

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

17 January 1984

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

In the Matter of

CAROLINA POWER AND LIGHT CO. et al.
(Shearon Harris Nuclear Power Plant,
Units 1 and 2)

Docket 50-400 OL

ASLEP No. 82-468-01
OL

Wells Eddleman's New Contentions and Amended Deferred
Contentions in Response to Staff SER

On 16 December 1983 I received the Staff's "Safety Evaluation Report" (SER) for the Harris nuclear plant. Today being 30 days from that date (Jan. 15 being a Sunday), I hereby file new and amended ^{one-day extension OK'd 1-16 by Barth (Staff), Barth (CP&L) + Judge Kelley} contentions based on new information in the SER; the problems caused for Eddleman 107 (deferred, 9/22/82 Board order at 66-67) by the Staff's failure to comply with ALAB-444 (requiring the Staff to set forth its "perception of the nature and extent of the relationship between each significant unresolved generic safety question and the eventual operation of the reactor under scrutiny" in the "SER itself -- without the need to resort to extrinsic documents", are addressed in a separate motion filed today.

The five factors (2.714 of 10 CFR) for contention 107 and those depending on it are basically the same as those filed 7-29-83/ ^{see pp 2-9} for my DES contentions. Under the Board's 9-22-82 order deferring contention 107 to the SER stage, I'm allowed to file now, and that's good cause. Under the Board's 3-10-83 Order (P.15) I can revise the contention in the light of the SER, and that's also good cause. No one else is pursuing generic unresolved safety issues contentions, so no one else

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can represent my interests on these matters (ditto for other matters raised in new contentions based on the SER), nor are there other means whereby my interests on any of these matters "will be represented." Eddleman 107 was raised at the outset of this proceeding so it cannot broaden the issues; admitting any of the new contentions at this time is not likely to significantly delay the proceeding since these are safety issues, and discovery on safety issues (other than those Applicants may seek summary disposition on) has only just begun.

Without a contention on these issues, there is no record, and without a record there is no sound record. Issues important to safety, which the Staff SER has inadequately addressed, should be resolved to provide a sound record. My participation will include discovery and cross-examination on these issues, which I have demonstrated the ability to conduct, and possibly witnesses, subject to their availability and my finances.

As to new contentions, good cause for filing now, what's new in the SER, why it couldn't be filed earlier, and any other matters where the 5 factors or other required justification for admitting such contentions now may differ from the above, will be discussed after the contention(s) involved. The timing issue (delay of proceeding), the contribution to a sound record, and the pursuit of such contentions by other parties and availability of other means to protect my interests, for new contentions herein, are the same as shown above, with perhaps a few details to add after the contention(s).

CONTENTION 107-X: Harris SER Appendix C fails to comply with ALAB-444's requirement to make clear from the SER itself -- without reference to extrinsic documents -- the Staff's position on the relationship of generic unresolved safety issues to Harris. E.g. on Task A-40 (p.C-11) they reference the FSAR. For Task A-3, NUREG-1014 (P. C-9) For task A-1, the Staff gives no calculations nor shows any of its A-1 analysis to support the probability of

safety-significant water hammer being low. For task A-17, they reference Sandia studies but don't tell how these relate to Harris.

Contention 107-Y: The same noncompliance with ALAB-444 alleged in Contention 107-X also applies to the Staff's discussion of task A-43 (citing NUREG-0897 and NUREG-0869 and a draft regulatory guide); A-44 (staff review not to be complete until some time before fuel load, p.C-13); A-45 (reference to "certain actions" required per NUREG-0645, not specifying any of them, p.C-16); A-47 noting that "detailed" studies to support this belief "have not been performed" (p.C-18) and that "additional information is required for the resolution of this issue; A-49, reference to Guthrie formula in SECY 82-465 section 3.3.

107-Z:

Staff omits the Maine Yankee water hammer event of early 1983 (reported to Congress as a significant safety problem, 1983, by NRC, NUREG-0090) in discussion of Task A-1, Waterhammer, pp C-7/8 of SER. Nor is there discussion there of the Westinghouse D steam generator "fix" which requires 128% of feedwater going thru the AFW nozzle, relates to causation or effects of waterhammers at Harris. This analysis is inadequate to assure that safety-related waterhammers will not occur at Harris and that cooling the core and RCS boundary integrity will be adequate with waterhammers.

New contention 173: The SER (section 8.2.1 pp 8-1/8-2) fails to analyze common causes of failure of all power lines supplying Harris such as earthquakes, tornadoes, ice storms, hurricanes, extraordinary winds, terrorism or transformer fires in the Harris switchyard. CP&L admitted to the ACRS 1-12-84 that they have only analyzed tornadoes among common causes of failure of all 7 lines to Harris. Terrorism or earthquake in particular could also disable the Harris diesels and knock batteries out of their racks, removing both backup power sources, leaving the plant uncoolable.

WHAT'S NEW: Utter failure of Staff to consider these common-mode failures in the SER, plus CP&L's 1-12-84 admission that they have only considered one of them (tornados). The SER should leave as open items those matters not adequately taken care of by Applicants (or by Staff analysis to date), but the SER has no open item on this. The SER's Loss of Offsite Power analysis (p. C-13) depends on the accuracy of analysis in Section 8.2 of the SER. That analysis is faulty.

WHY COULDN'T FILE EARLIER: The basis of the contention, i.e. the faulty analysis in the SER and CP&L's admission of not having analyzed common-cause failure of power lines (other than tornados, probability estimated at 2×10^{-4}) were not available. Without this information, a contention formulated earlier would likely have been rejected for lack of basis, and perhaps for lack of specificity also. (Cf. 9/22/82 Order of this Board at 5). Staff's actual failure to carry out its responsibilities in safety evaluation for Harris was not available information until the SER was in my hands.

5 factors (as they differ from those listed on p.2 and discussed on 1-2 above): This contention does broaden the issues, but only a little since there are many safety questions already at issue. Good cause for failure to file on time is in the paragraph directly above. Discovery is just beginning on safety issues, so admission of this contention will not result in significant delay. On balance, the other factors outweigh the minor possible delay and minor broadening of issues that admitting contention 173 now would entail.

Contention 174: 10 CFR 100 App. A part V says "The vibratory ground motion at the site should be determined by assuming that the ... locations of highest intensity of the earthquakes are situated at the point on ... the tectonic provinces nearest the site"(cf. 10 CFR 100 App A, V(1)(iii)). SER Appendix F shows that

the 1886 Charleston quake (M. Mercalli X) is in a similar tectonic province to the location of the Harris plant, not associated with particular geologic features at Charleston. SER fails to analyze an MM X quake occurring at the SH site or closer than Charleston, ~~and it is not clear that the Harris plant is in a similar tectonic province to the location of the 1886 Charleston quake~~ SSE: non-compliance with 10 CFR 100.

Contention 175: In light of the US Geological Survey position taken in SER Appendix F, occurrence of a modified Mercalli intensity X earthquake (like that at Charleston in 1886) at or near the Harris site is possible. USGS says tectonic features of the Charleston region are similar to those in other regions of the Eastern seaboard. 10 CFR 100 App. A V makes no reference to the probability of quakes to be analyzed, but requires an SSE equal to the most severe historic quake, at the point in the tectonic province nearest the plant. Without an SSE of MM X or close to it, the SER doesn't comply with 10 CFR 100 Appendix A, V (1)(iii).

Contention 176: In light of the US Geological Survey position taken in SER Appendix F, the Harris operating basis earthquake (OBE) analyzed in the SER is not severe enough. 10 CFR 100 Appendix A V (2) requires that the OBE have at least half the vibratory ground motion of the SSE (Safe Shutdown Earthquake), which in light of the USGS letter is Modified Mercalli X at or near the Harris plant site. The SER fails to analyze such an OBE for Harris or show that the plant can safely withstand it.

Contention 177: The SER fails to establish that Harris can withstand safely an SSE consisting of a Modified Mercalli X earthquake at or near the Harris site, which is what compliance with 10 CFR 100 App V 1(iii) requires in light of the US Geological Survey position in SER Appendix F. USGS shows that the same tectonic province that includes Harris ~~includes the 1886 Charleston quake~~ includes the 1886 Charleston quake which is not related to

specific geologic structures therein. Withstanding an SSE is necessary for Harris to be safe against severe nuclear accidents, e.g. multiple pipebreaks with RCP's breaking loose, inoperable, with containment failure.

NOTE: I've tried my best to hold these under 100 words, but things like "10 CFR 100 Appendix V(1)(iii)" are necessarily long and need to be quoted for specificity.

5 factors for contentions 174 thru 177 as they differ from those on pp 1-2 above): These contentions do broaden the issues now being litigated. tho the earthquake issue was raised at the outset in parts of rejected contentions. Admission of these, since they are safety issues, will not significantly delay the proceeding since discovery on safety issues has just been opened. Good cause for failure to file on time is that the basis, the SER's violating the analysis requirements of 10 CFR 100 as cited in the contentions 174-177, did not exist until the SER came out. It would have required extraordinary clairvoyance to foresee not only the USGS letter (10-1982) but also the SER's failure to use 10 CFR 100's requirements in addressing it, in May 1982 when contentions were due for this case.

WHAT'S NEW: SER failure to comply with 10 CFR 100 App. A part V requirements for SSE or OBF.

WHY COULDN'T FILE EARLIER: Basis did not exist. How was I to know that the Staff would ignore NRC regulations? The rules do not say anything about probabilities, just the most severe earthquake associated with the tectonic province Harris is in. The Charleston quake is the most severe quake associated with the tectonic province which, according to the USGS letter in SER Appendix F, comprises the US Eastern seaboard. Thus it should have been used at the Harris site (nearest point of that province to Harris) to set the SSE and OBE. Without the SER itself, no valid basis

existed to show that the Staff would screw up in this way. Such a contention formulated before the SER could thus have been rejected as mere speculation. The Harris plant being designed for a recurrence of the Charleston quake at Charleston (in terms of seismic design), a closer quake can clearly damage it severely, so the Staff is logically required by 10 CFR 100 to analyze this event in its Harris SER. When they failed to do so, contentions 174 thru 177 become possible to specify with basis. Also, the specificity of the failure alleged in each of these contentions by the Staff, depends directly on the SER and Appendix F's use of rationalizations and probabilistic arguments as to why the Staff doesn't look at more intense quakes as they affect the Harris design. But 10 CFR 100 Appendix A V does not depend on probability. This specific failure, which is included in specifying each of the contentions 174 thru 177, could not have been predicted in advance of the SER, and certainly not with adequate basis until the SER came out.

Contention 178: The SER^{2.8-4} fails to show that the pattern of QA failures, violations and deficiencies, inadequate dynamic analysis (e.g. improper forcing functions), cracking of cylinder heads and/or crankpins, and use of inadequate materials and work in Transamerica DeLaval Inc diesel generators at Harris will not make the diesels unable to operate when needed for emergency power (e.g. after common-mode AC powerline failures caused by ice, wind, tornado, earthquake), thus depriving the Harris plant of long-term emergency power, beyond approx 5 hour battery life. No power, no safety injection or coolant pumping: risk of severe accident without mitigation.

WHAT'S NEW: SER failure to analyze these failures and show they won't have impact on Harris.

WHY COULDN'T FILE EARLIER: Basis in SER did not exist.

5 factors as they differ from those on pp 1-2: Wont broaden issues much since so many safety problems are already at issue. Was raised earlier (contention 134) as general diesel construction and operation problem, rejected for lack of ~~basis~~ ^{specifics. Above specifics didn't exist}. Basis in TDI 5-14-82. failure record was not known 5-14-82; until I received Thomas M. Novak NRC's letter (rec'd Dec 19 '83, dated Dec. 1) to Clinton S. Matthews of TDI with Harris service list attached, I had no solid basis to relate the TDI failure pattern directly to Harris. Those are the reasons ~~x~~ this contention wasn't filed on time and couldn't be with acceptable basis and specificity. Again, since safety contention discovery is just beginning, such a contention being admitted would not significantly delay the proceeding. On balance, the 5 factors favor admission of Fddleman 178.

Contention 179: Based on NRC's letter to Transamerica Delaval (rec'd 12-19-83, dated 12-01-83), TDI's record of QA failures, violations and deficiencies, use of inadequate and defective materials and inadequate dynamic analysis in and for its diesel generators, applies to the Harris diesels. GDC 17, 18, 33, 34, 35, 38 and GDC 1 and Appendix B of 10 CFR 50 require reliable operation of emergency ^{/or} diesel generators. In light of TDI's massive failures and ~~NRC's~~ concerns about them, Harris ~~dm~~ diesels aren't shown to comply with the above NRC ~~xxx~~ regulations, needed to keep the core cooled, containment ~~xxxxxx~~ sealed, and meet 10 CFR App. B III, V, X, XI and XIV requirements.

Note: This contention does not depend on the SER but on the letter I received 12-19, less than 30 days ago. WHAT'S NEW: NRC letter (cited in top paragraph this page) showing NRC concern re TDI's failures applies to Harris, see Enclosure to that letter. WHY COULDN'T FILE EARLIER: Basis, cited above, did not exist in my hands until less than 30 days ago. 5 factors: Good cause for

not filing on time, basis did not exist, see end of page 8 preceding. No other parties pursue this issue or will represent my interests on it (Staff cannot make it a contention); there are no other means whereby my interest will be protected. I can assist in developing a sound record (1) by ensuring there is a record on this issue (2) by technical cross-examination and by discovery (3) possibly by retaining expert witnesses or witness. This will broaden the issues now, though diesel concerns (not based on TDI's record) were raised at the outset in rejected contention 134, which lacked basis. The Board rejected it for lack of specificity, but the TDI failures concerning the NRC in the basis for contention 179 now could not have been specified 5-14-82 (this case's filing deadline) because the information was not available, especially not the letter received 12-19-83 which relates these failures to Harris. This contention will not significantly delay the proceeding as safety contention discovery is only now beginning. It will not significantly broaden the issues since so many safety issues are already admitted. On balance these 5 factors weigh in favor of admitting contention 179 now, as adequacy of diesel generators is vital to plant safety (and thus assessing it is vital to a sound record), and the specific basis of this contention was not in my hands before 30 days ago.

SER contention 180: SER 15.6.3 shows that the ability of steam generators to isolate in the event of steam tube ruptures within 30 minutes is not established. That leaves Table 15.5 a forest of blank spaces. The need for such isolation is clear in light of the Ginna accident, which released radioactivity to the public. The SER fails to document that similar accidents or failures to control radiation release through steam generator tube ruptures are ~~a~~ reasonably assured not to happen at Harris.

WHAT'S NEW: SER fails to provide needed information to assure safety of the public in view of possible steam tube ruptures. There is no good reason why the SER should not do so, ^X except that Applicants have failed to provide the needed information.

WHY COULDN'T FILE EARLIER: How could I know that CP&L would file deficient response to an open item and Staff wouldn't get the information to support a proper safety analysis of steam generator tube rupture and the S.G. isolation needed in case of a rupture, before the SER came out and documented it? Basis did not exist earlier, i.e. Staff not having the needed info by the time of issuing the SER. SER should have resolved safety issues like this, and I had no basis to prove with specificity that it would not on this issue until it came out.

5 factors: Same as those on pp 1-2 as modified by those discussed for contention 173 on page 4. Since they are the same I won't repeat them here, but incorporate them by reference, as if here.

Contention 181: The SER, page 18-2 (top) shows that Staff has not completed its review of control room design requirements; This is due to Applicants' not providing a program plan showing how each DCRDR activity was accomplished (p.18-1) and to failure to address several areas and items (p.18-2) in violation of NUREG-0737, supplement 1's requirements for documentation. NRC identifies 3 open items including items not reviewed and corrective actions for HFDs. Until all requirements of NUREG-0737 Supplement 1 are completed, Applicants and the SER fail to assure adequate human factors design implementation at Harris.

WHAT'S NEW: SER specification of Applicants' failures to comply with NRC documentation requirements, and Staff's analysis being incomplete ^{existed.}

WHY COULDN'T FILE EARLIER: No specific basis ~~existed~~
5 factors: same as for contention 180 above.