



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 13, 1999

50-335/389

Mr. T. F. Plunkett  
President - Nuclear Division  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, Florida 33408-0420

SUBJECT: GENERIC LETTER 97-01, "DEGRADATION OF CONTROL ROD DRIVE MECHANISM NOZZLE AND OTHER VESSEL CLOSURE HEAD PENETRATIONS": REVIEW OF THE RESPONSES FOR ST. LUCIE UNITS 1 AND 2 (TAC NOS. M98600 AND M98601)

Dear Mr. Plunkett:

On April 1, 1997, the staff issued Generic Letter (GL) 97-01, "Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations," requesting that the industry provide a description of the plans to inspect the vessel head penetrations (VHPs) at their respective pressurized-water reactor (PWR) plants. In the discussion section of the GL, the staff indicated that it did not object to individual PWR licensees basing their inspection activities on an integrated, industry-wide inspection program.

The Combustion Engineering Owners Group (CEOG), in coordination with the efforts of the Nuclear Energy Institute (NEI), the Westinghouse Owners Group (WOG), and the Babcock and Wilcox Owners Group (BWOG), determined that it was appropriate for its members to develop a cooperative integrated inspection program in response to GL 97-01. The CEOG submitted that program in a topical report titled, CE NPSD-1085, "CEOG Response to NRC Generic Letter 97-01, Degradation of CEDM Nozzle and Other Vessel Closure Head Penetrations," on July 25, 1997. In this report, a timing model (crack initiation and growth susceptibility model) was used to rank the VHPs of the participating plants in the CEOG. The CEOG later provided information to indicate that it was adopting the Electric Power Research Institute (EPRI) model as the basis for evaluating CE designed VHP nozzles.

On December 11, 1998, NEI submitted a generic integrated response to the requests for additional information (RAIs) on GL 97-01 on behalf of the utility members in the CEOG, WOG, and BWOG. In the generic submittal, NEI informed the staff that it normalized the susceptibility rankings for the industry. The generic response to the RAIs also provided sufficient information to answer the information requests in the RAIs, and emphasized that the integrated program is an ongoing program that will be implemented in conjunction with the Electric Power Research Institute (EPRI), the participating utilities in the CEOG, WOG, and BWOG, and the Material Reliability Projects' Subcommittee on Alloy 600. By letter dated March 21, 1999, the staff informed NEI that the integrated program was an acceptable approach for addressing the potential for primary water stress corrosion cracking (PWSCC) in the VHPs of PWR-designed nuclear plants, and that licensees responding to the GL could refer to the integrated program as a basis for assessing the postulated occurrence of PWSCC.

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To date, all utilities have implemented VT-2 type visual examinations of their VHPs in compliance with the American Society of Mechanical Engineers' requirements specified in Table IWB-2500 for Category B-P components. Most utilities, if not all, have also performed visual examinations as part of plant-specific boric acid wastage surveillance programs. In addition, the following plants have completed voluntary, comprehensive augmented volumetric inspections (eddy current examinations or ultrasonic testing examinations) of their control rod drive mechanism (CRDM) nozzles:

- 1994 - Point Beach Unit 1 (Westinghouse reactor design)
- 1994 - Oconee Unit 2 (Babcock & Wilcox (B&W) reactor design)
- 1994 - D.C. Cook Unit 2 (Westinghouse reactor design)
- 1996 - North Anna Unit 1 (Westinghouse reactor design)
- 1998 - Millstone Unit 2 (CE reactor design)
- 1999 - Ginna (Westinghouse reactor design)

In addition, the following plants have completed voluntary, limited augmented volumetric inspections of their VHPs as well:

- 1995 - Palisades - eight instrument nozzles (CE reactor design)
- 1996 - Oconee Unit 2 - reinspection of two CRDM nozzles (B&W reactor design)
- 1997 - Calvert Cliffs Unit 2 - vessel head vent pipe (CE reactor design)

The majority of these plants have been ranked as having the more susceptible VHPs in the industry. Of these inspections, only the inspections at D.C. Cook Unit 2 have resulted in the identification of any domestic PWSCC type flaw indications. The current program includes additional commitments to perform further volumetric inspections of the CRDM nozzles at Oconee, Unit 2 (a reinspection of 2-12 nozzles in 1999), Crystal River, Unit 3 (in 2001, a B&W reactor design), Diablo Canyon, Unit 2 (in 2001, a Westinghouse reactor design), Farley, Unit 2 (in 2001, a Westinghouse reactor design), and San Onofre, Unit 3 (in 2002-2008, a CE reactor design). These plants are currently ranked in either the high or moderate susceptibility categories.

In your January 27, 1999, response, you endorsed the NEI submittal of December 11, 1998, and indicated that you were a participant in the NEI/CEOG integrated program. Since the additional volumetric inspections performed to date have confirmed that PWSCC is not an immediate safety concern with respect to the structural integrity of VHPs in domestic PWRs, and since we have approved the integrated program for implementation, we conclude that the integrated program provides an acceptable basis for evaluating your VHPs. You may refer to the integrated program when submitting VHP-related licensing action submittals for the remainder of the current 40-year licensing period. Furthermore, if you are considering applying for license renewal of your facilities, your application will need to address the following items: (1) an assessment of the susceptibility of your VHPs to develop PWSCC during the extended license terms for the facilities; (2) a confirmation that the VHPs at your facilities are included under the scope of your boric acid corrosion inspection program; and (3) a summary of the results of any inspections that have been completed on your VHPs prior to the license renewal application.

T. F. Plunkett

- 3 -

December 13, 1999

This completes the staff's effort on TAC Nos. M98600 and M98601. Thank you for your efforts in addressing this issue.

Sincerely,

Original signed by:

Kahtan N. Jabbour, Senior Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

cc: See next page

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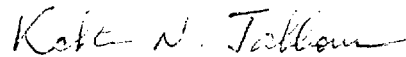
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- 3 -

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Sincerely,



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