

712
July 5, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

'85 JUL -8 P12:33

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of)
)
GEORGIA POWER COMPANY, et al.)
)
(Vogtle Electric Generating Plant,)
Units 1 and 2)

Docket Nos. 50-424 (OL)
50-425 (OL)

APPLICANTS' MOTION FOR SUMMARY DISPOSITION
OF JOINT INTERVENORS' CONTENTION 11
(STEAM GENERATORS)

Pursuant to 10 C.F.R. § 2.749, Applicants hereby move the Atomic Safety and Licensing Board for summary disposition in Applicants' favor of Joint Intervenor's Contention 11. As grounds for the motion, Applicants submit that there is no genuine issue of material fact to be heard and that Applicants are entitled to a decision in their favor as a matter of law. In support of this motion, Applicants attach "Applicants' Statement of Material Facts as to Which There is No Genuine Issue to be Heard With Respect to Joint Intervenor's Contention 11," and Affidavit of Carl W. Hirst (hereinafter Hirst affidavit).

8507090396 850705
PDR ADOCK 05000424
G PDR

DS03

I. Procedural Background

Joint Intervenors Contention 11 as originally proposed alleged that Applicants had failed to consider generic defects in the Vogtle steam generator system. As a basis for this allegation, Joint Intervenors cited the NRC Summary of Unresolved Safety Issues (NUREG-0606) and referred to the following causes of steam generator tube degradation: corrosion-induced wastage, cracking, reduction in tube diameter, degradation due to bubble-collapse water-hammer, and vibration-induced fatigue cracking.^{1/} Georgians Against Nuclear Energy Supplement to Petition for Leave to Intervene and Request for Hearing (April 11, 1984) at 28; Campaign for a Prosperous Georgia Supplement to Petition for Leave to Intervene and Request for Hearing (April 11, 1984) at 26; CPG Second Amendment to Supplement to Petition for Leave to Intervene and Request for a Hearing (June 13, 1984) at 1.

In its Memorandum and Order on Special Prehearing Conference Held Pursuant to 10 C.F.R. 2.715a (Sept. 5, 1984), the Board noted that Applicants had in response to Proposed Contention 11 cited the Vogtle FSAR references describing specific measures to protect against water hammer effects and corrosion

^{1/} Each of these phenomena was encompassed by Unresolved Safety Issues (USI) A-1, A-3, A-4, and A-5.

effects.^{2/} The Board found these measures unchallenged. The Board did not, however, observe specific reference to "bubble collapse" or to "vibration induced fatigue cracking." It therefore admitted the following restated and narrowed contention:

Applicants have not demonstrated their basis for confidence that no unacceptable radiation releases will occur as the result of steam generator tube failures occasioned by vibration-induced fatigue cracking and by bubble collapse within the Vogtle steam generators.

LBP-84-35, 20 N.R.C. 887, 908 (1984).^{3/}

Discovery was subsequently conducted and is now completed; with respect to Contention 11 discovery comprised the following requests and responses:

Joint Intervenors' First Set of Interrogatories and Requests to Produce (Oct. 25, 1984) at 13-15.

NRC Staff's Interrogatories to Campaign for a Prosperous Georgia (CPG) and Georgians Against Nuclear Energy (GANE) (Nov. 1, 1984) at 6.

Applicants' First Set of Interrogatories and Request for Production of Documents (Nov. 5, 1984) at 15-17.

^{2/} See Applicants' Response to GANE and CPG Petitions for Leave to Intervene (May 7, 1984).

^{3/} Joint Intervenors subsequently filed a Response to Memorandum and Order on Special Prehearing Conference (Sept. 27, 1984), in which they objected to the Board's ruling. By Memorandum and Order dated November 5, 1984, the Board reaffirmed its ruling limiting the scope of the contention.

Applicants' Response to Intervenor's First Set of Interrogatories and Request for Production of Documents (Nov. 29, 1984) at 79-90.

CPG/GANE's Response to Applicants' First Set of Interrogatories and Request for Production of Documents (Dec. 5, 1984) (unnumbered pages 22-26).

CPG/GANE's Response to NRC Staff Interrogatories (Dec. 10, 1984) at 5-6.

Applicants' Third Set of Interrogatories and Request for Production of Documents (Jan. 4, 1985) at 14.

Campaign for a Prosperous Georgia/Georgians Against Nuclear Energy Third Set of Interrogatories and Requests to Produce (Jan. 9, 1985) at 16-17.

Letter from T. Johnson to J. Joiner (Feb. 7, 1985) (enclosing supplemental information from Howard Deutsch in response to Applicants' Third Set of Interrogatories).

Applicants' Response to Intervenor's Third Set of Interrogatories and Request for Production of Documents (Feb. 13, 1985) at 69-72.

Applicants' First Supplemental Response to Intervenor's Third Set of Interrogatories and Request for Production of Documents (July 5, 1985) at 19-24.

In addition, Applicants deposed Howard Deutsch on March 25, 1985.

II. Legal Standards for Summary Disposition

The admission of a contention for adjudication in a licensing proceeding under the standards enunciated in 10 C.F.R. § 2.714 does not constitute an evaluation of the merits of that contention. Instead, such a ruling reflects merely the determination that the contention satisfies the criteria of

specificity, asserted basis, and relevance. The admission of a contention also does not dictate that a hearing be held on the issues raised. Section 2.749(a) of the NRC's rules of practice authorizes a licensing board to grant a party to the proceeding summary disposition of an admitted contention without proceeding to a hearing.

That section provides:

Any party to a proceeding may move, with or without supporting affidavits, for a decision by the presiding officer in that party's favor as to all or part of the matters in the proceeding.

10 C.F.R. § 2.749(a). Delineating the standard to be applied by a licensing board in ruling upon such a motion, that section further states:

The presiding officer shall render the decision sought if the filings in the proceedings, depositions, answers to interrogatories, and admissions on file, together with the statements of the parties and the affidavits, if any, show that there is no genuine issue of fact and that the moving party is entitled to a decision as a matter of law.

10 C.F.R. § 2.749(d).^{4/}

^{4/} 10 C.F.R. § 2.749 is patterned after Fed. R. Civ. P. 56, and its standards are the same. Accordingly, recourse to federal case law to interpret the standards under the Commission's rule is appropriate. Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-554, 10 N.R.C. 15, 20 n.17 (1979); Alabama Power Co. (Joseph H. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 A.E.C. 210, 217 (1974).

10 C.F.R. § 2.749 also provides, as do the Federal Rules of Civil Procedure, that where a motion for summary disposition is properly supported, a party opposing the motion may not rest upon the mere allegations or denials of its answer. 10 C.F.R. § 2.749(b). Compare Fed. R. Civ. P. 56(c). A party cannot avoid summary disposition on the basis of guesses or suspicions, or on the hope that at the hearing Applicants' evidence may be discredited or that "something may turn up." Gulf States Utilities Co. (River Bend Station, Units 1 and 2), LBP-75-10, 1 N.R.C. 246, 248 (1975). Where movant has made a proper showing for summary disposition and has supported his motion by affidavit, the opposing party must proffer countering evidential material or an affidavit explaining why it is impractical to do so. Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), LBP-83-32A, 17 N.R.C. 1170, 1174 n.4 (1983), citing Adickes v. Kress & Co., 398 U.S. 144, 160-61 (1970).

The Commission has encouraged Licensing Boards to use the summary disposition process where the proponent of a contention has failed to establish that a genuine issue exists, so that evidentiary hearing time is not unnecessarily devoted to such issues. Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 N.R.C. 452, 457 (1981). The summary disposition procedures "provide in reality as well as in

theory, an efficacious means of avoiding unnecessary and possibly time-consuming hearings on demonstrably insubstantial issues. . . ." Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 N.R.C. 542, 550 (1980).

III. Legal Standards Applicable to Steam Generator Tube Integrity

In Joint Intervenors' Contention 11, Joint Intervenors cite 10 C.F.R. § 50.34(b) and 10 C.F.R. Part 50, Appendices A and B. These citations are not specific: 10 C.F.R. § 50.34(b) prescribes the general contents of a Final Safety Analysis Report; 10 C.F.R. Part 50, Appendix A, prescribes the design criteria for a Nuclear Power Plant, and 10 C.F.R. Part 50, Appendix B, governs quality assurance.

The regulatory provision most pertinent to Contention 11 is 10 C.F.R. Part 50, Appendix A, General Design Criterion 14. That design criterion provides: "The reactor coolant pressure boundary shall be designed, fabricated, constructed, and tested so as to have an extremely low probability of abnormal leakage, or rapidly propagating failure, and of gross rupture."

IV. Argument

The attached affidavit of Carl W. Hirst describes the "vibration-induced fatigue cracking" and "bubble collapse" phenomena, the extent to which they are applicable to the VEGP steam generators, and their significance. As the Hirst affidavit demonstrates, neither of these phenomena presents an appreciable risk of tube failure at VEGP.

A. Vibration-Induced Fatigue Cracking.

Vibration-Induced Fatigue Cracking has never been observed in any Westinghouse-designed steam generator. Hirst Affidavit, ¶ 9. That phenomenon has been associated only with non-Westinghouse steam generators that employed a "once-through" design. Id., ¶ 10. The Westinghouse Model F Steam generator used at VEGP is a feedring-type design and has a structure and flow substantially different from the once-through design. Id., ¶¶ 4-7, 10.

The possibility of tube degradation due to mechanical or flow-induced vibration in the Model F steam generator has nevertheless been thoroughly evaluated by detailed analysis and an extensive research program that employed tube vibration model tests. This evaluation demonstrated that tube vibration will be too small to cause fatigue. This conclusion was confirmed by the Westinghouse Partial Full Scale Test Model Program and

by the Westinghouse Lead Model F Vibration Instrumentation Program. The latter monitored tube vibration in an operating Model F steam generator and found no significant tube motion. Id., ¶¶ 11-18.

Even if vibration-induced fatigue cracking were to occur, it would be unlikely to result in tube rupture. Primary-to-secondary leakage is monitored, and if it exceeds the plant's technical specification limiting steam generator tube leakage, plant shutdown is required. Cracks having a primary-to-secondary leakage less than the technical specification limit will have an adequate margin of safety to withstand loads imposed during normal operation and postulated accidents. Id., ¶ 19. Applicants will also conduct an inservice inspection program that conforms to Regulatory Guide 1.83. Id., ¶ 20.

In response to one of Applicants' interrogatories asking for the basis of Joint Intervenors' contention that Westinghouse PWR steam generators have shown signs of vibration-induced fatigue cracking, Joint Intervenors referred only to "fretting" problems. Letter from T. Johnson to J. Joiner (Feb. 7, 1985) (third unnumbered page of supplemental information from Howard Deutsch). Fretting, however, is not a fatigue-related phenomenon and is distinct from vibration-induced fatigue cracking. Hirst Affidavit, ¶ 22. It is not, therefore, within the scope of Contention 11.

The fretting problem to which Joint Intervenors referred is also inapplicable to the Model F design. The fretting problem was associated with preheat-type steam generators in which tubes were directly exposed to non-uniform, highly turbulent flow at the main feedwater nozzle. Hirst Affidavit, ¶ 23-24.

B. Bubble-Collapse Water-Hammer.

The only "bubble-collapse" phenomenon associated with steam generators is that which is commonly referred to as bubble-collapse water-hammer. Id., ¶ 25.^{5/} It was the subject of NRC Unresolved Safety Issue (USI) A-1. USI A-1, however, has now been resolved by the NRC. NUREG-0927, "Evaluation of Waterhammer Occurrence in Nuclear Power Plants - Technical Findings Relevant to Unresolved Safety Issue A-1" (Rev. 1 March 1984); NUREG-0993, "Regulatory Analysis for USI A-1 Water-hammer" (Rev. 1 May 1984). See Hirst Affidavit ¶ 36.

In resolving USI A-1, the NRC determined that the frequency of steam generator water-hammer in top feeding design steam

^{5/} See CPG/GANE's Response to Applicants' First Set of Interrogatories and Request for Production of Documents (Dec. 5, 1984) (Response to Interrogatory 11-1, indicating that Joint Intervenors use the term bubble-collapse synonymously with water-hammer). As the Board has previously noted, the Vogtle FSAR describes specific measures to protect against water-hammer effects, and Joint Intervenors have not indicated any specific manner in which these measures are inadequate. LBP-84-35, supra, 20 N.R.C. at 908.

generators has been essentially eliminated. The measures that the NRC found to have resulted in the reduction in frequency and severity of water-hammer in steam generators have all been adopted in the design and operation of the VEGP steam generators. Hirst Affidavit, ¶ 27-35, 37-39.^{6/}

The potential for bubble-collapse water-hammer in the feedring of the Model F steam generator has been minimized by the use of J tubes and a welded thermal sleeve, and by using the separate auxiliary feedwater nozzle to recover steam generator water level in the event that level drops below the feedring. Id., ¶¶ 27-29. Measures have also been taken to minimize the possibility of bubble-collapse water-hammer in the main and auxiliary (bypass) feedwater piping. The main and bypass feedwater connections on each of the steam generators are the highest point of each feedwater line downstream of the respective isolation valves and have no high-point pockets. An elbow with a short transition piece is connected directly to the steam generator main and bypass nozzles, and the horizontal pipe length from each nozzle is minimized. Id., ¶ 30.

Steam back-leakage from the steam generator into the main feedwater piping is minimized by closing the Main Feedwater

^{6/} In resolving USI A-1, the Commission found it unnecessary to impose any new regulatory requirements. Hirst Affidavit, ¶ 36.

Isolation Valve to isolate the main feedwater nozzle when the main feedwater nozzle is not in use. Additionally, the main feedwater system piping is provided with temperature sensors to alert the operator if back-leakage should occur. Id., ¶ 31. Back-leakage into the bypass piping is prevented by maintaining steam generator water level above the auxiliary feedwater discharge pipe, by employing a series of check valves, and by maintaining continuous flow through the auxiliary nozzle as much as possible. Temperature sensors are also used to alert operators if back-leakage into the bypass piping should occur. Id., ¶¶ 32-34.

Moreover, irrespective of the reduction in frequency and severity of water-hammer in steam generators, bubble-collapse water-hammer has never resulted in damage to steam generator tubes. Id., ¶ 26. As the NRC reported in resolving USI A-1, none of the water-hammer events which have occurred placed the plant in a faulted or emergency condition; none resulted in damage to the integrity of the Reactor Coolant Pressure Boundary; and none resulted in a radioactive release. Id., ¶ 36, citing NUREG-0927, §§ 1.2(b), 2.2.1.

V. Conclusion

In conclusion, there is no genuine issue of material fact to be heard. For the reasons discussed above, Applicants submit that the Board should grant summary disposition of Contention 11 in Applicants' favor.

Respectfully submitted,



George F. Trowbridge, P.C.
Bruce W. Churchill, P.C.
David R. Lewis
SHAW, PITTMAN, POTTS & TROWBRIDGE

James E. Joiner, P.C.
Charles W. Whitney
Kevin C. Greene
Hugh M. Davenport
TROUTMAN, SANDERS, LOCKERMAN
& ASHMORE

Counsel for Applicants

Dated: July 5, 1985