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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

July 30, 1984

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Glenn O. Bright  
Dr. James H. Carpenter  
James L. Kelley, Chairman

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In the Matter of

CAROLINA POWER AND LIGHT CO. et al.  
(Shearon Harris Nuclear Power Plant,  
Unit 1)

Docket 50-400 OL

ASLBP No. 82-468-01  
OL

Joint Intervenor's Response to Applicants' "Motion  
for Reconsideration or Clarification ..."  
on Joint Contention IV (TLDs)

Applicants (Motion at 5) make four claims about the Board's  
past ruling on Joint Contention IV, which we read as denying summary  
disposition on part(1) of that contention. <sup>4-13-84</sup> (Board Order at 20:  
"For the reasons outlined above, the Board finds an issue of material  
fact; namely, does compliance with the 1983 ANSI Standard insure  
compliance with the NRC regulations ... alternatively, there is an issue  
of material fact whether the TLDs to be used at the Harris facility  
nevertheless can be used to measure occupational doses with  
sufficient accuracy to comply with NRC regulations. ...  
Summary disposition for this issue is denied."

Joint Intervenor's respectfully deny all four of Applicants' claims.  
As to the first claim that the "Board erred in raising the compatibility  
of 10 C.F.R. Part 20 and the proposed NRC rule as a sua sponte issue",  
we do not read the Board as having acted sua sponte. Joint Intervenor's  
raised the argument (6 February 1984 Response to Summary Disposition at  
6-7): "The kinds of errors we allege, and the percentages, are real ...

<sup>1</sup>The Board adopted the Staff's dissection of Joint IV into 4 parts,  
4-13-84 Order at 2.

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(CP&L affiant) Browne and the NRC give the percentages; NUREG/CR 2891 shows errors. ... With errors of  $\pm 50\%$  as Applicants assume is OK, the cumulative dose of an individual is a blur, not an accurate number. We believe ALARA means what it says: "As Low As Reasonably Achievable. To lower the exposure, you've got to know the exposure."

This, we believe, is the question the Board left open as disputed in fact. The Board stated (4-13-84 at 16):

The essential issue, from the Board's point of view, is that reasonable worker radiation protection and demonstrations of regulatory compliance are not compatible with the acceptance of performance with a standard deviation of 0.5. A conventional interpretation of the 0.5 standard deviation would be that, at the 95% confidence level, an individual dose estimate would be uncertain by  $\pm 100\%$ .

A range of  $\pm 100\%$  in data is very blurry indeed, and we think the Board stated the problem quite clearly here. The Board continued in a way we believe compatible with our raising the ALARA issue:

This range or latitude does not comport with the Board's reading of the regulations as calling for controlling radiation doses to workers with a resolution to integer values at one rem and above. (id.)

While Joint Intervenors might argue for an even stricter interpretation of the NRC regulations, we believe the Board's position is clearly based on those regulations and a Staff position (Id. at 8-9). The Board stated after these findings on the regulations and a discussion of the Staff and CP&L affiants' positions on dose uncertainty "We return to the Joint Intervenors issue that 'TLDs are inaccurate' from a perspective that inaccuracy should not exceed 50 percent for doses of a few rem from both the regulatory and biomedical points of view..." This is quite compatible with the argument we raised in our response at 6 where we raise the question of "errors which ... fall outside the  $\pm 20\%$  or  $\pm 30\%$  or  $\pm 50\%$  the rules require". We believe the Board's language, its detailed analysis of issue "(1)" (inaccuracy) in Joint Contention IV (some 12 pages, pp 7-20 in the 4-13-84 Order), and its reasoning, e.g. as cited above from pp 16 and 20, show that the Board found here a genuine issue of material fact which we had raised.

That is not sua sponte.

Applicants' second claim is that it was inappropriate to resolve this issue through the hearing process when it is also in a rulemaking. Joint Intervenors have noted we believe there is no conflict with the rulemaking in this contention. As admitted by the Board, the contention would focus on either whether compliance with the 1983 ANSI standard (± 50%) insures compliance with the NRC regulations OR whether the TLDs to be used at the Harris facility nevertheless can measure occupational doses "with sufficient accuracy to comply with NRC regulations". (4-13-84 at 20) This means, to us, that even if the rule were adopted, there remains the issue of whether the TLDs to be used at Harris comply with the NRC regulations. Since the regulation itself, as proposed, includes the ± 50% limit but does not change the other NRC rules cited by the Board in its extensive analysis of the "inaccuracy" issue in Joint Contention IV, there is a question of consistency of the Rules. Since the proposed rule doesn't change the Rules the Board based its ruling on, there would remain the same issue of fact whether or not the rulemaking adopts or rejects the proposal.

In sum, we argue that the proposed Rule does not affect the issue the Board preserved for hearing in Joint contention IV. Even if it did, we argue that the proposed rule has not been issued, and NRC lacks authority to issue the license for the Harris plant without resolving the TLD-inaccuracy issue.

Applicants' third and fourth claims (that the "issue is immaterial" and that the Board had a "misunderstanding of" the regulations in 10 CFR Part 20) are simply wrong. The contention alleges "Because <sup>of</sup> TLD inaccuracies ... these devices are inadequate to assure worker safety and health" as "the dosimeter of record" at Harris. That's very relevant. Applicants misinterpret the Board, we believe, in citing the Board's Order at 19 re materiality. They say (Motion, 7/18/84, p.13) "the Board found that Applicants are capable ... of meeting the implicit standard

of accuracy that the Board reads (in)<sup>2</sup> 10 CFR Part 20."

But what the Board actually said was "As the Board has outlined above, we believe that the NRC regulations require that personnel dosimetry be carried out in such a manner that the results can be relied on to be accurate to integer values or one significant figure for doses of a few rem. ... That such performance is reasonable and not beyond limitations dictated by available measurement techniques is demonstrated by the performance of CP&L outlined above." This was performance on a test, not performance in fact. The question raised by us and accepted by the Board is (p.20) the accuracy that the rules require in fact.

Finally, we believe the Board's reasoning in interpreting 10 CFR part 20 is reasonable and detailed and clear (See discussion on pp 1-3 supra). Applicants admit (Motion, p.14) that the new proposed rule on dosimetry is "supplementary to, rather than a replacement for, the current regulations". Thus, if the Board's view of the current regulations is valid, the new proposed rule should have no effect on this issue (our argument above, p.3, re challenge-to-rulemaking claim of Applicants).

Applicants then go on to argue, (p.15) that even smaller variations in dose (e.g. 1/4 rem) are of "regulatory significance". This is a stronger position than that of the Board as we read it, and would require even stricter accuracy of TLDs in our view. Applicants continue by pointing out that a licensee "can be fined for exceeding the ... limit by any amount ..." which again argues for more accurate readings of radiation exposure for the protection of the licensee. Applicants' argument here really supports the Board, and seems to misread it.

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<sup>2</sup>Applicants use the phrase "reads into", but we believe it is clear that the Board used detailed reasoning to find the inaccuracy issue IN 10 CFR Part 20 and accompanying information. Board 4-13-84 Order at 8,9, 12, 16, 19-20.



Applicants "support" for the Board's position comes from their points of how 10 CFR 20 and other rules may require greater accuracy in radiation dose measurements for nuclear workers.

Their misreading, in our view, is concentrating on the "integer value" accuracy that the Board discusses, in a way that makes it look like the Board was requiring doses to only be reported in 1 rem increments. We think, to the contrary, the Board was ~~xxxxxxx~~ saying that a resolution of dose to the nearest rem or to better accuracy, was required under the NRC rules. Certainly a  $\pm 50\%$  standard deviation on any measurement allows a  $\pm 100\%$  variation in its value, within the standard 95% statistical confidence limits. At any dose above 1 rem, then, this sort of measurement inaccuracy will not permit resolution of doses to the nearest rem at all. This is the sort of blurred information we claimed (response 2-6-84 at 7) left the dose records as a "blur". We think the Board was clear in its statements, and to the extent Applicants Have not misinterpreted the Board's position, their argument here supports a requirement of at least as great dose measurement accuracy as the Board reads in 10 CFR part 20.

#### CONCLUSION

For the above reasons, Applicants' arguments are all in error, and the Board's decision of April 13, 1984 should stand. We believe that if the Board should find clarification appropriate, we could also benefit from it re the scope of possible testimony, which we read as addressing BOTH issues described by the Board on April 13.

Respectfully submitted,

*Wells Eddleman*  
Wells Eddleman

for himself and Joint Intervenors

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NUCLEAR REGULATORY COMMISSION

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CERTIFICATE OF SERVICE

I hereby certify that copies of Joint Intervenors Response to  
Applicants' "Motion for Reconsideration or Clarification ..."  
on Joint Contention IV (TLDs)

HAVE been served this 30 day of July 1984, by deposit in  
the US Mail, first-class postage prepaid, upon all parties whose  
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