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OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

**STATE OF NEVADA PETITION FOR RULEMAKING  
TO AMEND THE COMMISSION'S WASTE CONFIDENCE  
DECISION AND RULE TO AVOID PREJUDGING YUCCA MOUNTAIN**

**I. INTRODUCTION**

In this "State of Nevada Petition for Rulemaking to Amend the Commission's Waste Confidence Decision and Rule to Avoid Prejudging Yucca Mountain" ("Petition"), the State of Nevada asks the U.S. Nuclear Regulatory Commission ("NRC" or "Commission") to amend its 1990 "Waste Confidence" decision and rule that predict--for purposes of nuclear power plant licensing--that a geologic repository will become available in the United States by the year 2025. In promulgating the 1990 decision and rule the NRC was careful to avoid prejudging the Yucca Mountain licensing proceeding by allowing for the possibility that if Yucca Mountain was not approved another repository would be approved and operational by the year 2025. With the passage of time, and in light of the Yucca Mountain project's slipping schedule, that possibility no longer exists. The inescapable effect of the 1990 rule is therefore to prejudge the result of the upcoming Yucca Mountain license proceeding. Nevada asks the Commission to suitably amend its Waste Confidence rule to avoid this impermissible result.

**II. SUMMARY**

Since 1977, the NRC has periodically examined the prospects for safe and timely disposal of spent (or used) nuclear power reactor fuel and safe storage of the spent fuel pending disposal. These examinations resulted in Commission decisions commonly known as "Waste Confidence" decisions. In 1999, when the NRC last visited this issue, it found no reason to reopen its 1990 Waste Confidence findings that one or more mined geologic repositories for disposal of spent fuel would be available by the year 2025, and that spent fuel can be stored

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safely and without significant environmental impacts for at least thirty years beyond the licensed life of operation of the reactor that generated it, including the term of a renewed reactor operating license.

In 1999, the NRC committed to re-examine its 1990 Waste Confidence findings if, among other things, “significant and pertinent unexpected events occur, raising substantial doubt about the continuing validity of the Waste Confidence findings.” Nevada believes such events have now occurred. Specifically, Nevada believes that recent events compel the conclusion that the NRC’s 1990 finding that one or more geologic repositories would be available by the year 2025 can no longer stand. This 1990 finding was based on the specific assumptions (1) that the Department of Energy’s (“DOE’s”) proposed Yucca Mountain, Nevada geologic repository site might be rejected by the year 2000, but (2) that this would leave ample time (twenty-five years) to amend the Nuclear Waste Policy Act, select a new candidate site, study (or characterize) the new site, prepare and file an NRC license application (“LA”), complete NRC licensing reviews and proceedings, initiate and complete transportation planning, construct the new repository, and apply for and receive the NRC license to receive and emplace the spent fuel.

Despite recent setbacks, DOE is giving every indication that it still intends to file an LA for a construction authorization for Yucca Mountain. However, assuming an LA is filed, we now know that the final NRC decision on such an LA will not be reached before the year 2010 at the earliest. We also now know that if Yucca Mountain fails on or about the year 2010, fifteen years (the years remaining before 2025) will not nearly be sufficient time to accomplish all of the steps needed to make another repository actually available to accept spent fuel for disposal.

This significant new information leads to the conclusion that the NRC’s 1990 finding that a repository will be available by the year 2025 is now true only if the NRC grants all the

necessary authorizations and licenses for Yucca Mountain. This unacceptably prejudices the results of a Yucca Mountain licensing proceeding. The 2025 finding must be removed to preserve the NRC's role as an impartial adjudicator.

The Commission has said in the past it believes that spent fuel can be stored in a safe and environmentally acceptable manner for a very long time, especially in dry storage casks. Accordingly, there is no reason why the Commission should predict precisely when a geologic repository site would be made available. As explained more fully below, the Commission should amend the 1990 Waste Confidence Decision and the related rule in 10 C.F.R. § 51.23 (a) to make a new (and simpler) generic determination that, even if Yucca Mountain fails, there is still reasonable assurance all licensed reactor spent fuel will be removed from storage sites to some other acceptable disposal site well before storage away from the disposal site will cause any significant safety or environmental impacts. The generic finding would not apply to any case where, in accordance with 10 C.F.R. § 51.23 (c), a finding is made that the impacts during the requested license term are significant.

### **III. BACKGROUND**

#### **A. The NRDC and State of Minnesota Lawsuits**

About three decades ago, the Natural Resources Defense Council ("NRDC") petitioned the NRC to suspend licensing of nuclear power reactors until NRC made a definitive safety finding that the spent fuel they generated as waste could be disposed of safely. NRDC argued that since spent fuel was the inevitable product of reactor operation, a finding whether spent fuel could be disposed of safely was necessarily included within the scope of the pre-licensing safety finding (there will be adequate protection of the public health and safety) required by the Atomic Energy Act ("AEA") in each power reactor licensing case. NRC denied the petition in 1977 on

the grounds: (1) it had reasonable confidence these materials could and would be disposed of safely and, indeed, as a policy matter it would not license reactors if it thought otherwise; but (2) the safety finding sought by NRDC was not legally required because, by putting reactor licensing into a statutory category separate from waste disposal, the AEA effectively carved out waste disposal safety from the scope of reactor pre-licensing safety findings. 42 Fed. Reg. 34,391. The NRC's decision was upheld in *NRDC v. NRC*, 582 F. 2d 166 (2<sup>nd</sup> Cir. 1978).

The same disposal issue resurfaced in a different context shortly thereafter. When various power reactor licensees sought permission (operating license amendments) from NRC to expand their on-site spent fuel pool storage capacity, because of the unavailability of either reprocessing or disposal, opponents argued that the NRC's NEPA reviews needed to address the environmental and safety effects of indefinite on-site storage of the spent fuel. NRC rejected the contentions. According to NRC, there would be no indefinite on-site storage because it had already found, in response to NRDC's petition, that there was reasonable confidence spent fuel could and would be disposed of safely before on-site storage posed any safety or environmental problem.

On review, the U.S. Court of Appeals for the D.C. Circuit sent the case back to NRC. The Court had no problem with NRC's basic approach of eliminating indefinite on-site storage from reactor NEPA reviews on the basis of a generic finding that safe disposal would be available when needed, but sent the case back because the waste confidence findings NRC relied on to reject the contentions (NRC's findings in response to the NRDC petition) were not the product of a public rulemaking proceeding. *Minnesota v. NRC*, 602 F. 2d 412 (D.C. Cir. 1979).

*NRDC v. NRC* and *Minnesota v. NRC* establish three principles. The first principle is that the AEA does not expressly condition continued licensing of reactors on favorable prospects

for the future disposal of spent fuel. NRC's decision that it would not continue to license reactors if it lacked reasonable confidence spent fuel could be safely disposed of is based on its policy considerations only. Nevada's Petition may be granted without NRC changing this part of its Waste Confidence decision. As explained below, this Petition focuses on related issues dealing with the timing of a repository, the storage of spent fuel, and avoidance of prejudgment of Yucca Mountain.

The second principle established by the two cases is that the NRC's NEPA reviews of spent fuel storage (including issuance of reactor licenses) must address the issue of long-term and hypothetical indefinite storage of spent fuel on the site in question. The third principle is that the issues of long-term or indefinite storage can be resolved on a generic basis by rulemaking and need not be taken up in individual licensing cases.

#### **B. NRC's Waste Confidence Reviews**

Following the direction of *Minnesota v. NRC*, the NRC commenced two Waste Confidence rulemaking proceedings to re-examine its confidence that there would be safe and timely disposal of spent fuel and safe storage of spent fuel until safe disposal was available. In both proceedings NRC found the requisite degree of confidence. 49 Fed. Reg. 34,658 (1984); 55 Fed. Reg. 38,474 (1990). In its 1984 Waste Confidence decision, the NRC committed to re-examine the relevant issues every five years. In its 1990 Waste Confidence Decision the NRC largely confirmed its 1984 decision and committed to re-examine the issues in ten years. However, in 1999 NRC decided not to commence another "Waste Confidence" rulemaking proceeding. The NRC also stated in 1999 that it would re-examine the 1990 decision only if "significant and pertinent unexpected events occur, raising substantial doubt about the continuing validity of the Waste Confidence findings." 64 Fed. Reg. 68005. It has not done so to date.

Since *Minnesota v. NRC* requires that all NRC Waste Confidence decisions be based on a public rulemaking proceeding, and no such proceeding was conducted in 1999 (or since then), the 1990 decision stands as the only legally effective Waste Confidence decision. Thus, this Petition will focus on the 1990 decision, although Nevada believes the essential arguments presented herein are equally applicable to the 1999 decision.

In 1990, the NRC found there is reasonable assurance that: (1) one or more geologic repositories will be available by 2025; and (2) spent fuel can be stored safely for at least thirty years after cessation of reactor operation, during which period sufficient repository capacity will be available for the spent fuel at the reactor (or other storage facility) in question. Although the Waste Confidence finding focused on a thirty-year storage period (after cessation of reactor operations), the Commission also stated (in the discussion of the basis for the finding) that it “does not dispute a conclusion that dry spent fuel storage is safe and environmentally acceptable for a period of 100 years,” and that “evidence supports safe storage for this period.”

The Commission was quite adamant in 1990 that it was “unwilling to assume the suitability of Yucca Mountain” because it “must be mindful of preserving all of its regulatory options—including a recommendation of license application denial.” Therefore, “the Commission has made the assumption that the Yucca Mountain site will be found to be unsuitable.” However, “NRC continues to believe that if DOE determines that the Yucca Mountain site is unsuitable, it will make this determination by about the year 2000.” Moreover, “if DOE were authorized to initiate site screening for a repository at a different site in the year 2000, the Commission believes it reasonable to expect that a repository would be available by the year 2025.” This was based on DOE’s “prudent” planning assumption that “site-specific

screening leading to the identification of potentially acceptable sites should start about 25 years before the start of waste acceptance for disposal.”

As the above indicates, the Commission’s 1990 Waste Confidence decision relies (among other things) on three critical determinations. They are: (1) the acceptability of the Yucca Mountain site should not be presumed, for to do so would prejudice the outcome of the NRC’s licensing review and proceeding; (2) notwithstanding the twenty-five year lead time required, a second repository site will be available if necessary by the year 2025 because a final decision on the acceptability of the Yucca Mountain site will surely be made by the year 2000, leaving sufficient time (twenty five years) to develop another repository if Yucca Mountain fails; and (3) spent fuel can be stored safely and in an environmentally sound manner until either Yucca Mountain or a second repository becomes available beginning in the year 2025.

#### **IV. GROUNDS FOR REOPENING THE 1990 WASTE CONFIDENCE DECISION**

As indicated above, the NRC stated in 1999 that it would re-examine the 1990 Waste Confidence decision if “significant and pertinent unexpected events occur, raising substantial doubt about the continuing validity of the Waste Confidence findings.” As explained below, Nevada believes such events have now occurred.

##### **A. Significant New Information Regarding the Timing of a Repository**

While Nevada is not asking the NRC to reopen its general finding that one or more safe geologic repositories can be made available on a timely basis, Nevada believes the NRC’s 1990 determination that one or more such repositories would be available by the year 2025 cannot now stand. This determination was based on the express finding that the acceptability of Yucca Mountain as a geologic repository site would be decided by the year 2000, leaving ample time (twenty five years) to amend the Nuclear Waste Policy Act to authorize a site other than Yucca

Mountain, select a new candidate site, study (or characterize) the new site, prepare and file an LA, complete NRC construction authorization reviews and proceedings, construct the repository, initiate and complete transportation planning, and complete another NRC licensing proceeding to authorize receipt of spent fuel (and high-level waste) for disposal (a kind of operating license). However, we now know that the acceptability of Yucca Mountain will not be decided before 2010 at the earliest (completion of the construction authorization stage), even with the unrealistic assumptions (1) the Environmental Protection Agency and the NRC will complete the complementary rulemaking proceedings required by *Nuclear Energy Institute v. EPA*, 373 F.3d 1251 (D.C.Cir. 2004), in 2005, (2) DOE will tender a reasonably complete LA in late 2005, and (3) an LA will be docketed by the NRC in early to mid 2006.

We also now know that if Yucca Mountain fails on or about the year 2010, fifteen years (the years remaining before 2025) will not nearly be sufficient time to accomplish all of the steps needed to make another repository actually available. As indicated above, the 1990 decision assumed that twenty-five years would be required to make a different site available. If anything, recent events have proven that the twenty-five year estimate is overly optimistic. Yucca Mountain has now been under intense study and active consideration as a repository for about twenty-seven years (DOE's 2002 site recommendation to the President states (at pg. 4) that "the Department of Energy began studying Yucca Mountain almost a quarter of a century ago."). Even now, after twenty-seven years, an adequate LA is still not available. Nevada does not believe that Yucca Mountain can ever be established as a safe repository site. However, regardless of the outcome of the NRC licensing process, the fact remains that if an LA is docketed for Yucca Mountain in early to mid 2006, that site will have been under intense study and consideration for about thirty-three years before the first decision on the acceptability of the



site (at the construction authorization stage) can possibly be rendered by the NRC. While the “lessons learned” from a failed effort at Yucca Mountain may lead to time and resource savings in a second effort, it would be wildly optimistic to suppose that the savings would be much more than about eight years. Subtracting eight years from the thirty-three years required for Yucca Mountain still results in about a twenty-five year schedule, ten years more than the 1990 Waste Confidence decision currently allows.

Creation of a hypothetical, optimistic schedule for development of another repository site confirms the long lead-time that will be required to find and develop another repository site. After an assumed failure of Yucca Mountain as a repository, at least one year will be required for Congress to amend the Nuclear Waste Policy Act to authorize a repository site other than Yucca Mountain. At least several years will be required to complete the process of selecting a site for detailed study (characterization). In its 1990 Waste Confidence decision the NRC found that the in-situ testing required to prepare an adequate LA would require about ten years. Additional years will be required to complete the necessary performance assessments and repository design and to prepare an adequate LA. For Yucca Mountain, the LA preparation phase (taken as commencing after announcement of the completion of site characterization and site recommendation) has already consumed three years and at least another year will be required. NRC licensing will require at least four years and construction at least another three to six years. This adds up to about twenty-five years, even assuming Congress does not abandon the repository program altogether because of cost overruns and DOE mistakes, and the highly contentious task of selecting another candidate site is completed successfully in only two years. This twenty-five year schedule also allows no time for NRC’s operating license review or other

contingencies that would inevitably cause additional delays, and assumes transportation planning will not be on the critical path.

This significant new information and analysis compels the conclusion that the NRC's 1990 Waste Confidence finding that a repository will be available by the year 2025 can now be true only if the NRC grants all the necessary authorizations and licenses for Yucca Mountain, for if Yucca Mountain fails no other repository site can possibly be made available before the year 2025. This prejudices the results of the Yucca Mountain licensing proceeding. If an LA is docketed for Yucca Mountain, the Commission (as a collegial body and ultimate decision-maker under the AEA) must be an impartial adjudicator, free of any prejudgment of the adjudicative facts. But, if the 1990 Waste Confidence decision is not reopened and changed to remove the 2025 date, the Commission will already have decided that Yucca Mountain is safe and the LA must be granted before one shred of evidence is received and evaluated in the proceeding. This is unacceptable. Not only would this violate the law requiring impartial adjudicators, *Cinderella Career and Finishing Schools Inc. v. FTC*, 425 F.2d 583 (D.C. Cir. 1970), but it would also violate the trust reposed in the Commission by the President, the Congress, and the American people. All these are entitled to insist that the NRC judge Yucca Mountain fairly.

In 1990, the Commission struck its prediction that a repository would be available in the period 2007-2009 from the previous Waste Confidence decision. It did so because only Yucca Mountain could possibly become available in this period, and the suitability of Yucca Mountain could not be prejudged. Now, for the same reason, the year 2025 (first quarter of the 21<sup>st</sup> century) should be struck from the 1990 Waste Confidence decision.

Finally, in 1990 the Commission conceded the possibility that Yucca Mountain could be found unsuitable after the year 2000, leaving less than twenty-five years to develop another site,

and it committed to evaluate this scenario in the next Waste Confidence decision scheduled for 1999. As indicated, however, no public rulemaking was conducted in 1999. Granting this Petition would fulfill the Commission's 1990 commitment.

**B. Dry Storage of Spent Fuel**

As noted above, the Commission stated in its 1990 Waste Confidence decision that spent fuel could be maintained in dry storage facilities for a period of one hundred years with no significant safety or environmental problems. In 1999, the Commission testified before Congress that "we have not identified any safety or environmental issues that would preclude issuance of a [independent spent fuel storage license] for 100 years" (February 10, 1999 NRC statement before the Subcommittee on Energy and Power, House Committee on Commerce). The Commission's License Renewal Generic Environmental Impact (NUREG-1437) concludes (at 6.4.6.1) that "dry storage appears to be a safe, economical method of spent fuel storage" and that "fuel rods in dry storage appear to be environmentally secure for long periods of time." Accordingly, spent fuel storage is a so-called "Category 1" issue that need not be considered in nuclear power reactor license renewal proceedings.

Recent studies reviewed by the NRC corroborate and even extend earlier conclusions about the safety of dry storage of spent fuel. DOE's Final Environmental Impact Statement supporting the recommendation of Yucca Mountain as a geologic repository site ("Yucca EIS") addressed the impacts of long-term storage of spent fuel as part of its consideration of a so-called "no-action" alternative. The Yucca EIS concluded that, even in the worst case of a complete loss of institutional control after one hundred years, with the concrete storage module and the internal spent fuel canister gradually degrading, there would be no release of any radioactive material for at least one thousand years (Yucca EIS at K-9, K-40). Risks from accidents (such as an aircraft

crash) were considered to be generally low, taking into account the expected low frequency of serious events at existing facilities that could cause a release of radioactive materials (Yucca EIS at K-34).

Section 114 of the Nuclear Waste Policy Act contemplated that the NRC would comment on the Draft Yucca EIS and the NRC did so on February 22, 2000, and June 29, 2001. NRC had only one comment on DOE's discussion of the impacts of storage of spent fuel. This comment (in the NRC's February 22, 2000 letter) was that it was not reasonable for DOE to assume a loss of institutional control over spent fuel storage sites after 100 years because "the Federal Government would continue to control licensed material and HLW under its authority for as long as necessary for public health and safety considerations." The NRC's comments did not identify any other difficulty with DOE's evaluation of long-term storage of spent fuel.

Other recent developments also indicate continued Commission confidence in long term storage of spent fuel. It is now expected that by the year 2010 the NRC will have licensed over fifty independent spent fuel storage installations ("ISFSIs"), an increase of over thirty-eight ISFSIs since 1999 (slide presentation at NRC's Spent Fuel Project Office Licensing Process Conference, February 8, 2005). In the Surrey ISFSI license renewal review the applicant requested and the Commission approved of a forty-year renewal term notwithstanding the previous practice of limiting renewals to twenty years. Successful applicants for future renewals of other ISFSI licenses are expected to receive similar extended renewal terms (November 29, 2004 SRM on SECY 04-0175). Moreover, no law prohibits the NRC from renewing ISFSI licenses for additional forty-year terms after expiration of the first forty-year renewal terms. Clearly, the NRC believes that aging-related spent fuel storage issues can be safely managed

over very long periods. Just as clearly, reactor licensees are well aware Yucca Mountain might fail and they are prudently pursuing options for long-term storage.

These significant new developments also require a modification of the Commission's 1990 Waste Confidence finding about spent fuel storage. Although the Commission stated in 1990 that dry storage would be safe for one hundred years, the actual finding codified in the rule was that spent fuel could be stored safely for "at least" thirty years after cessation of operations. The delays in Yucca Mountain, and the issuance of forty-year renewal licenses for ISFSIs, will cause spent fuel to remain in storage for considerably more than thirty years after cessation of reactor operation. The Commission's recent statements, and the Commission's near-complete acceptance of DOE's analysis of long term spent fuel storage in the Yucca EIS, would support explicit recognition of the safety of dry storage for a much longer period of time--at least several hundred years.

In sum, the Commission has said not only that spent fuel can be stored safely, avoiding significant environmental impacts, for at least one hundred years, but also that spent fuel can be stored in this manner for an even longer period. Importantly, whatever the NRC period of safe storage might be, it is long enough for the Commission to generally conclude that, even if Yucca Mountain fails, one or more other repository sites (or some other form of disposition) would be available before dry storage of reactor spent fuel (either on or near reactor sites or in separate ISFSIs) could pose any significant safety or environmental problem. As noted below, this generic finding would not foreclose the Commission from finding, in the circumstances of a particular licensing case, that the impacts of storage during the requested license term are significant, in which case the generic finding could not logically apply.

## V. THE REQUESTED RULE CHANGES

The Commission's 1990 Waste Confidence findings are now codified in 10 C.F.R. § 51.23(a). The concepts of § 51.23(a) are carried forward into 10 C.F.R. §§ 51.30(b), 51.33, 51.61, 51.80(b), 51.95, and 51.97(a). For the reasons given above, Nevada requests that 10 C.F.R. § 51.23(a) be amended to read as follows:

The Commission has made a generic determination that there is reasonable assurance all licensed reactor spent fuel will be removed from storage sites to some acceptable disposal site well before storage causes any significant safety or environmental impacts.

This generic finding does not apply to a reactor or storage site if the Commission has found, in the 10 CFR Part 50, Part 52, Part 54 or Part 72 specific licensing proceeding, that storage of spent fuel during the term requested in the license application will cause significant safety or environmental impacts.

The requested change is supported fully by the analysis and discussion above. The last sentence is added to be consistent with 10 C.F.R. § 51.23(c), which provides that § 51.21(a) does not alter any requirement to consider environmental impacts during the requested license terms in specific reactor or spent fuel storage license cases. The NRC should not prejudge this review of potential safety or environmental impacts from storage during the requested license term in any pending or future licensing proceeding. *See Florida Power & Light Company (Turkey Point Nuclear Generating Plant, Units 3 and 4)*, CLI-01-17, 54 NRC 3 at 20, note 14. Therefore, any Waste Confidence finding and rule must allow for the possibility that, in a particular pending or future licensing proceeding, the impacts from storage of spent fuel during the requested term will be adjudged to be significant. This might be the case if, for example, an ISFSI were proposed to be located on a site posing a significant danger from aircraft crashes. If the impacts during the license term were adjudged to be significant, there would be reason to doubt the applicability of a generic determination (such as the one requested in this Petition) that the impacts occurring

after the requested license term would not be significant. To date, Nevada is not aware of any case where the environmental or safety impacts of storage during the license term have been finally determined to be significant, although in at least one case (a proposed new ISFSI) some serious issues have been raised.

## **VI. CONCLUSION**

The Commission should promptly notice receipt of this Petition in the Federal Register, and thereafter initiate a rulemaking proceeding to reopen the 1990 Waste Confidence decision and amend 10 C.F.R. § 51.21(a) as requested above.

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Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Attn: Rulemakings and Adjudications Staff

Re: State of Nevada Petition For Rulemaking to Amend the Commission's  
Waste Confidence Decision and Rule to Avoid Prejudging Yucca Mountain

Dear Madam Secretary:

Pursuant to 5 U.S.C. § 553 (e) and 10 C.F.R. § 2.802, enclosed for filing on behalf of the State of Nevada are an original and three copies of "State of Nevada Petition For Rulemaking to Amend the Commission's Waste Confidence Decision and Rule to Avoid Prejudging Yucca Mountain." The State of Nevada would appreciate your expeditious consideration of this matter.

Sincerely,



Martin G. Malsch  
Counsel for the State of Nevada

cc: The Honorable Brian Sandoval  
State of Nevada Attorney General

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