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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

ADJUTANT GENERAL

In the Matter of)
)
CAROLINA POWER & LIGHT)
(Shearon Harris Nuclear)
Power Plant))
_____)

Docket No. 50-400 -LA
ASLBP No. 99-762-02-LA

**ORANGE COUNTY'S REPLY TO APPLICANT'S AND STAFF'S
RESPONSES TO BOARD'S INFORMATION REQUEST**

Introduction

As requested by the Board, the parties have addressed the relevance to Orange County's environmental contentions of the NRC Staff's Draft Final Technical Study of Spent Fuel Accident Risk at Decommissioning Plants ("Draft Study"), which was noticed at 65 Fed. Reg. 8,752 (February 22, 2000). Pursuant to the Board's Memorandum and Order (Requesting Additional Information) (March 21, 2000), Orange County hereby replies to Applicant's Response to Board's Request Regarding Relevance of Staff's Draft Final Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Plants (March 29, 2000) ("Applicant's Response"); and NRC Staff's Response to the Atomic Safety and Licensing board's Request for Additional Information (March 29, 2000) ("Staff's Response").

As discussed in the County's Response to Board's Information Request (March 29, 2000), the County finds that the Draft Study has limited relevance to its environmental contentions, but supports those contentions in some significant respects. In contrast, the Applicant states that the Draft study is "generally irrelevant" [Applicant's

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Response at 1] or “not relevant” [*Id.* at 2], while the Staff states that the Draft Study is “not directly relevant” or “at most, tangentially relevant.” Staff’s Response at 2. The Applicant and Staff then proceed to contradict these statements by arguing that the Draft Study does have relevance in certain respects, and they further contend that the Draft Study supports the rejection of the County’s contentions. These arguments are without merit.

Applicant’s Response

The Applicant asserts that the Draft Study is “generally irrelevant” to the County’s environmental contentions, but asserts that the Study makes “several points on other issues” that support the rejection of the contentions. Applicant’s Response at 1, 3. The Applicant first assigns significance to the Draft Study’s conclusion that “many make-up sources are available” to provide make-up water to offset a loss of spent fuel pool water due to evaporation, and argues that Orange County “completely fails” to address this point. Applicant’s Response at 3-4. The Applicant also cites the Draft Study’s conclusion that “a lot of time [is] available” to take recovery actions to offset a loss of pool water due to evaporation, and points to its own conclusions in this regard that even using the County’s analysis, four months would be available to offset pool water loss. Applicant’s Response at 4. According to the Applicant, the Decommissioning Study shows that the efforts to make up pool water would be further aided by various control room alarms and indicators, local temperature measurements, and eventually increasing area temperature and humidity. Applicant’s Response at 4-5. In this respect, the Applicant also charges that the County “has failed to provide a credible scenario wherein Harris operations would be unable to restore any of the numerous make-up water supply

systems to the Harris spent fuel pools at any time during the four month period following a reactor accident.” Applicant’s Response at 5.

This argument ignores two key points made by Orange County. First, the scenario posited by Orange County involves a degraded-core reactor accident, following which the Harris plant would be inaccessible for an extended period for purposes of monitoring the water levels in the spent fuel pools or making up water to the pools. Second, the Applicant’s claim that four months would be required to empty pools C and D by evaporation rests on an assumption that the heat load in these pools would be 10 MBTU/hour. In fact, the Applicant expects to upgrade the cooling system of these pools to accommodate a heat load of 15.6 MBTU/hour, and to do so as early as 2001. Consideration of only the lower heat load would constitute segmented decisionmaking, which is prohibited under NEPA. *See Orange County’s Reply To Applicant’s And Staff’s Oppositions To Request For Admission Of Late-Filed Environmental Contentions at 15-16 (March 13, 2000) (“Orange County’s Reply”)*. With a heat load of 15.6 MBTU/hour, pools C and D would be emptied by evaporation in less than ten days. *See Thompson Report at C-5.*

Moreover, in the scenario proposed by the County, pools A and B would dry out before pools C and D, due to the presence of recently-discharged fuel in pools A and B. Ignition of exposed fuel in pools A and B would be likely, again because of the presence of recently-discharged fuel. Thus, the Harris fuel handling building and surrounding area would become heavily contaminated with radioactivity released from fuel in pools A and B, further adding to the contamination resulting from a degraded-core reactor accident with containment failure or bypass. The total level of contamination would preclude

access by personnel for the purposes of providing water makeup or restarting cooling to pools C and D for an extended period, potentially many months.

The Applicant also argues that with respect to sabotage risk, the Draft Study “reiterates the essential Commission conclusion that the accident risk from sabotage cannot be quantified.” Applicant’s Response at 5. The Draft Study does not provide any new support for the Applicant’s view, but merely repeats the NRC Staff’s aged and well-worn mantra that sabotage events were not analyzed because “[n]o established method exists for estimating the likelihood of a sabotage event.” *Id.* at 35. The Staff’s continuing reliance on this outdated conclusion (which is now at least 15 years old) violates NEPA and its implementing regulations, which require that environmental impact statements must address significant new information and changed circumstances. 10 C.F.R. § 50.92. Available information regarding the means and potential for sabotage attacks has increased significantly since the NRC made its pronouncement 15 years ago regarding the difficulty of assessing the risks. In this regard, the fact that the U.S. Court of Appeals for the Third Circuit approved the NRC’s conclusion about the difficulty of assessing sabotage risks in *Limerick Ecology Action v. NRC*, 869 F.2d 719, 742 (3rd Cir. 1989) does not mean that the conclusion continues to be valid and supportable today. NEPA imposes a continuing obligation to examine the environmental effects of proposed actions in light of any new information or changed circumstances that presents a “*seriously* different picture of the environmental impacts” than was previously considered. *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 443 (4th Cir. 1996) (emphasis in original).

Moreover, the claimed difficulty of quantifying sabotage risk is no excuse for failing to address it in an environmental analysis; in such a case, the impacts may be addressed qualitatively. 10 C.F.R. § 51.71(d).

Given the obvious attractiveness of a large spent fuel pool inventory as a sabotage target, given the significant increase in the availability and capability of weapons, tools and knowledge that can be used for sabotage, and given the number and severity of actual sabotage events that have occurred in the past ten years, the NRC Staff has no legitimate or lawful excuse for continuing to refuse to address the significance of sabotage risks in an environmental analysis for the Harris license amendment. The Draft Study provides no further justification whatsoever.

The Applicant also argues that the Draft Study shows that the Staff is “aware of the accident risks associated with a postulated zirconium fire in a spent fuel pool,” and that this awareness is reflected in the Environmental Assessment for the Harris license amendment. This argument confuses the County’s claim. The issue is not the subjective awareness by the Staff of new information, but whether the Staff has addressed the new information and taken it into account in an environmental analysis. As demonstrated in Orange County’s Contention EC-1, the Staff’s NEPA analyses have consistently ignored important new information regarding the risks of spent fuel pool accidents.

Moreover, setting aside the problem that the Draft Study does not purport to be a NEPA analysis, it does not contain a complete or accurate enough analysis to cure the Staff’s failure to take into account the new information that has become available.¹ This

¹ In a footnote, the Applicant also argues that the Draft Study is relevant to Orange County’s Contention TC-2 because it concludes that qualitative risk insights demonstrate

is partly because the Draft Study focuses only on decommissioned plants and not operating reactors, and partially because the Staff continues to ignore the significant accident risks posed by partial drain-down of spent fuel pools. *See* Orange County's Response to Board's Information Request at 17.

NRC Staff's Comments

Like the Applicant, the NRC Staff also claims that the Draft Study is "not directly relevant" to the County's environmental contentions. Staff's Response at 1.

Nevertheless, the Staff tries to demonstrate that the Draft Study supports the rejection of the contentions in one key respect. The Staff claims that the Draft Study demonstrates that "BCOC's assertion that spent fuel that has decayed for as much as nine years is vulnerable to exothermic reactions is remote and speculative." Staff's Response at 4.

According to the Staff, the Draft Study determined that five years is the bounding age for susceptibility to exothermic reactions in spent fuel pools at decommissioning plants, and that after five years the risk of a zirconium fire is remote. *Id.*

This argument thoroughly confuses and misrepresents the County's position. The Staff's determination of a five-year boundary age for susceptibility to exothermic reactions in fuel pools is based on the assumption that the reaction will not occur until the

"conclusively" that spent fuel pool criticality poses no meaningful risk to the public. Applicant's Response at 2 note 2. As discussed in Orange County's Response to Board's Information Request at 3, this conclusion is not applicable to Harris as an operating reactor because it ignores the risk posed by the placement of low-burnup fuel assemblies in a pool where the licensee relies on credit for burnup as a criticality prevention measure. This class of event may be the most significant contributor to the risk of a criticality accident at the Harris plant. *Id.* At the Harris plant, there will be ongoing movement of fresh and low-burnup fuel within the fuel handling building, creating an ongoing potential for placement of low-burnup fuel in pools C and D. A similar potential does not occur at a decommissioned plant.

pool is completely drained. As Dr. Thompson has explained, however, his initial estimate is that partial drainage will lead to ignition of fuel aged up to 9 years, due to the fact that partial loss of water can be a more severe situation. *See* Orange County's Reply at 16. Dr. Thompson's preliminary analysis considers the initiation of exothermic reaction in fuel aged up to 3 years or up to 9 years. *See* Thompson Report at 8-9, D-9 - D-10. The shorter time would be for total drainage while the longer time would be for partial drainage. Given Dr. Thompson's detailed and repeated explanation regarding his analysis, it is difficult to fathom a reason for the Staff's continued distortions of the County's position.

Conclusion

The Applicant and Staff have failed to demonstrate that the Draft Study provides any grounds for rejecting the County's environmental analysis. Notably, they do not contest one of the central relevant conclusions of the Draft Study, which is that a spent fuel pool accident could have extremely severe consequences that could be completely avoided by the use of dry storage. Nor do they dispute the many respects in which the Draft Study acknowledges that the Staff lacks complete information regarding the risks of zirconium fires in spent fuel pools. Given the catastrophic potential consequences of a severe spent fuel accident, the relationship between the risk of severe degraded-core reactor accidents and the uncovering of fuel in fuel pools following such an accident, the many unknowns in the Staff's risk analysis regarding spent fuel pool accidents, and the fact that the risk of a severe spent fuel pool accident can be completely avoided through the use of dry storage, it is unjustifiable for the Staff to refuse to prepare an EIS that examines the comparative risks and benefits of spent fuel pool and dry storage at Harris.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Diane Curran". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Diane Curran

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CERTIFICATE OF SERVICE

I certify that on April 5, 2000, copies of the foregoing ORANGE COUNTY'S REPLY TO APPLICANT'S AND STAFF'S RESPONSES TO BOARD'S INFORMATION REQUEST were served on the following by e-mail and/or first class mail as indicated below:

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