June 28, 2004

MEMORANDUM TO: James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Lee A. Licata, Project Manager, Section 2 ***/RA/***
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: PILGRIM NUCLEAR POWER STATION - DRAFT REQUEST FOR ADDITIONAL INFORMATION REGARDING ALTERNATIVE CONTINGENCY REPAIR PLAN FOR REACTOR PRESSURE VESSEL NOZZLE SAFE-END AND DISSIMILAR METAL PIPING WELDS USING ASME CODE CASES N-638 AND N-504-2 WITH EXCEPTIONS (TAC NO. MC2496)

By letter dated March 15, 2004, Entergy Nuclear Operations, Inc. (Entergy or the licensee) submitted an alternative contingency repair plan for reactor pressure vessel nozzle safe-end and dissimilar metal piping welds for the Pilgrim Nuclear Power Station. The proposed repair plan would allow the use of weld overlays to restore American Society of Mechanical Engineering (ASME) Section XI margins as required by ASME Code Case N-504-2.

The attached draft request for information (RAI) was transmitted on June 28, 2004 to Mr. Edward Sanchez of Entergy. This draft RAI was transmitted to facilitate the technical review being conducted by the office of Nuclear reactor Regulation and to support a conference call with the licensee to discuss the RAI.

Review of the RAI would allow the licensee to determine and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not convey or represent a Nuclear Regulatory Commission staff position regarding the licensee's request.

Docket No. 50-293

Attachment: Draft RAI

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DRAFT REQUEST FOR ADDITIONAL INFORMATION

RELATED TO ALTERNATIVE CONTINGENCY REPAIR PLAN FOR REACTOR PRESSURE VESSEL NOZZLE SAFE-END AND DISSIMILAR METAL PIPING WELDS USING ASME CODE CASES N-638 AND N-504-2 WITH EXCEPTIONS

PILGRIM STATION

DOCKET NO. 50-293

By letter dated March 15, 2004, Entergy Nuclear Operations, Inc. (Entergy or the licensee) submitted an alternative contingency repair plan for reactor pressure vessel nozzle safe-end and dissimilar metal piping welds for the Pilgrim Nuclear Power Station. The proposed repair plan would allow the use of weld overlays to restore American society of Mechanical Engineering (ASME) Section XI margins as required by ASME Code Case N-504-2.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee provided in the letter dated March 15, 2004, and requests the following additional information to clarify the submittal:

1. Discuss whether hydrogen water chemistry as discussed in BWRVIP-75 has been implemented in the primary water system to mitigate the potential of stress corrosion cracking in the recirculation and core spray piping. Discuss whether there have been any chemical excursions occurred in the primary water system that would affect the welds in the proposed relief request. Discuss whether corrective actions have been implemented to minimize the chemical excursions.

2. Request the following:

   a. Identify the materials for the welds, nozzles, safe ends, pipe, reducers, and valves of the core spray and recirculation systems that are listed in the relief request, Section A, Component Identification.

   b. Identify the corresponding P-Number and Group number of the base metal per Code Case N-638, subsection 2.1(a).

   c. Provide the wall thickness and diameter of the pipes covered in the relief request.

   d. Provide the thickness of nozzles, safe ends, reducers, and valves where the weld overlay will be made.

3. The licensee specified in table in Section B, Examination and Repair Requirements, Subsection labeled Examination Requirements that either ultrasonic testing or mechanical height measurement will be used to measure the thickness of the weld overlay.

   a. Discuss the subsection in code case N-504-2 that specifies these examinations

b. Discuss which method will most likely be used and the reason for preferring one method over the other method in terms of reliability, sensitivity, and accuracy.

4. In Sections C and D, the licensee stated that the system leak test is adequate to ensure the pressure boundary integrity; however, supporting basis was not provided. Code case N-504-2, paragraph (h) specifies, in part, that if a flaw penetrates the original pressure boundary prior to or during the welding operation, a system hydrostatic test shall be performed. If the system pressure boundary has not been penetrated, a system leakage, inservice, or functional test shall be performed. Code case N-416-2 allows a system leakage test in lieu of a hydrostatic pressure test in weld repairs if a nondestructive examination is performed in accordance with the 1992 Edition of ASME Section III which specifies that a radiographic examination be performed. The staff has the following questions:

a. Clarify whether a radiographic examination will be performed on the weld repair per the 1992 edition of ASME Section III, if a flaw penetrates the pressure boundary prior to or during the welding process. If a radiographic examination will not be performed, discuss the basis and justify the performance of a ultrasonic examination in lieu of a radiographic examination of the weld overlay repair.

b. Discuss technical basis why the system leak test is adequate as compared to a hydrostatic test in demonstrating the structural and leakage integrity of the weld overlay repair.

c. In Section C, fifth paragraph, last sentence, the licensee stated that a system leak test of completed repairs may be used in lieu of a hydrostatic test. Discuss whether a system leak test will be performed after each completed repair.

5. The licensee stated that re-inspection of the welds will be conducted in accordance with the guidance in the industry topical report, BWRVIP-75.

a. Discuss the exact inspection schedule for the welds in the proposed relief request. Identify the page, category, and section in BWRVIP-75 that discusses the inspection schedule that the licensee will follow.

b. Discuss the inspection method that will be used in the re-inspection of the welds

6. In Section F, the licensee stated "The proposed alternative applies to the repairs of RPV nozzle safe-end and piping welds for the scheduled outage and for the remaining service life of this weld." The staff has reservation about approving a relief request on a long term basis. In general, the staff approves relief requests for one inspection interval with certain fixed starting and end calendar dates. In Section D, fourth paragraph, the licensee alludes to the third interval inservice inspection program; however the staff is not clear to which inspection interval the proposed relief request will be applied. The licensee is requested to:

a. Identify to which inspection interval(s) this relief request will be applicable.

b. Identify the current inspection interval.

c. Provide the end date of the operating license of the plant and the starting and end dates of the relevant inspection intervals (i.e., 3rd and 4th intervals).