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

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In the Matter of

UNITED STATES DEPARTMENT OF ENERGY  
PROJECT MANAGEMENT CORPORATION  
TENNESSEE VALLEY AUTHORITY

(Clinch River Breeder Reactor Plant)

Docket No. 50-537

NATURAL RESOURCES DEFENSE COUNCIL, INC.  
AND THE SIERRA CLUB MOTION TO  
RECONSIDER RULINGS ON CONTENTIONS

On April 22, 1982, at the urging of the Applicant and NRC Staff, the Licensing Board issued an Order severely limiting the scope or deferring until after the LWA decision Intervenor's contentions 1, 2, and 3, dealing with CRBR accidents as they affect the site suitability and NEPA analyses. The Board ruled that design-specific data pertaining

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to those issues were outside the scope of the LWA findings, deferred some of the contentions until the construction permit proceeding, and limited the scope of the remaining contentions to discussion of general design characteristics and the feasibility of designing CRBR to comply with not-yet-finalized criteria.

The primary bases for these rulings were the assertions of the Applicant and Staff at the Prehearing Conference of April 20, 1982, that for purposes of the LWA-1 proceeding, they would be relying only on the most general "design characteristics" (e.g. diverse, redundant shutdown systems), that they would not discuss the computer codes or probabilistic analyses already performed for the design-specific CRBR reliability program and other safety-related studies and that any such analyses were unnecessary at the LWA-1 stage. NRDC argued at length that review by NRDC of such analyses was necessary both to challenge the assertion that CDA's are not "credible" for purposes of 10 CFR Part 100 and to support the conclusions of the FES with respect to the probability and consequences of accidents beyond the design basis. As to the latter, we particularly pointed out that the Commission Policy Statement on Class 9 accidents required the NRC Staff to do a plant-specific analysis of the probability and consequences of CRBR accidents and that, therefore, the scope of the LWA-1 hearing would necessarily include the validity of that analysis. (See Tr. of April 20,

1982 at 555-558, 562-565.) Nonetheless our arguments were rejected, contentions challenging the validity of such analyses were deferred (Contentions 1(b) and 3(a), in particular) and all other contentions and discovery limited so as to preclude NRDC's probing of the bases for conclusions contained in such applicant studies as CRBRP-1, analyzing by fault-free methodology the probability of accidents for the CRBR design. This was done on the basis of the Applicants' and Staff's assertions that they would not rely on such work for the LWA-1. See, e.g., Tr. of Apr. 20, 1982 at 623-626.

NRDC has done its discovery and prepared its case within the strictures of the Board's orders on scope. We have done depositions and filed interrogatories. Up until July 19, 1982, both parties had resolutely refused to estimate the numerical probability of CDAs for the CRBR or for a reactor of the general size and type. Now, not only has the Staff presented such probabilities, it has done so on the basis of a CRBR design-specific review. On July 19, 1982, the Staff released for circulation and comment its Draft Supplement to the Final Environmental Statement for CRBR. The Supplement includes in Appendix J an Addendum to Section 7.1: "Plant Accidents Involving Radioactive Materials," which deals on its face with precisely the design-specific safety issues and probabilities of accidents at CRBR which the Board had ruled outside the scope of the LWA proceeding for purposes of NRDC's case.

Beyond this, NRDC has, as is discussed below, contacted by telephone the principal author of the probability estimates contained in Appendix J. He is an employee of Science Applications, Inc. ("SAI"), which prepared these estimates as consultants to the Staff. Incredibly, SAI was also the consultant to the Applicant which prepared the fault trees for CRBRP-1, the CRBR accident analyses and those fault trees were a primary basis, we have discovered, for the probability estimates in Appendix J.

#### Discussion

Intervenors' contentions 1, 2, and 3 go directly to: (a) the adequacy of the FES accident analysis and NEPA cost-benefit balance for CRBR, and (b) the suitability of the site under 10 CFR Part 100. With regard to both (a) and (b), Staff has repeatedly asserted that in the LWA-1 proceeding it would not rely on:

- (1) Applicants' reliability program;<sup>1/</sup>

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<sup>1/</sup> The basic objective of the so-called "reliability program" is to provide assurance that 10 CFR Part 100 guidelines will not be exceeded. CRBR PSAR at C.1-1. Because the safety systems at CRBR differ from those in other reactors, additional measures beyond the normal design process are required to provide such assurance. Quantitative reliability analysis plays an important role in the CRBR reliability program. Id. at C.1-7

- (2) computer code calculations of CDAs, other than the two codes (CRAC and TRAC) used to estimate radiation consequences for a given release, or
- (3) CRBRP-1 or similar probabilistic risk assessment (PRA) analyses.

See Transcript, April 20, 1982 Prehearing Conference, at 589-90, 610-11, 623-24, 626; NRC Staff's Answers to NRDC's Twenty Fifth Set of Interrogatories (6-18-82), at 4, 6, 9, 32. Applicants have made similar assertions. See, e.g., Transcript, supra, at 576, 591-92, 609-10.

A major component of NRDC's LWA-1 case under (a) and (b) above, as planned to date, is to show that CDA's are not incredible and must be considered for setting the source term determining site suitability and assessing accident risks pursuant to NEPA. Applicants and Staff have argued, on the other hand, that it is feasible to establish general design characteristics, such as diverse, redundant shutdown systems (as opposed to the safety-related systems) which will ensure that the initiation of a CDA is of such low probability that it can be excluded from consideration.<sup>2/</sup> Thus, they have assured

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<sup>2/</sup> Both parties have until the issuance of the FES Supplement consistently refused to associate any numerical probability even to the initiation of a CDA.





us, the computer codes and design-specific fault trees used to analyze the progression of a CDA once initiated would be irrelevant at the LWA-1 stage.

With publication of Appendix J of the Draft FES Supplement, the Staff has done precisely what it said it would not do. It has promulgated probabilistic CDA calculations which are both extremely similar to, and in part based upon, the CRBRP Safety Study, CRBRP-1. July 27, 1982 Telephone communication between Thomas Cochran and Ed Rumble, Science Applications, Inc. (SAI). In Appendix J, Staff now purports to claim credit for the conditional frequency of primary system failure per CDA. This value (asserted to be 0.1) together with conditional unavailabilities for containment failure modes ( $10^{-2}$  per demand) are used in the Staff derivation of bounding estimates of the frequency of core inventory releases to the environment (See Table J.2 p. J-8, Draft FES Supplement.) Staff purports to demonstrate that even if the probability of initiation of a CDA is  $10^{-4}$  per reactor year, the 10 CFR Part 100 dose guidelines will still be met. In order to derive the probability that a CDA, once initiated, would progress to a release of radioactivity in excess of Part 100 guidelines, the authors of Appendix J had to (and did) calculate the probability of failure of particular CRBR systems. The existence of Appendix J means Intervenor must refocus our LWA case to demonstrate that these calculations are not accurate,

reliable, or bounding. It also means that the Board must admit contentions previously excluded from the LWA hearing.

Intervenors' Contentions and Appendix J

The direct relationship between Staff's new Appendix J and those portions of Intervenors' contentions 1, 2, and 3 which have been deferred or limited by the Board's Order is demonstrated seriatim below.

Contention 1(a) directly questions the adequacy of Applicants and Staff assertions concerning the probabilities of CDAs. The Board has limited that contention, at the LWA stage, to:

- (1) the major classes of accident initiators potentially leading to HCDAs.
- (2) the relevant criteria to be imposed for the CRBRP
- (3) the state of technology as it relates to applicable design characteristics or criteria.
- (4) the general characteristics of the CRBRP design (e.g., redundant, diverse shutdown systems).

The Staff's new Appendix J is clearly not within the scope enunciated by the Board above. It discusses specific accident initiators for CRBR (albeit in a conclusory fashion) and estimates quantitative probabilities of their occurrence. Appendix J repeatedly refers to design-specific features of CRBR: "The coolant inlet region of the CRBRP core is being



designed to prevent large sudden flow blockage...."; "The CRBRP fuel design will be required to have an inherent capability to prevent rapid propagation of fuel failure from local faults."

Contention 1(b) directly questions the adequacy of Applicants' reliability program. The Board deferred litigation of that contention completely until after the LWA decision because it involved "detailed design review." In Appendix J, the Staff repeatedly offers Applicants' reliability program as a basis for its estimates of low frequency of CDAs:

This estimate [core degradation frequency due to LOHS events of less than  $10^{-4}$  per reactor year] is based on . . . the potential for achieving high reliability in final design and operation through an effective reliability program.

Draft FES Supp. at J-3 - J-4 (emphasis added).

This estimate [shutdown system unavailability of less than  $10^{-5}$  per demand] is based on . . . the feasibility of implementing an effective reliability program . . . .

Id. at J-4 (emphasis added).

Contentions 2(a)-(c) question the validity of the Staff's postulated radiological source term and whether it bounds the maximum credible accident for CRBR. The Board limited consideration of those contentions at the LWA stage as it limited contention 1(a), supra. Appendix J, with its probabilistic assessments of the likelihood of various CDA

events, obviously bears directly on what the Commission should consider the maximum credible accident to be. It is not limited to general design characteristics or mere design feasibility.

Similarly, the Board limited consideration of contention 2(d), which questions the adequacy of the containment design, the same as for contention 1(a), supra. Appendix J deals extensively with the containment design of CRBR, Draft FES Supp. at J-6 - J-11.

Contentions 2(f)-(h) question the validity of computer codes used by Applicants and Staff. The Board ruled they were the basis for discovery at the LWA stage, but deferred ruling on their ultimate admissibility at the LWA stage. In their responses to Intervenor's discovery on this issue, and at the April 20 Prehearing Conference, Staff has repeatedly stated that they would rely on no computer codes at the LWA stage other than CRAC and TRAC, which deal with radiological consequences of accidents once they occur. See, e.g., NRC Staff's Answers to NRDC's Twenty-fifth Set of Interrogatories (6-18-82), at 32: "[T]he computer codes listed in this interrogatory are not being used by the Staff as part of its LWA review." Among the codes listed in the interrogatory in question are SAS and SIMMER. These codes treat the progression of a CDA once initiated and are based upon the specific design of the CRBR. According to the individual who was apparently

primarily responsible for the probabilistic work in Appendix J, a review of all code calculations, including SAS, VENUS, and SIMMER, was used as the basis for the asserted conditional frequency of 0.1 per CDA for primary system failure which appears on Page J-6 of the Draft FES Supplement. July 27, 1982 Telephone Communication with Ed Rumble, SAI.

This is the first time that any numerical accident probability estimates have appeared at all. This fact alone should be more than enough to compel the granting of NRDC the opportunity to probe the bases for such estimates in discovery. However, it is perhaps more important that this is the first time, four weeks before the hearings are scheduled to begin, that a party has presented or indicated that it would present a numerical estimate of the conditional probability of 0.1 for CDA progression to primary system failure. As noted above, this estimate is specific to the CRBR and could only logically be so. The author of the estimate states that it is based on a review of the CRBR computer modelling. It represents a fundamental departure from the presumed scope of the LWA hearing and requires reconsideration of the Board Order.

Contention 3(a) asserts that neither Applicants nor Staff have done an adequate probabilistic risk assessment (PRA) for CRBR. The Board ruled that this contention should be completely deferred until after the LWA decision. Again, this is precisely the subject which the Staff treats in its new

Appendix J, and which it seeks to make part of its case in the LWA proceeding. Under the status quo, the Staff may introduce Appendix J as its PRA in support of its position in the LWA proceeding, but NRDC may not attack or seek to counter the material.

As Intervenors pointed out in the Prehearing Conference of April 20, 1982, Applicants have previously performed a PRA for CRBRP, called CRBRP Safety Study, CRBRP-1 (1977). See, e.g., Tr. of April 20, 1982 at 623. Intervenors sought to inquire into the validity of that study in our contention 3(a), but the Applicants and Staff insisted they did not intend to use it, so the Board ruled it was completely outside the scope of the LWA proceeding. The Staff has now come forward with just such a PRA in its case in chief--the FES.

The irony of the situation is doubly acute because, as we discovered on July 27, 1982 through a telephone call, the same private contractor, Science Applications Incorporated (SAI), is responsible for both the "backbone"--the event trees--of the CRBRP Safety Study for Applicants (CRBRP Safety Study at 2-6, 2-9), and apparently also the major contribution to the PRA contained in the Staff's Appendix J (July 27, 1982 telephone communication with Ed Rumble, SAI). Aside from the implications for NRC's "independent review" of the same contractor (apparently even the same people) doing the PRA analysis for both Applicants and Staff, the Board must

recognize the inequitable situation in which Intervenor find themselves. The Staff is apparently free to use SAI's probabilistic risk assessment for CRBR in its primary submission for the LWA proceeding, but Intervenor are forbidden by the April 22 order to obtain discovery or inquire into the validity of that work or similar work.

The same situation applies for Intervenor contentions 3(b), 3(c), and 3(d). Those contentions question the adequacy of analysis of accident initiators, sequences, human error contributors, and mitigation. The Board limited consideration of all these issues as for contention 1(a). Once again, Appendix J deals extensively with or implicates these very issues as part of its PRA.

### Conclusion

As explained above, the effect of the new material presented in the FES Supplement has been to radically redefine the scope of the LWA proceeding to the severe prejudice of NRDC. Our contentions, which directly challenge the very propositions addressed in Appendix J, were limited to consideration of design feasibility or deferred altogether because they were deemed beyond the scope of LWA findings. If Appendix J is within the scope of the LWA proceeding, then as a simple matter of equity NRDC's contentions 1, 2, and 3 should be deemed within the scope

as well. In addition, NRDC must be given a reasonable opportunity for discovery and the preparation of its case.

As a matter of procedural due process, the fundamental requisite is an opportunity to be heard, and the hearing must be at a meaningful time and in a meaningful manner, Goldberg v. Kelley, 397 U.S. 254 (1970), Parratt v. Taylor, \_\_\_\_\_ U.S. \_\_\_\_\_, 101 S. Ct. 1908 (1981). For the Board to insist on pressing forward with these hearings as presently defined and scheduled is to deny Intervenors a hearing at "a meaningful time", see Motion to Reschedule Hearings. To insist on the current limitations on Intervenors' contentions in light of the recent developments concerning the supplemented FES is to deny Intervenors a hearing in "a meaningful manner."

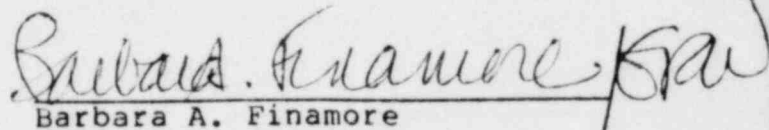
Intervenors move the Board to reconsider its April 22, 1982 rulings on Intervenors' contentions 1, 2, and 3 in light of the new additions to Staff's case represented by the Draft FES Supplement in general and Appendix J of that Supplement in particular. Intervenors should be permitted to obtain discovery and fully litigate those contentions in the LWA proceedings. Intervenors should also be permitted to add new contentions based on the newly supplemented FES, and obtain discovery on them. It flows automatically from these developments that the hearings cannot commence as scheduled on August 23. It is simply unconscionable to expect NRDC to



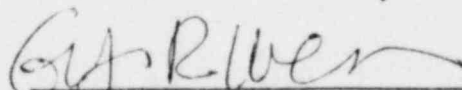
proceed with that schedule in light of the profound effects of these developments on our case. See Intervenor's Petition to Reschedule Hearings.

In the alternative, as a matter of basic due process and fundamental fairness, if the Board chooses not to reconsider Intervenor's contentions or permit introduction of new contentions, the Board should rule that Appendix J of the Draft FES Supplement as well as all other changes to Chapter 7 of the FES will not be admitted in evidence at the LWA proceeding because they are outside the scope of that proceeding. Such a ruling would at least result in Staff and Intervenor's being on comparable footing as concerns the scope of our respective cases at the LWA proceeding.

Respectfully submitted,



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Dated July 29, 1982

CERTIFICATE OF SERVICE

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I hereby certify that copies of NATURAL RESOURCES DEFENSE COUNCIL, INC. AND THE SIERRA CLUB MOTION TO RECONSIDER RULINGS ON CONTENTIONS were served this 29th day of July 1982 on the following:

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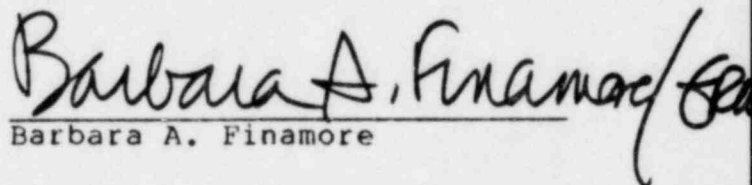
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