain repository recommended by the Secretary violates this central premise and cannot be reconciled with the central objective of the NWPA.

49. In 1980, at the direction of the President, DOE completed a comprehensive environmental analysis intended to form the basis for a national strategy on how the nation should manage commercially generated high-level radioactive waste and spent nuclear fuel. DOE's Final Environmental Impact

Statement on the Management of Commercially Generated Radioactive Waste, DOE/EIS-0046F, issued in October 1980 (“1980 EIS”), analyzed every conceivable means of disposing of radioactive wastes, including sub-seabed disposal, deep-hole disposal, reprocessing, transmutation, and even disposal in outer space. DOE described its “proposed action,” which it identified as the preferred alternative, as one of adopting a national strategy “to develop mined geologic repositories” for disposal of such wastes.

50. The 1980 EIS described in detail the concept of “mined geologic disposal” in a multi-barrier repository system. It noted that “[g]eologic barriers are expected to provide isolation of the waste for at least 10,000 years after the waste is emplaced in a repository and probably will provide isolation for millennia thereafter.” The document described “engineered barriers” as providing *redundant* isolation assurance for “as long as [the first] 1000 years.” In particular, the document required that “[t]he repository site shall have geologic characteristics compatible with waste isolation.” The 1980 Record of Decision relying on that EIS also determined that DOE would pursue mined geologic disposal. 46 Fed. Reg. 26677 (May 14, 1981).

51. Congress relied on DOE’s 1980 EIS in formulating the Nuclear Waste Policy Act of 1982. Legislative history extensively discussed the preferred alternative of mined geologic isolation, the foreclosure of any other alternatives

under NEPA, and the need for assurance of waste isolation for as long as 250,000 years, which only good geology could provide. DOE itself testified that “[e]ngineered barriers are an essential ingredient in a technically conservative approach to an actual repository, but we do not feel that the existence of such barriers should be used as a basis for a less careful selection of an acceptable geologic media.” The key House Committee report on the proposed legislation concluded that “the ability of any man-made containers to endure for a quarter of a million years is obviated by the fact that the ultimate barrier which prohibits the release of any radioactivity to the biosphere is the geologic media [sic] itself.” Site suitability requirements (which became Section 112 of the NWPAs) were added to the proposed legislation with the admonition, in the Committee Report, that “the geologic media is [sic] to be the ultimate barrier which isolates the waste from the biosphere, and that engineered barriers are but intermediate and short-term forms of isolation.”

52. NWPAs Section 301 requires DOE to prepare a comprehensive report, known as the “Mission Plan,” necessary to implement the overall repository program described in the Act, including issuance of DOE’s siting guidelines under the NWPAs. In its June 1985 Mission Plan, DOE affirmed that its decision in 1980 to pursue “mined geologic repositories as the preferred means” for disposal of spent fuel and high-level radioactive waste “has since been supported by the Act

[NWP].” In its Mission Plan, DOE stated it “intends to place primary importance on the capabilities of the natural system for waste isolation. In evaluating the suitability of sites, therefore, the use of an engineered-barrier system will be considered to the extent necessary to meet the performance requirements specified by the Nuclear Regulatory Commission and the Environmental Protection Agency but will not be relied on to compensate for significant deficiencies in the natural system.”

53. In its 1986 Environmental Assessment (“1986 EA”) for the Yucca Mountain site, DOE confirmed its own responsibility for evaluating the suitability of the site for a repository under Section 112(b) of the NWP. The 1986 EA expressed the understanding that to qualify as a suitable site, Yucca Mountain would have to qualify as a “geologic” repository. DOE recognized in the 1986 EA that although it planned to use engineered barriers, “DOE places primary reliance on the natural barriers for waste isolation. Therefore, in evaluating the suitability of sites, the use of an engineered-barrier system will be considered to the extent necessary to meet the performance requirements specified by the NRC and the EPA, but will not be relied on to compensate for deficiencies in the natural barriers.”

54. When it amended the NWP in 1987 to provide for characterization only of Yucca Mountain, Congress created a limited exception to NEPA Section 102(C)(iii), which provides that agencies engaging in major federal actions

significantly affecting the quality of the human environment must consider reasonable alternatives to the proposed action. Congress created this exception in 1987 with the express understanding that the proposed action at issue would be, and would *only* be, mined geologic disposal in a repository at Yucca Mountain. NWPA Section 114(f) provides that, in licensing Yucca Mountain, NRC must adopt DOE's Final Environmental Impact Statement for Yucca Mountain and need not consider, in its NEPA analysis of the project for licensing purposes, "nongeologic alternatives to such site." Likewise, under Section 114(f), "compliance [by DOE] with the [NWPA] shall be deemed adequate consideration of . . . all alternatives to the isolation of high-level radioactive waste and spent nuclear fuel in a repository." Under Section 114(a)(1)(D), DOE's final environmental impact statement prepared for Yucca Mountain pursuant to NEPA need not "consider . . . alternatives to geological disposal."

55. In issuing the final February 14, 2002, site recommendation, the Secretary relied upon and certified DOE's FEIS, which failed to disclose that the proposed repository did not qualify, and was not capable of qualifying, as a "geologic" repository under the NWPA and DOE's Mission Plan. The FEIS's failure to disclose these statutory violations constituted an outright failure to address a significant environmental impact of the proposed action, in violation of NEPA.

56. The Secretary's February 14, 2002, site recommendation refers to the development of Yucca Mountain "as the site for an *underground* repository for spent fuel and other radioactive wastes." The supporting documentation accompanying the site recommendation demonstrates that Yucca Mountain is not a "geologic repository," as defined in science and the law, and in DOE documents, but merely an underground monitored retrievable storage facility. In defining the Yucca Mountain project as merely a deep *underground* repository rather than a deep *geologic* repository, the Secretary's final site recommendation ignored the directives of Congress and pursued an "alternative" to the proposed action defined in the NWPA. That action cannot be reconciled with the commitment to a geologic repository evident in the Yucca Mountain Mission Plan, sections 2(18), 112 and 114 of the NWPA, and the NWPA's legislative history. The selection of an alternative in the FEIS and final site recommendation that is *ultra vires* and is inconsistent with, and foreclosed by, the NWPA and the Yucca Mountain Mission Plan, also violates NEPA. 40 C.F.R. § 1508.27.

IX. Unstable and Inaccurate Definition of the "Proposed Action"

57. Under NEPA, the adoption of a stable and accurate definition of the "proposed action" is an indispensable threshold requirement, without which a federal agency cannot fulfill its obligation to take a "hard look" at the environmental consequences of its proposed action. Federal agencies "shall make sure the proposal

which is the subject of an environmental impact statement is properly defined.” 40 C.F.R. § 1502.4(a). This requirement applies to “major federal actions” for which NEPA requires an EIS. 42 U.S.C. § 4332(c). That includes the Secretary’s site recommendation, explicitly defined as a NEPA “major federal action” by Section 114(f)(1) of the NWPA.

58. To fulfill the objectives of NEPA, the federal agency in its FEIS must properly define the project, and must clearly identify its assumptions, explain any inconsistencies, disclose all methodologies used, rebut all contradictory evidence, eliminate guesswork, make explicit reference to sources relied on for conclusions, and record in an understandable manner the basis for those conclusions. 40 C.F.R. §§ 1502.4, 1502.24.

59. The FEIS for the proposed Yucca Mountain repository fails to provide a stable and accurate definition of the “proposed action” it purports to assess. The FEIS states that DOE’s “proposed action” is one to “construct, operate and monitor, and eventually close a *geologic* repository at Yucca Mountain for the disposal of spent nuclear fuel and high-level radioactive waste.” The FEIS expressly relies on the 1980 EIS and other DOE documents framing Congress’s commitment in the NWPA to “pursue mined geologic disposal repositories.”

60. Elsewhere, the FEIS relies upon a supposed hybrid system of “natural and engineered” barriers to identify the proposed action, without ever quantifying

the relative contributions of these barriers. The FEIS's analysis of "Total System Performance Assessment" and "Defense in Depth," among other concepts, fundamentally fails to define the relative contributions of natural and engineered barriers in the total repository system.

61. In its description of the project and in response to public comments raising questions about public health and safety, the impacts of the proposed action, and the mitigation of those impacts, the FEIS repeatedly invokes the "concept of geologic disposal." DOE expressly relies on this concept in defending its preference for the proposed action over the "no action" alternative. Having identified the proposed action as a geologic repository, the FEIS states that "the advantage of a geologic repository is that it would not require perpetual human care and would not rely on the stability of society for tens of thousands of years."

62. Those references fail to disclose that "geologic isolation" is neither the primary, nor even a material, form of isolation for the proposed Yucca Mountain "underground" repository system, as it is described in technical fact in the FEIS and its supporting documentation. In the proposed action, "engineered barriers" do not provide *redundant* isolation assurance, but instead provide the *dominant* form of isolation for the proposed action. Despite defending a repository system that would not require "perpetual" human care or the stability of society for tens of thousands

of years, the Secretary based his site recommendation upon a proposed action to build man-made contrivances with precisely these unacceptable characteristics.

63. The FEIS fails to disclose to other agencies and the public DOE's effective abandonment of the geologic repository concept. That abandonment, over the objections of several dozen commenters, marked a severe departure from DOE's 1995 repository conceptual design, which placed primary emphasis on geologic barriers. To support its reliance on engineered barriers, the FEIS relies upon other agencies' regulatory standards, notably those of NRC in 10 C.F.R. Part 63, that were themselves recently amended to allow for primary reliance on engineered barriers to satisfy licensing requirements, irrespective of the efficacy of natural barriers. In sum, the shifting and inconsistent definition of the "proposed action" in the FEIS fatally infected the assessment of project impacts. That definition amounted to a failure to proceed as required by NEPA and its implementing regulations, including 40 C.F.R. Sections 1502.4 and 1502.24.

X. Inclusion of a Statutorily Prohibited Design Option

64. As described in the FEIS, if DOE selects the low-temperature operating mode for the Yucca Mountain repository design, the repository will not be ready, even after it opens, to receive approximately two-thirds of all commercial spent nuclear fuel slated for Yucca Mountain for a period of 50 years because the fuel will be too hot to bring it into the repository.

65. To avoid the necessity of nuclear utilities' continuing to store their spent fuel for up to 50 additional years on reactor sites as it cools down, DOE has stated in the FEIS that it will design, build, and operate what is termed an "aging facility" near the Yucca Mountain repository.

66. This aging facility will be the largest interim dry storage facility for spent nuclear fuel ever constructed in the world.

67. As the "aging facility" is described in the FEIS, it is both an "Independent Spent Fuel Storage Installation" as defined in 10 C.F.R. Section 72.3, and, because it is to be built and operated by DOE, a "Monitored Retrievable Storage Installation" (or "MRS") as also defined in 10 C.F.R. Section 72.3 and variously described in NWPA Subtitle C.

68. Although the Secretary of DOE is authorized by Section 142(b) of the NWPA "to site, construct, and operate one monitored retrievable storage facility," NWPA Section 145(g) expressly provides that "[n]o monitored retrievable storage facility authorized pursuant to Section 142(b) may be constructed in the State of Nevada."

69. In choosing in the FEIS to locate the aging facility in Nevada near the Yucca Mountain repository, the Secretary unlawfully failed to follow the site selection criteria for an MRS specified in Sections 145 through 149 of the NWPA. Specifically: The Secretary designated the proposed MRS site prior to the

President's approval of the Yucca Mountain site designation, contrary to Section 145(b); The Secretary failed to perform an environmental assessment of the proposed MRS and submit such assessment to Congress, contrary to Section 145(d); The Secretary failed to notify the Nevada Governor and the Nevada State Legislature of the proposed site location six months in advance of designating it, contrary to Section 145(e)(1); the Secretary failed to hold public hearings on the proposed MRS, contrary to Section 145(e)(2); the Secretary failed to notify Congress and Nevada of the MRS site selection, contrary to Section 145(f); the Secretary failed to afford the Governor of Nevada the opportunity to issue a Notice of Disapproval of the proposed MRS site, contrary to Section 146; and the Secretary choose to locate the MRS in a statutorily prohibited state, contrary to Section 145(g).

70. Under applicable federal law, the aging facility can only be located in a state other than Nevada. Alternatively, the need for such facility can be altogether precluded by continued dry storage (or "aging") of spent nuclear fuel at existing reactor sites, or by eliminating the design option of a low-temperature repository for the Yucca Mountain site.

71. In the alternative, if the aging facility is determined to be an Independent Spent Fuel Storage Installation (or "ISFSI") and not an MRS as described in the NWPA, the facility will nevertheless require a license from the

NRC pursuant to 10 C.F.R. Part 72. Likewise, Sections 202(3) and 202(4) of the Energy Reorganization Act of 1974 require DOE to obtain NRC licenses for high-level radioactive waste storage facilities such as the proposed aging facility. The FEIS is utterly silent on whether, and how, DOE can obtain a Part 72 or similar license for the 50-year storage of over 40,000 tons of spent commercial reactor fuel on a proposed 100-acre dry concrete storage pad sited near the Yucca Mountain repository in an area of adverse seismicity. Part 72 specifically requires completion of an Environmental Impact Statement for construction of an ISFSI. DOE's failure to provide this mandatory evaluation in the FEIS is a material departure from the requirements of NEPA. 42 U.S.C. § 4332(c); 40 C.F.R. § 1508.27.

XI. Exclusion from the “Proposed Action” of Wastes from at Least 54 U.S. Sites, and Failure to Evaluate Such Wastes

72. As explicitly described, the FEIS “analyzes the potential impacts of transporting spent nuclear fuel and high-level radioactive waste to the Yucca Mountain site from 77 sites across the United States.” In evaluating transportation impacts, the FEIS specified that “[t]he loading and shipping of spent nuclear fuel and high-level radioactive waste would occur at 72 commercial and 5 DOE sites in 37 states.” This representation is repeated throughout the FEIS in discussing a plethora of related impacts.

73. However, Secretary Abraham testified April 18, 2002, before the House Subcommittee on Energy and Air Quality of the Committee on Energy and

Commerce that spent nuclear fuel and high-level radioactive waste will be going to Yucca Mountain from “131 sites in 39 states that are running out of room for it.” This testimony echoed his admission in an Op-Ed article in *The New York Times* on March 26, 2002, that DOE proposes to use Yucca Mountain for the disposal of spent nuclear fuel and high-level radioactive waste from “131 sites located near cities and waterways” It likewise echoed official statements in his February 14, 2002, Yucca Mountain site recommendation to the President, issued pursuant to Section 114 of the NWPA, that the project involves wastes “currently stored at *over* 131 sites in 39 states.”

74. Insofar as it evaluated only 77 of such sites, the FEIS failed to analyze the potential impacts of DOE’s proposed handling, transport, and ultimate disposition of spent nuclear fuel and high-level waste from at least 54 U.S. sites to Yucca Mountain, and failed to include at least 2 additional states with such sites. These dramatic and nonconservative omissions (or, alternatively, DOE’s extra-procedural alterations in the Yucca Mountain project definition) constitute an additional violation of 40 C.F.R. §§ 1502.4, 1502.16, and 1502.27, and amount to a failure to proceed as required by NEPA.

XII. Failure to Specify a Basic Repository Design in the “Proposed Action”

75. DOE’s site recommendation and FEIS were completed and released so prematurely that the basic, rudimentary design of the Yucca Mountain project has

not yet been chosen by DOE, let alone completed. The FEIS euphemistically calls this failure of project definition DOE's "flexible design" concept. The FEIS notes that "DOE continues to investigate design options. . . ," that "DOE is moving forward with a final design," and that "[t]he design will continue to evolve in response to additional site characterization information, technological developments, and interactions with oversight agencies."

76. Among other omissions, the FEIS does not specify:
- a) Whether the repository will be a "low-temperature" (*i.e.*, below the boiling point of water) or a "high-temperature" (*i.e.*, above the boiling point of water) repository;
 - b) What operating mode the repository will employ;
 - c) Whether the repository project will or will not have a vast above-ground staging area for the aging of spent nuclear fuel for up to 100 years prior to its emplacement in the repository;
 - d) Whether vast facilities and systems for ventilation of underground heat from the repository will or will not be used;
 - e) How far apart waste packages will be spaced (the possible variation cited in the FEIS is up to a factor of 64);
 - f) How much real estate the repository will actually require;

- g) How much electric power the actual repository will need, whether that power will be available in Nevada, and what impact its consumption will have on local utility systems;
- h) When closure of the repository would occur (the variation cited is between 100 and 324 years);
- i) The number of waste packages that will be emplaced in the repository;
- j) The thermal load of the waste in the repository;
- k) The volume of excavated material from the mountain;
- l) The spacing of waste emplacement drifts in the mountain;
- m) Whether and how long natural ventilation will be used to cool the repository;
- n) The composition of the metals that will form the engineered waste packages containing the waste;
- o) Whether repository design and development will occur in sequential, modular, or “staged” fashion or as a discrete project;
- p) The basic design of the surface facilities required and whether they can withstand a design-basis earthquake;
- q) The long-term monitoring needed to ensure repository safety;

- r) The relative contribution and robustness of the repository's waste isolation barriers;
- s) The size and scope of activities of surface handling facilities;
- t) The number, mode, origin, and route of spent fuel shipments to Yucca Mountain;
- u) The amount and configuration of weapons plutonium and highly enriched uranium to be shipped to Yucca mountain; and
- v) Whether DOE needs or plans to develop a second repository at Yucca Mountain to facilitate disposition of the wastes described in the Secretary's site recommendation.

77. The FEIS claims to have performed a "bounding analysis" to assess environmental impacts of the multitudinous ways in which the repository project may one day be designed. However, the FEIS concedes that the analysis provides only a "*representational range* of potential environmental impacts the Proposed Action would cause." NEPA requires more than an analysis simply of a "representational range" of impacts based on a representational range of design possibilities. NEPA requires a "full and fair discussion of significant environmental impacts," 40 C.F.R. § 1502.1, based on an agency's "choice among alternatives." By limiting the analysis of these impacts to a "representational range," the FEIS expressly avoided the "full and fair discussion" that NEPA requires.

78. DOE's failure to define the Yucca Mountain project constitutes a failure to proceed as required by NEPA, and a violation of 40 C.F.R. Sections 1502.1, 1502.4, and 1502.24.

XIII. Faulty Assessment of the "No Action" Alternative

79. CEQ's NEPA regulations provide that an agency's FEIS must analyze "the alternative of no action." 40 C.F.R. § 1502.14(c). The analysis of the no action alternative, like that of the proposed action, must provide sufficient detail "so that reviewers may evaluate their comparative merits." 40 C.F.R. § 1502.14(a).

80. The no action alternative serves a distinct role in NEPA analysis from that of project alternatives, since it "provides a benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives."

CEQ, *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations* ("Forty Questions"), Question 3, 46 Fed. Reg. 18026, 18027 (1981). That analysis is "necessary to inform the Congress, the public, and the President as intended by NEPA. 40 C.F.R. § 1500.1(a)." *Forty Questions*, 46 Fed. Reg. at 18027.

81. Without the benchmark provided by the no action alternative, the FEIS could not fulfill NEPA's objective to adequately inform decision-makers and the public of the significant environmental impacts prior to undertaking a major federal action. NEPA regulations therefore "require the analysis of the no action alternative

even if the agency is under a court order or legislative command to act.” Forty Questions, 46 Fed. Reg. at 18027.

82. The FEIS lists the no action alternative among alternatives “to the repository” that need not be assessed, erroneously positing that the “no action” analysis provided in the FEIS was optional rather than mandatory. Section 114 of the NWPA requires the Secretary to prepare an FEIS accompanying his site recommendation complying with the requirements of NEPA. 42 U.S.C. § 10134(a)(1)(D), (f). In its FEIS, the Secretary is not required to consider “the need for a repository, *alternatives to geologic disposal*, or the *alternative sites* to the Yucca Mountain site.” 42 U.S.C. § 10134(a)(1)(D). (Emphasis added.) In all other respects beyond those enumerated, including the no action alternative, the NWPA requires the Secretary’s FEIS to comply with NEPA.

83. The “no action” analysis required by NEPA depends in part on whether the agency is merely making a change in management of an ongoing program or a decision on a proposed project. Where the agency is making a decision on a proposed project, the EIS must study the reasonably foreseeable consequences of the proposed action not taking place. Where a choice of “no action” by the agency would result in predictable actions by others, this consequence of the “no action” alternative should be included in the analysis. *Ibid.* CEQ, Forty Questions, 46 Fed. Reg. at 18027.

84. The NWPA defines the Secretary's site recommendation as a "major federal action" for purposes of NEPA, and not simply as a change in management or a new plan under an ongoing program. 42 U.S.C. § 10134(f)(1). Nonetheless, the FEIS fails to analyze reasonably foreseeable consequences of the Yucca Mountain repository not being approved. Instead, the FEIS frames its "no action" baseline around two hypothetical scenarios, even though it repeatedly acknowledges that "neither of these scenarios is likely." Both scenarios assume the storage of spent nuclear fuel and high-level radioactive waste at reactor and generator locations for a period of 10,000 years.

85. "Scenario 1" assumes effective institutional control at these sites for at least 10,000 years, a political and administrative achievement unprecedented in human history. "Scenario 2" assumes that there will be no effective institutional control after 100 years, which supposes with equal implausibility that no further steps would be taken within that period to protect public health and safety in response to the risks of spent fuel and radioactive waste. The FEIS never defends the plausibility of the further government actions required in either scenario, or accounts for the likely (indeed, ongoing) actions of private nuclear utilities in its no action analysis.

86. More than a hundred comments on the Yucca Mountain Draft EIS, including those of Nevada, criticized its faulty analysis of the no action alternative,

which included substantially the same two hypothetical scenarios. The FEIS failed to summarize and respond to these comments in accordance with NEPA, 40 C.F.R. § 1503.4. Had they been adequately considered, these comments would have exposed the two hypothetical scenarios as stylized constructs bearing no relationship to the predictable consequences of declining to adopt the project.

87. Responses to comments in the FEIS also erroneously assumed that the project merely constituted a change in management or plan under an ongoing program rather than the adoption of a new project. The “no action” analysis would also have failed NEPA’s requirements for the former, ignoring CEQ’s admonition that “[t]o construct an alternative that is based on no management at all would be a useless academic exercise.” CEQ, Forty Questions, 46 Fed. Reg. at 18027.

88. The FEIS acknowledges that in the absence of the Yucca Mountain repository, commercial utilities and DOE would legally have to continue managing spent nuclear fuel and high-level radioactive waste in a manner that protected public health and safety and the environment, and that these entities would have “a number of possibilities” that could be pursued in the absence of a Yucca Mountain site recommendation. Yet the FEIS fails to include any of these in its “no action” analysis, summarily dismissing them as “uncertain.”

89. In its assessment of the no action alternative, the FEIS refuses to consider potential future developments with respect to other methods of storage or

disposal, including continued storage at existing sites in dry-storage facilities, on the grounds that “this is not the policy of the Federal Government.” The FEIS reached this conclusion even though it would be the *duty* of DOE to report to Congress on recommendations for further action in the event that Yucca Mountain were deemed unsuitable for development as a geologic repository. 42 U.S.C. § 10133(c)(3)(F).

90. DOE’s distorted and implausible definition of the no action alternative fundamentally infected the baseline comparison between the proposed action and the reasonably foreseeable consequences of rejecting it. That error amounted to a failure to proceed as required by NEPA, undermining the ability of the FEIS to meet NEPA’s objective to “insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken.” 40 C.F.R. § 1500.1(b).

XIV. Failure to Assess the PECO “No Action” Alternative

91. In addition to the previously articulated defects concerning DOE’s treatment of the “no action” alternative, the FEIS wholly failed to describe or even mention a landmark change in management DOE made to its ongoing spent fuel disposition program beginning in June 2000 that effectively *already implements* the no action alternative for a single nuclear utility in the United States, PECO Energy. In a press release announcing its adoption of this alternative, DOE stated that its

action should serve “as a precedent” for all U.S. nuclear utilities to follow.

Petitioner refers to this precedent as the “PECO No Action Alternative.”

92. In June 2000, DOE executed an agreement with PECO Energy, Inc., a division of the nation’s largest nuclear utility, Exelon Corporation. Under that agreement, DOE agreed by a date certain to take title to all of the spent nuclear fuel at PECO’s Peach Bottom nuclear power station in Pennsylvania and to store and manage this fuel in robust dry casks at an above-ground dry storage facility to be built on the reactor site, but away from the reactor, by PECO. Ownership of this storage facility would also be transferred to DOE.

93. The PECO No Action Alternative foreclosed pending litigation between PECO Energy and DOE stemming from DOE’s failure to disposition PECO’s spent nuclear fuel by the 1998 statutory deadline specified in Section 302(a)(5)(B) of the NWPA. Under the agreement, PECO will recover “damages” for DOE’s failure out of the statutorily created Nuclear Waste Fund.

94. The PECO No Action Alternative is the very model of a properly conceived “no action” alternative to Yucca Mountain. It discloses not simply a reasonably foreseeable consequence of the action not taking place, but an action that is *already occurring* within DOE in the absence of Yucca Mountain project approval. Nonetheless, the PECO No Action Alternative was not even mentioned in the FEIS. Broad implementation of the PECO No Action Alternative, as originally

urged by DOE, would result in numerous beneficial and predictable actions by others and would sharply mitigate adverse environmental consequences associated with the Yucca Mountain repository.

95. If the PECO No Action Alternative were broadly implemented, it would likely have the following beneficial actions and outcomes:

- a) Dozens of nuclear utilities which have sued DOE would settle their suits, as did PECO, with damages being paid out of the Nuclear Waste Fund in similar fashion as was the case for PECO;
- b) Spent fuel liabilities would be removed from utilities' books and records;
- c) Utilities could decommission their nuclear plants on schedule, since on-site spent fuel obligations would no longer physically prevent safe decommissioning;
- d) With spent fuel liabilities gone, the spent fuel would also be removed from utilities' rate bases, and state public utility commissions would no longer have economic jurisdiction over utilities' spent fuel;
- e) Scores of states which have sued DOE over missing the 1998 spent fuel deadline would thus dismiss their lawsuits;

- f) Spent fuel could be managed by DOE, for pennies on the dollar to the cost of Yucca Mountain, until technological alternatives to spent fuel disposition, now under development by DOE's national laboratories (*e.g.*, reprocessing, transmutation, neutralization, volume reduction, volatility reduction) were perfected;
- g) Tens of thousands of unnecessary shipments of high-level nuclear waste would be avoided;
- h) The fuel would be sited where those who have benefited from its use reside (and where those same individuals have tolerated the far greater risk of living near nuclear reactors), vastly minimizing socioeconomic impacts;
- i) The fuel would be safely managed at a location which already has an approved emergency plan, and which already has an approved security plan, including an armed security force; and
- j) The fuel could be managed in off-the-shelf dry casks for at least 100 years, and possibly for centuries thereafter if cask seals, and casks, were replaced periodically.

96. The FEIS erroneously states that continuing storage at reactor sites in dry storage facilities "is not the policy of the Federal Government," when DOE not

only implemented precisely this policy for PECO, but also urged all other nuclear utilities to adopt this same policy.

97. DOE's failure to include the PECO No Action Alternative in the FEIS is all the more unexcused in view of the fact that utilities across America and the world are now constructing, or have already constructed and operated, dry storage facilities.

98. The failure of the FEIS to mention or analyze the PECO No Action Alternative blatantly violates 40 C.F.R. § 1502.14.

XV. Faulty Assessment of Project Impacts (Including Cumulative Impacts)

99. NEPA requires federal agencies to identify and evaluate the direct, indirect and cumulative effects of the proposed action and reasonable alternatives. 40 C.F.R. § 1502.16. Indirect effects include those that are caused by the project, or occur later in time or are farther removed in distance, but are still reasonably foreseeable. 40 C.F.R. §§ 1502.16, 1508.8.

100. Cumulative impacts result from the "incremental impact of the proposed project when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7.

101. The FEIS fails to provide the analysis of direct and indirect impacts required under NEPA for at least the following issues: transportation routes for

shipment of spent fuel and waste from specific reactor and generator locations to Yucca Mountain; rail corridors and highway routes in Nevada; heavy haul truck transport in Nevada; spent fuel radiological characteristics; routine radiation exposures due to transportation; accidents, terrorism and sabotage; impacts to groundwater; impacts due to volcanism; the definition of the “reasonably maximally exposed individual” (“RMEI”); the period and point of compliance associated with radiation standards; impacts to Native Americans; impacts to vegetation and wildlife; and socioeconomic and stigma effects related to the physical environmental impacts of the proposed action.

102. The FEIS fails to adequately address cumulative impacts, including those from past, present, and reasonably foreseeable future activities at the Nevada Test Site, and those from present and planned disposal of millions of cubic feet of low-level and mixed radioactive and hazardous wastes at the Nevada Test Site and the Beatty Waste Disposal Area. The failure of the FEIS to analyze direct, indirect and cumulative impacts of the proposed action amounted to a failure to proceed as required by NEPA.

XVI. Faulty Analysis of Sabotage in Spent Fuel Transport

103. In the aftermath of the terrorist attacks of September 11, 2001, the FEIS fails to address realistic sabotage scenarios involving spent fuel transport and thus vastly understates the potential risks and consequences of such transport if the

Yucca Mountain project proceeds, contrary to the requirements of NEPA.

“Representative spent fuel” employed by the FEIS in all transport scenarios is assumed to be “average” commercial spent nuclear fuel of very low enrichment (less than 5% Uranium 235). However, at least 23 of the 131 sites identified by the Secretary in his recommendation to the President use highly enriched uranium fuel, and spent fuel discharged from such reactors is still highly enriched (greater than 80% Uranium 235). Likewise, the vast majority of all foreign research reactor spent nuclear fuel that is slated for Yucca Mountain is highly enriched. Many of the planned shipments to Yucca Mountain also involve weapons-grade plutonium from converted nuclear warheads. Highly enriched spent nuclear fuel and weapons-grade plutonium pose markedly increased risks of nuclear criticality in the event of a severe accident or an attack on a spent fuel cask with an armor-piercing weapon.

104. The FEIS does not evaluate the impacts of a cask “criticality” event (*i.e.*, an event in which a nuclear chain reaction occurs and is temporarily sustained in the spent fuel or plutonium, due to the material being either moderated in water or reconfigured geometrically, or both, in an accident or sabotage scenario). Criticality was neither examined in the repository itself, or in the analysis of transport of spent fuel to the repository or to DOE sites pending re-transfer to the repository. Criticality was altogether ignored in the context of evaluating sabotage and terrorism.

105. DOE chose not to evaluate criticality risk because the risk of occurrence, according to the FEIS, was assumed to be less than one in 10 million. However: (a) the first predicate for this estimate was the assumed shipment only of “average” commercial, very-low-enriched spent nuclear fuel; (b) the second predicate was the assumption that an attack on a spent fuel cask would occur with a non-state-of-the-art armor-piercing weapon; (c) the third predicate was the assumption that an armor-piercing weapon fired at a cask would penetrate only one side of any such cask; (d) the fourth predicate was the assumption that water would not enter the pierced or damaged cask; and (e) the fifth predicate was the assumption that fire would not be co-located in the presence of the attacked cask.

106. In the following respects, the FEIS is non-conservative and fails outright to address each of the predicates for DOE’s estimate of criticality risk:

- a) Many of the shipments to Yucca Mountain, and from reactor sites to DOE facilities pending shipment to Yucca Mountain, will involve highly enriched uranium and weapons-grade plutonium with a much higher criticality potential than commercial spent fuel if exposed to water or altered geometrically through accidental destruction or sabotage;
- b) There is no basis to believe that a terrorist would have access only to non-state-of-the-art armor-piercing weapons. For

example, state-of-the-art Milan missiles were found among al-Qaeda outposts in Afghanistan last winter, and there are over 500,000 state-of-the-art TOW missiles now in circulation in at least 36 countries, including at least 1750 in Iran. Such missiles, a mere 42 inches long, are optically guided and can be fired up to a mile away from a portable tripod launcher that can easily fit on the back of a pickup truck;

- c) The FEIS did no analysis to suggest that an armor-piercing weapon would penetrate only one side of a shipping cask;
- d) The FEIS indicates that many spent fuel shipments will occur by barge, and innumerable others will traverse hundreds of the nation's rivers, streams, and waterways. There is no reason to believe a terrorist attacking such a shipment would not seek to maximize its damage potential by simply shooting at it over water instead of over land; and
- e) There is likewise no basis to believe that the attack would not also precipitate a fire, or be accompanied by a parallel fire-generating attack either of the truck, barge, or rail carrier, or of an adjacent flammable carrier (*e.g.*, a gasoline tank). Fire would

increase the penetration risk, the criticality risk and the dispersion risk.

107. If a nuclear criticality event occurred inside a spent fuel cask, the cask would almost certainly explode. The likely breathtaking consequences of such an explosion were not analyzed in the FEIS. Nor, according to the FEIS, is “dealing with a criticality event . . . a goal of the emergency response function.”

108. Even if a nuclear criticality event did not occur in an incident of sabotage, the FEIS’s analysis of the likely consequences of sabotage with an armor-piercing weapon, for the reasons stated above and for other reasons pointed out by Nevada and other commenters on the DOE’s draft environmental impact statement, is materially understated, arbitrary, capricious, and erroneous. The FEIS concludes that terrorism is not of significant concern in the thousands of shipments precipitated by the Yucca Mountain project because “[r]ecent terrorist attacks have involved high-profile symbols of the United States and produced a large number of immediate fatalities. Sabotage of a spent nuclear fuel shipment would not achieve this result.” This rationale for failing to evaluate the consequences of terrorism involving spent fuel shipments is blatantly arbitrary and capricious, and erroneous.

109. Notwithstanding the immediately above-stated rationale, the FEIS concludes that “[r]eleases of radioactive materials in a sabotage event would be comparable to releases in maximum reasonably foreseeable accidents analyzed in

the EIS” However, these very FEIS accident scenarios for a single cask incident predict 48 deaths and monetary damage far exceeding that which occurred on September 11 to the World Trade Center complex and the Pentagon combined.

110. The FEIS’ analysis of sabotage and terrorism in the shipment of spent nuclear fuel if the Yucca Mountain project proceeds is contrary to the requirements of NEPA, since it amounts to an outright failure to identify the direct, indirect and cumulative effects of the proposed action. 40 C.F.R. §§ 1502.16, 1508.7, 1508.8.

XVII. Failure to Recirculate the EIS

111. Under NEPA, a new supplement to the EIS must be prepared and circulated to other agencies and the public in the event of either of the following: (1) changes to the proposed action that would result in significant environmental impacts that were not evaluated in the EIS; or (2) new information or circumstances relevant to environmental concerns and bearing on the proposed action or its impacts. 40 C.F.R. § 1502.9(c)(1). DOE’s own NEPA regulations likewise require a supplemental EIS “if there are substantial changes to the proposal or significant new circumstances or information relevant to environmental concerns” 10 C.F.R. § 1021.314.

112. The FEIS includes changes to the proposed action that would result in significant environmental impacts not yet evaluated in the Draft EIS or May 2001 Supplemental EIS. Those include, but are not limited to, changes in the nature of

the repository and waste package design, and changes affecting the transportation of spent nuclear fuel and high-level nuclear waste to the Yucca Mountain site.

113. New information or circumstances identified in the FEIS, not previously available for circulation, are also relevant to environmental concerns. These include, but are not limited to, major changes in NRC, EPA and DOE regulations on which the Secretary relied in his site recommendation; and new information published for the first time in the FEIS, addressing transportation safety and the possibility of accidents and sabotage.

114. New information not yet circulated for public review or analyzed in the FEIS is also relevant to the environmental impacts of the proposed action. That information addresses at least the following matters: the transformation of the proposed Yucca Mountain repository into an array of engineered waste packages rather than a geologic repository; the long-term performance of engineered barriers, including the potential of waste containers for corrosion; the transformation of the project into one of modular design and construction; the potential for accidents and sabotage on transportation routes between reactor sites and Yucca Mountain; the vulnerability of all casks used for transportation and dry storage to piercing by anti-tank missile warheads; the addition of 54 new sites in the Secretary's February 14, 2002, site recommendation; and DOE's execution of its agreement with PECO Energy in June 2000.

115. DOE's failure to require recirculation notwithstanding these substantial changes in the proposed action and significant new information constituted a failure to proceed in the manner required by NEPA and its implementing regulations, including 40 C.F.R. Section 1502.9(c)(1) and 10 C.F.R. Section 1021.314(a).

XVIII. Incomplete or Unavailable Information

116. NEPA requires that where incomplete information relevant to reasonably foreseeable environmental impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are "not exorbitant," the agency shall include the information in the EIS. 40 C.F.R. § 1502.22. Where the costs of obtaining the information are exorbitant or the means of obtaining it are not known, the agency must include within the FEIS a statement identifying its incompleteness or unavailability, explaining its relevance, summarizing credible scientific evidence relevant to evaluating its impacts, and evaluating these impacts. *Ibid.*

117. To the extent DOE considers any of the information referenced in paragraphs 112 through 114 to be "incomplete or unavailable," DOE has neither included that information in the FEIS nor complied with the alternate requirements of 40 C.F.R. § 1502.22. The failure to do so was a failure to proceed as required by NEPA and its implementing regulations.

XIX. Arbitrary and Capricious Action

118. The Administrative Procedure Act, 5 U.S.C. § 706(2)(A), provides that the reviewing court shall hold unlawful and set aside agency actions, findings and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law.

119. For reasons set forth in sections V through XVIII of this petition, ¶¶33-117, the FEIS and the final actions of the Secretary and President relying on this document should be set aside due to a failure to proceed in the manner required by law. Independently of those violations, the FEIS and final actions described in these sections also constituted arbitrary and capricious action, in violation of 5 U.S.C. § 706(2)(A).

XX. Conclusion and Prayer for Relief

WHEREFORE, Petitioner respectfully requests that the Court:

1. Declare that DOE's Yucca Mountain FEIS is inconsistent with NEPA, closely related provisions of the NWPAA, and other applicable laws and regulations.
2. Declare that the Secretary's final recommendation that the President approve the Yucca Mountain candidate site for development of a nuclear waste repository, relying on the FEIS, is inconsistent with NEPA, closely related provisions of the NWPAA, and other applicable laws and regulations.

3. Declare that the President's final recommendation to the Congress of the Yucca Mountain candidate site for development of a nuclear waste repository, relying on the FEIS, is inconsistent with NEPA, closely related provisions of the NWPA, and other applicable laws and regulations.

4. Declare that the Secretary failed to act in accordance with mandatory requirements of NEPA, closely related provisions of the NWPA, and other applicable laws and regulations. These include but are not limited to the failure to secure and respond to Nevada's comments on the FEIS and the preliminary engineering specifications for the Yucca Mountain facility; the failure to afford a 30-day circulation period for its FEIS; and the failure to prepare and publish a Record of Decision.

5. Issue injunctive relief as appropriate.

6. Award petitioner costs and attorney's fees; and

7. Award such further relief as the Court deems appropriate.

Respectfully submitted,

Frankie Sue Del Papa

Attorney General

Marta A. Adams,*

Senior Deputy Attorney General

STATE OF NEVADA

100 North Carson Street

Carson City, NV 89701

(775) 684-1237 TEL

(775) 684-1108 FAX

Antonio Rossmann*

Special Deputy Attorney General

Roger B. Moore

Special Deputy Attorney General

LAW OFFICE OF ANTONIO ROSSMANN

380 Hayes Street

San Francisco, CA 94102

(415) 861-1401 TEL

(415) 861-1822 FAX

Joseph R. Egan,*
Special Deputy Attorney General
Charles J. Fitzpatrick
Howard K. Shapar*
EGAN & ASSOCIATES, PLLC
7918 Jones Branch Drive, Suite 600
McLean, VA 22102
(703) 918-4942 TEL
(703) 918-4943 FAX

Charles J. Cooper*
Robert J. Cynkar*
Vincent J. Colatristano*
COOPER & KIRK, PLLC
1500 K Street, N.W., Suite 200
Washington, DC 20005
(202) 220-9660 TEL
(202) 220-9601 FAX

William H. Briggs, Jr.*
ROSS, DIXON & BELL, L.L.P.
2001 K Street N.W.
Washington, DC 20006-1040
(202) 662-2063 TEL
(202) 662-2190 FAX

/s/

Antonio Rossmann*
Counsel of Record

Attorneys for Petitioner

DATED: June 6, 2002

* Member, D.C. Circuit Bar

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document was served this 6th day of June, 2002, via certified mail on:

The Hon. Spencer Abraham
Secretary
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20555

Lee Liberman Otis, Esq.
General Counsel
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20555

The President of the United States
The White House
1600 Pennsylvania Avenue, N.W.
Washington, DC 20500

The Hon. John A. Ashcroft
Attorney General of the United States
U.S. Department of Justice
Room 4400
950 Pennsylvania Avenue, N.W.
Washington, DC 20530-0001

United States Attorney
555 Fourth Street, N.W.
Washington, DC 20001

/s/

Vincent J. Colatrisano