

June 21, 2001

Mr. James F. Klapproth, Manager
Engineering and Technology
General Electric Nuclear Energy
175 Curtner Avenue (MC 182)
San Jose, CA 95125

SUBJECT: NRC STAFF REVIEW OF GE LICENSING TOPICAL REPORT NEDC-32721P,
"APPLICATION METHODOLOGY FOR THE GENERAL ELECTRIC STACKED
DISK ECCS SUCTION STRAINERS," TAC NUMBER M98500

Dear Mr. Klapproth:

The purpose of this letter is to provide a status of the NRC staff's review of the hydrodynamic load portion of the General Electric (GE) Licensing Topical Report NEDC-32721P, "Application Methodology for the General Electric Stacked Disk ECCS Suction Strainers". As I stated in my May 18, 2000, letter to Mr. Tom Green of GE (Reference 1), the staff believes that the hydrodynamic mass coefficient, C_m , value used in strainer designs is important for postulated loss of main condenser and large-break loss-of-coolant accident (LOCA) events, particularly with regard to demonstrating appropriate safety margins relating to containment penetration integrity following such blowdown events. Based on our review of the GE Licensing Topical Report and supporting analytical reports, the staff does not believe that the testing performed to date on the GE strainers is sufficient to support the value of C_m used in the analysis.

As I stated in my September 6, 2000, letter (Reference 2), the staff has undertaken a contract with a third party, Distinguished Professor T. Sarpkaya of the Naval Postgraduate School, to provide an expert opinion on the expected values of C_m for structures similar to the GE strainers. Dr. Sarpkaya is a respected authority in the field of hydrodynamics, someone who is well qualified to render an expert opinion in this area. We have received Dr. Sarpkaya's final report. A proprietary and a non-proprietary version are enclosed for your convenience. Pursuant to 10 CFR 2.790, we have determined that the enclosed non-proprietary version of the attachment does not contain proprietary information. However, we will delay placing the non-proprietary version in the public document room for a period of ten (10) working days from the date of this letter to provide you with the opportunity to comment on the proprietary aspects only. If you believe that any information in the enclosure is proprietary, please identify such information line by line and define the basis pursuant to the criteria of 10 CFR 2.790.

According to Dr. Sarpkaya's report, both GE and the NRC have made errors in the analysis and review of the hydrodynamic loads of the GE strainers. Specifically, the Wills Report data on a perforated sphere is not applicable to the GE strainer and should not have been provided to GE.

This notwithstanding, Dr. Sarpkaya has provided his opinion of appropriate values of C_m for the GE strainer at proper Keulegan-Carpenter numbers and frequency parameters. The C_m values provided by Dr. Sarpkaya are at least an order of magnitude larger than the C_m values used by GE.

In order to resolve these issues, we have concluded that additional tests should be conducted on the GE strainers in conditions similar to those expected during LOCA air bubble and safety relief valve (SRV) air bubble events. We would like to meet with you to discuss the conclusions in the report at your earliest convenience. In the absence of a plan to complete additional testing, the staff plans to issue its final evaluation of the GE Licensing Topical Report NEDC-32721P, by September 30, 2001. In the absence of an approved topical report, the NRC would contact affected licensees to request appropriate action to resolve the outstanding technical issues on a plant-specific basis.

Should you have any questions with regard to the course of action that we plan to take, please contact Mr. George Hubbard of my staff at (301) 415-2870.

Sincerely,

/RA/

Gary M. Holahan, Director
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

Enclosures: As stated

References:

1. Holahan, G. M., USNRC, to T. Green, General Electric Company, "NRC Staff Review of GE Licensing Topical Report NEDC-32721P, 'Application Methodology for the General Electric Stacked Disk ECCS Suction Strainers,' TAC Number M98500," May 18, 2000.
2. Holahan, G. M., USNRC, to J. Klapproth, General Electric Company, "NRC Staff Review of GE Licensing Topical Report NEDC-32721P, 'Application Methodology for the General Electric Stacked Disk ECCS Suction Strainers,' TAC Number M98500," September 6, 2000.

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2. Holahan, G. M., USNRC, to J. Klapproth, General Electric Company, "NRC Staff Review of GE Licensing Topical Report NEDC-32721P, 'Application Methodology for the General Electric Stacked Disk ECCS Suction Strainers,' TAC Number M98500," September 6, 2000.

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* See previous concurrence

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