

PUBLIC



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

December 19, 1997

EA 97-387

Mr. Don K. Davis, President
& Chief Executive Officer
Yankee Atomic Electric Company
580 Main Street
Bolton, Massachusetts 01740-1398

Mr. John F. Norris, President
& Chief Executive Officer
Duke Engineering & Services Co.
P.O. Box 1004
Charlotte, North Carolina 28201-1004

SUBJECT: DEMAND FOR INFORMATION TO YANKEE ATOMIC ELECTRIC COMPANY
AND TO DUKE ENGINEERING & SERVICES - RE: PROVIDING INADEQUATE
ENGINEERING ANALYSES AND MATERIALLY INCOMPLETE AND
INACCURATE INFORMATION TO AN NRC LICENSEE (NRC OI Report No.
1-95-050)

Dear Messrs. Davis and Norris:

The enclosed Demand for Information (Demand) is being issued to obtain information the NRC considers necessary to determine whether Yankee Atomic Electric Company (YAEC) and Duke Engineering & Services Co. (DE&S) should continue to provide engineering analyses, and in particular Loss of Coolant Accident (LOCA) analyses, to NRC power reactor licensees. It is the NRC's understanding that subsequent to the events described in the enclosed Demand (Enclosure 1), Duke Engineering & Services purchased the YAEC Loss-of-Coolant-Accident (LOCA) Group, which performed the above described engineering analyses. Concurrent with the issuance of this Demand, Maine Yankee Atomic Power Co. (MYAPCo) is being notified of apparent violations associated with inadequate LOCA analyses and providing inaccurate information to the NRC (Enclosure 2).

YAEC has routinely provided engineering services to MYAPCo. In particular, YAEC provided analyses of emergency core cooling system (ECCS) performance used by MYAPCo to demonstrate compliance with 10 C.F.R. § 50.46 and Appendix K to 10 C.F.R. Part 50. Specifically, YAEC prepared the small-break LOCA analysis which was utilized by MYAPCo during its operating Cycle 14 and to support its reload analyses for operating Cycles 14 and 15. See YAEC-1868, "Maine Yankee Small Break LOCA Analysis" (RELAP5 and SBLOCA analysis). YAEC also prepared the large-break LOCA analysis utilized by MYAPCo for Cycles 14 and 15. See YAEC-1160, "Application of Yankee WREM-BASED Generic PWR ECCS Evaluation Model to Maine Yankee" (WREM LBLOCA analysis).

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As a result of an NRC technical review conducted at YAEC headquarters in Bolton, Massachusetts on December 11-14, 1995, and an investigation conducted by the NRC Office of Investigations, the NRC concludes that by YAEC's preparation and approval of the RELAP5YA SBLOCA analysis and the WREM LBLOCA analysis, and by YAEC's preparation and approval of the Core Performance Analysis Reports (CPARs) used to support Cycle 14 and Cycle 15 operation of Maine Yankee, YAEC caused MYAPCo to be in apparent violation of 10 C.F.R. § 50.46(a)(1). Specifically, the RELAP5YA SBLOCA analysis and the WREM LBLOCA analysis, singly or combined, were not capable of acceptably calculating emergency core cooling system performance for the portion of the break spectrum between 0.35 ft² and at least 0.6 ft². Thus, it was not possible to confirm that the limiting break had been identified and that the emergency core cooling system was capable of mitigating the most severe postulated accident. Moreover, the NRC concludes that YAEC provided MYAPCo with information that was not complete and accurate in all material respects regarding this noncompliance with 10 C.F.R. § 50.46(a)(1), and thus caused MYAPCo to apparently violate 10 C.F.R. § 50.9(a) by maintaining CPARs which contained information which was not complete and accurate in all material respects in connection with MYAPCo's Cycle 14 and Cycle 15 reload analyses.

Additionally, the NRC concludes that as a result of its incorrect calculation of penetration factors, misapplication of the Alb-Chambre correlation, and inadequate QA review of YAEC-1868, YAEC caused MYAPCo to rely on an unacceptable SBLOCA evaluation model which overpredicted core cooling and overstated the conservatism of the evaluation model for Cycle 14 and Cycle 15 in apparent violation of 10 C.F.R. § 50.46(a)(1). Finally, the NRC concludes that by its use of an unacceptable "Best Estimate" SBLOCA analysis to determine the effects of a reduction in steam generator pressure on LOCA analyses, YAEC caused MYAPCo to apparently violate 10 C.F.R. § 50.46(a)(1). Specifically, MYAPCo relied upon this unacceptable "Best Estimate" SBLOCA evaluation model to calculate ECCS cooling performance in connection with a 10 C.F.R. § 50.59 analysis concerning the effects of a reduction in steam generator pressure.

A copy of the Synopsis of NRC OI Report No. 1-95-050, "Maine Yankee Atomic Power Station: Alleged Deliberate Failure to Comply with NRC Requirements Regarding the Adequacy of the Plant's Emergency Core Cooling System and Material Omissions by the Licensee," is provided with Enclosure 2.

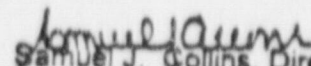
YAEC and DE&S have 30 days from the date of this Demand for Information to respond, under oath or affirmation. After reviewing your response, the NRC will determine whether further action is warranted. In the absence of a response to this Demand for Information, the NRC staff will proceed to determine what, if any, enforcement action is warranted by the facts described in the enclosed Demand for Information.

A copy of this letter and its enclosures are being sent to the YAEC LOCA Group Manager, and the YAEC LOCA Principal Engineer. These individuals are not required to provide a response to the Demand for Information, but may do so, under oath or affirmation, if they so desire within the same time frames as specified for your response.

Questions concerning this Demand for Information should be addressed to Mr. James Lieberman, Director, Office of Enforcement, who can be reached at (301) 415-2741.

In accordance with 10 C.F.R. § 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 C.F.R. § 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection, described in 10 C.F.R. § 73.21.

Sincerely,


 Samuel J. Collins, Director
 Office of Nuclear Reactor Regulation

Enclosures:

1. Demand for Information
2. Letter to Michael Sellman, MYAPCo, dated 12/19/97 from H. Miller, Regional Administrator w/enclosures

cc: w/enc:

Michael B. Sellman, President, MYAPCo
 LOCA Group Manager, YAEC
 LOCA Principal Engineer, YAEC
 G. Leitch, Vice President, Operations, MYAPCo
 M. Meisner, Vice President, Licensing and Regulatory Compliance, MYAPCo
 R. Fraser, Director of Engineering, MYAPCO
 P. Anderson, Project Manager, YAEC
 W. Odell, Director of Operations, MYAPCo
 M. Ferri, Director of Decommissioning, MYAPCo
 L. Diehl, Manager of Public and Governmental Affairs, MYAPCo
 J. Ritscher, Ropes and Gray
 P. Dostie, State of Maine Nuclear Safety Inspector
 U. Vanags, State of Maine Nuclear Safety Advisor
 C. Brinkman, Combustion Engineering, Inc.
 First Selectmen of Wiscasset
 State of Maine Planning Officer - Nuclear Safety Advisor
 State of Maine, SLO Designee
 State of Maine Planning Officer - Executive Department
 R. Shadis, Friends of the Coast