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BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges
Marshall E. Miller, Chairman
Dr. Cadet H. Hand, Jr.
Gustave A. Linenberger, Jr.

OFFICE OF SECRETARY
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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-CP

NRDC RESPONSE TO NRC STAFF'S MOTION FOR LEAVE TO FILE
SUPPLEMENTAL AFFIDAVIT OF LEWIS G. HULMAN

NRDC and the Sierra Club make the following comments in response to to "NRC Staff's Motion for Leave to File Supplemental Affidavit of Lewis G. Hulman," dated September 13, 1983.

The Staff has offered Mr. Hulman's testimony (Tr. 8505-8509) as supplemented in his Affidavit of September 13, 1983, to support the Staff's claim that

NRDC's estimates of the consequences of HCDAs are without support in the record; NRDC's first order approximations or 'adjustments,' for meteorological factors, to Applicants' and Staff's dose calculations, are simply incorrect

and that

[a]s NRDC concedes, changing the 300 rem dose guideline value to account for infant exposure or the Marshall Islands data would constitute a challenge to the Commission's regulations. Exh 125 at 4, TR 7656; 10 C.F.R. § 2.758; S W Hulman, TR 8505. As to basing dose

calculations on infants, 10 C.F.R. Part 100 refers to TID-14844 for guidance concerning such calculations, and that guidance, which the Staff has consistently followed, is based upon adults. A W Strawbridge, TR 7715; S W Hulman, TR 8504.

NRC Staff's Revised Proposed Opinion, Findings of Fact and Conclusions of Law (Construction Permit), Sept. 13, 1983, pp. F-86 - F-89, footnotes omitted.

The Staff has misinterpreted the Limited Appearance Statement of Dr. Thomas B. Cochran Regarding Issues Raised in the Construction Permit Proceeding (July 8, 1983) ("NRDC's limited appearance statement"), and consequently Mr. Hulman's revised testimony is in part incorrect, in part misleading, and fails to support Staff's Revised Proposed Findings of Fact.

First, it should be understood that one of the purposes of the NRDC limited appearance statement was to update, on the basis of new data from the Staff, the calculations presented by the Intervenors in the LWA proceeding with regard to the radiological consequences of a CDA and the implications this has for (a) whether the CDA should be within the DBA envelope, and (b) whether the site is suitable under 10 CFR Part 100 requirements.

Second, contrary to Mr. Hulman's revised testimony and Staff's Revised Proposed Finding of Fact #102, NRDC is not challenging Commission regulations. Rather, NRDC is challenging the Staff's use of the adult thyroid as the critical organ when judging whether potential exposures are in excess of 10 CFR Part 100 guidelines.

When 10 CFR Part 100 was implemented, and when TID-14844 was written, experts did not realize that the infant thyroid was more sensitive than the adult thyroid (i.e., would receive a higher dose than the adult thyroid for inhaled iodine), and there were no infant or child thyroid models in use. Since the early 1960s, the sensitivity of infant thyroids to inhaled radioiodine has become apparent. Every agency of the federal government, including EPA, DOE, and the Commission, recognize this. The Commission calculates the dose to infants or children as well as adults to determine the dose to the maximally exposed individual, with respect to compliance with 10 CFR Part 20, 10 CFR Part 50 Appendix I, and NEPA. While Mr. Hulman takes the position that it has not been the Staff's practice to examine the infant thyroid in accident analyses when it is the critical organ, the Staff's failure to examine the infant thyroid in this case reflects a failure of the NRC's Accident Analysis Branch (which Mr. Hulman directs) to conform to appropriate and accepted health physics practices.

Third, Mr. Hulman completely misses the point of NRDC's limited appearance statement when he concludes, "Dr. Cochran disagrees. His argument seems to be that you should use the same assumptions that you use for design basis accidents" (TR 8506).

An objective of NRDC's limited appearance statement was to show that using "realistic" assumptions, analogous to the assumptions used in environmental impact statements, the probability of doses exceeding 10 CFR Part 100 guidelines values

from a CDA at CRBR was greater than 10^{-6} per year, the stated objective in the 1977 FES at p. 7-2 -- an objective that was not altered with publication of the FSFES in 1982. Actually, for external events, the Standard Review Plan, Section 2.2.3, requires that realistic estimates of exposures not exceed 10 CFR 100 guidelines 10^{-7} per year, and the probability of occurrence of potential exposures in excess of 10^{-6} per year is permitted only when making conservative calculations.

To test whether doses exceed 10 CFR Part 100 guidelines with a probability greater than 10^{-6} (or 10^{-7}) per year, one can treat the question in terms of a joint probability, i.e., whether

$$P_A \cdot P_B > 10^{-6}/\text{yr}$$

where P_A = Probability of a CDA

P_B = Probability of doses exceeding 10 CFR 100 given a CDA.

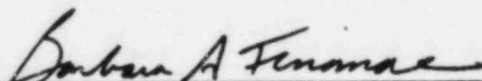
In NRDC's limited appearance statement, we started with Staff and Applicants' independent estimates that the probability of a CDA was 10^{-4} per year, i.e., $P_A = 10^{-4}$.

The remaining question, given a CDA, is whether the probability of exposures exceeding 10 CFR 100 is greater than 1 in 100. In NRDC's limited appearance statement, we simply argued that, if one assumes a 50% X/Q and calculates an adult thyroid dose of 192 rem, the probability is greater than one in 100 that the meteorology will be such that the 300 rem adult thyroid dose is exceeded. Consequently, a CDA should be a DBA for CRBR. NRDC further argued that the infant thyroid dose should be treated as the critical organ -- the FES and the Standard Review Plan do not

say "children don't count." If the infant thyroid is examined, then the probability of exceeding 300 rem to the thyroid, given a CDA at CRBR, is greater than 50%.

Mr. Hulman's efforts to explain whether 95% (or 5%) X/Q means meteorology that is found not to be exceeded 5% of the time or 0.5% of the time (TR 8509) is interesting and informative, but completely beside the point.

Respectfully submitted,


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Dated: September 26, 1983

CERTIFICATE OF SERVICE

I hereby certify that copies of NRDC RESPONSE TO NRC STAFF'S MOTION FOR LEAVE TO FILE SUPPLEMENTAL AFFIDAVIT OF LEWIS G. HULMAN were served this 26th day of September 1983 by hand* or by first class mail upon:

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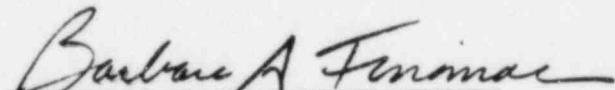
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