



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FEB 02 1990

NOTE TO: B. Morris
L. Shao
W. Minners

FROM: D. Ross

SUBJECT: REVIEW OF COMMENTS ON WASTE CONFIDENCE DECISION

There is a small effort that needs to be made by some RES staff on the subject. Specifically, it appears that Ed Throm (spent fuel pool); Don Cool (BEIR V); and Don Cleary (license renewal and environmental matters). NMSS may be contacting these individuals directly. R. Kornasiewicz has a copy of the material if you are interested. Draft responses are due to NMSS by February 22.

A handwritten signature in black ink, appearing to be "D. Ross", written in a cursive style.

D. Ross

cc: D. Cool
E. Throm
D. Cleary

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Department of Energy Comments on Proposed Changes to
10 CFR 51 (54 FR 39765-39767) and the
Waste Confidence Decision Review (54 FR 39767-39797)

General Comments

- o The Department supports the Commission's proposed changes in the waste confidence decision pertaining to the second finding, concerning the initial availability of a repository.
- o The Department supports the Commission's proposed changes in the waste confidence decision pertaining to the fourth finding which deals with the duration of safe spent fuel storage.
- o The Department also supports the Commission's conclusions in the proposed rule.
- o The Department concurs with the Commission's proposal to extend the cycle of review of the waste confidence decision from every 5 years to every 10 years.

Specific Comments

- o We agree, as pointed out in the analysis for the proposed fourth finding, that the possibility of a major accident with offsite radiological impacts at a spent fuel storage facility is extremely remote. To support this finding, NUREG 1353 has also examined the risk and consequences of a spent fuel pool accident which, in its analysis, appear to meet the public health objectives outlined in the Commission's Safety Goal Policy Statement, 51 FR 28044 (which states that the risk from an accident at a nuclear power plant shall be 0.1% of that normally encountered by the public).

- o Page 39780, Third Column, Third paragraph
It is stated that "DOE has the responsibility for designing the ISS and bearing the costs associated with it and NRC will be responsible for implementing it."

We agree that DOE has the responsibility for designing the ISS. It is unclear to us as to what is meant by "implementing it." The ISS rule (54 FR 14925) has indicated that the NRC, as ISS administrator, is responsible for the management and operation of the ISS.

The NRC envisions extending some reactor operating licenses for up to 30 years. Such license renewals would probably increase the total amount of spent fuel requiring disposal or interim storage. This potential increase in waste management requirements would be taken into account in DOE program planning. Also, cumulative impacts on waste management probably should be considered in the NRC's National Environmental Policy Act documentation for license renewals.

In August 1984, the NRC published an environmental assessment for this proposed revision of part 72 NUREG-1092, 'Environmental Assessment for 10 CFR part 72, Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste.' NUREG-1092 discusses the major issues of the rule and the potential impact on the environment. The findings of the environmental assessment are (1) past experience with water pool storage of spent fuel establishes the technology for long-term storage of spent fuel without affecting the health and safety of the public, (2) the proposed rulemaking to include the criteria of 10 CFR part 72 for storing spent nuclear fuel and high-level radioactive waste does not significantly affect the environment, (3) solid high-level waste is comparable to spent fuel in its heat generation and in its radioactive material content on a per metric ton basis, and (4) knowledge of material degradation mechanisms under dry storage conditions and the ability to institute repairs in a reasonable manner without endangering the health [and safety] of the public shows dry storage technology options do not significantly impact the environment. The assessment concludes that, among other things, there are no significant environmental impacts as a result of promulgation of these revisions of 10 CFR part 72.

Based on the above assessment, the Commission concludes that the rulemaking action will not have a significant incremental environmental impact on the quality of the human environment. [53 FR 31651 at pp. 31657-31658, August 19, 1988.]

Thus, the 1988 amendments to 10 CFR part 72 provide the basis for the Commission to conclude that the environmental consequences of long-term spent fuel storage, including non-radiological impacts, are not significant.

Finally, no considerations have arisen to affect the Commission's confidence since 1984 that the possibility of a major accident or sabotage with offsite radiological impacts at a spent-fuel storage facility is extremely remote. NRC has recently reexamined reactor pool storage safety in two studies, "Seismic Failure and Cask Drop Analyses of the Spent Fuel Pools at Two Representative Nuclear Power Plants" (NUREG/CR-6176) and "Beyond Design Basis Accidents in Spent Fuel Pools" (NUREG-1353). These studies reaffirmed that there are no safety considerations that justify changes in regulatory requirements for pool storage. Both wet- and dry-storage activities have continued to be licensed by the Commission. In its recent rulemaking amending 10 CFR part 72 to establish licensing requirements for an MRS, the Commission did choose to eliminate an exemption regarding tornado missile impact " . . . to assure designs continue to address maintaining confinement of particulate material." (53 FR 31651, p. 31655, August 19, 1988).

However, NRC staff had previously considered tornado missile impacts in safety reviews of design topical reports and in licensing reviews under 10 CFR part 72.

4.B. Relevant Issues That Have Arisen Since the Commission's Original Decision on Finding 4

In its original Finding 4, the Commission found reasonable assurance of safe storage without significant environmental impacts for at least 30 years beyond reactor OL expiration. Delays and uncertainties in the schedule for repository availability since the 1984 Decision have convinced the Commission to allow some margin beyond the scheduled date for repository opening currently cited by DOE. As noted in Finding 2, the Commission has reasonable assurance that at least one repository will be available within the first quarter of the twenty-first century. For all currently operating reactors, this would still be within the period of 30 years from expiration of their OLs, which the Commission previously found to be the minimum period for which spent fuel storage could be considered safe and without significant environmental impact.

Under the NWPAs as amended, DOE is authorized to dispose of up to 70,000 MTHM in the first repository before granting a construction authorization for a second. Under existing licenses, projected spent fuel generation could exceed 70,000 MTHM as early as the year 2010. Possible extensions or renewals of OLs also need to be considered in assessing the need for and scheduling the second repository. It now appears that unless Congress lifts the capacity limit on the first repository—and unless this repository has the physical capacity to dispose of all spent fuel generated under both the original and extended or renewed licenses—it will be necessary to have at least one additional repository. Assuming here that the first repository is available by 2025 and has a capacity on the order of 70,000 MTHM, additional disposal capacity would probably not be needed before about the year 2040 to avoid storing spent fuel at a reactor for more than 30 years after expiration of reactor OLs.

Although action on a second repository before the year 2007 would require Congressional approval, the Commission believes that Congress will take the necessary action if it becomes clear that the first repository site will not have the capacity likely to be needed. If DOE were able to address the need for a second repository earlier, for

example by initiating a survey for a second repository site by the year 2000, DOE might be able to reduce the potential requirement for extended spent fuel storage in the twenty-first century. The Commission does not, however, find such action necessary to conclude that spent fuel can be stored safely and without significant environmental impact for extended periods.

The potential for generation and onsite storage of a greater amount of spent fuel as a result of the renewal of existing OLs does not affect the Commission's findings on environmental impacts. In Finding 4, the Commission did not base its determination on a specific number of reactors and amount of spent fuel generated. Rather, the Commission took note of the safety of spent fuel storage and lack of environmental impacts overall, noting that individual actions involving such storage would be reviewed. In the event there were applications for renewal of existing reactor OLs, each of these actions would be subject to safety and environmental reviews, with subsequent issuance of an environmental assessment or environmental impact statement, which would cover storage of spent fuel at each reactor site during the period of the renewed license.

The Commission also notes that the amount of spent fuel expected to be discharged by reactors has continued to decline significantly. A trend already noted in the Commission's discussion of its Finding 5 (49 FR 34658 at p. 34687, August 31, 1984). At the time of the Commission's decision, " . . . the cumulative amount of spent fuel to be disposed of in the year 2000 [was] expected to be 58,000 metric tons of uranium" (see "Spent Fuel Storage Requirements" (Update of DOE/RL-82-17) DOE/RL-83-1, January, 1983). Today, that figure has declined to 40,384 metric tons (see "Spent Fuel Storage Requirements" (DOE/RL-88-34), October 1988, p. A. 17). Thus, the amount of spent fuel considered likely to be discharged by the year 2000 in the Commission's 1984 decision will not be attained until well into the second decade of the twenty-first century, if then.

The Commission believes that its 1984 Finding 4 should be revised to acknowledge the possibility and assess the safety and environmental impacts of extended storage for periods longer than 70 years. The principal reasons for this proposed revision are that: (1) The long-term material and system degradation effects are well understood and known to be minor; (2) the ability to maintain