April 4, 2002

MEMORANDUM TO: File

FROM: Robert A. Gramm, Chief, Section 1
Project Directorate IV ***/RA/***
Division of Licensing Project Management

SUBJECT TELEPHONE CONFERENCE WITH WATERFORD STEAM ELECTRIC STATION, UNIT 3, ON PLANNED REACTOR VESSEL HEAD AND VESSEL HEAD PENETRATION INSPECTIONS

On March 21, 2002, members of the Nuclear Regulatory Commission (NRC) staff contacted personnel at Waterford Steam Electric Station, Unit 3 (Waterford 3 or the licensee) to discuss their plans for addressing reactor pressure vessel head degradation as discussed in NRC Bulletin 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity." Participants on the telephone conference call are listed in the Attachment. The Waterford 3 outage began on March 22, 2002. The licensee indicated that Waterford 3 is considered moderately susceptible to circumferential cracking of the vessel head penetration nozzles based on an industry ranking scheme.

The staff posed the following questions to the licensee, and the licensee responses are noted:

1. Will a 100% bare-metal inspection be conducted of the top of the reactor vessel head?

   Yes. The licensee plans to remove their insulation and perform a 100% inspection of the top of the reactor vessel head during the upcoming outage. A general cleaning of the head will be performed to remove any deposits. Any corrosion on the head will be assessed. Following the outage, blanket-type insulation will be installed on the head to facilitate future inspections.

2. What type of inspections are planned for the vessel head penetrations?

   To determine if a vessel head penetration nozzle is leaking, a visual inspection of the nozzle-to-head interference fit will be performed from the top of the vessel head. If leakage is identified (as evidenced by boric acid deposits), ultrasonic and/or eddy current examinations will be performed of the leaking nozzles. The licensee had performed a gap analysis (an analysis to indicate whether the interference fit between the nozzle and the head is such that evidence of boric acid leakage would be expected to be present on top of the vessel head). This analysis indicated leakage would be evident for all nozzles except nozzle 1.

3. What is the scope of ultrasonic and eddy current examination for the welds?

   As discussed above, if examination of a nozzle is needed, the inspection would span a distance from 1.5 inches below the nozzle weld to 1.5 inches above the weld.

4. Given that the corrosion rate resulting in the degradation of the reactor pressure vessel head material at the Davis Besse Nuclear Power Station (Davis-Besse) is not known at this time, has the possibility of deep flaws in the nozzles been considered (i.e., flaws that could grow through-wall during the cycle and subsequently result in degradation similar to Davis-Besse)?

   The licensee is evaluating the possibility of deep through-wall flaws. Information from the Davis-Besse situation is being studied.

At the end of the conference call, the NRC staff indicated it would be interested in having another telephone call with the licensee to discuss the results of their inspections.

Attachment: List of Telephone Conference Participants

Docket No. 50-382

4. Given that the corrosion rate resulting in the degradation of the reactor pressure vessel head material at the Davis Besse Nuclear Power Station (Davis-Besse) is not known at this time, has the possibility of deep flaws in the nozzles been considered (i.e., flaws that could grow through-wall during the cycle and subsequently result in degradation similar to Davis-Besse)?

   The licensee is evaluating the possibility of deep through-wall flaws. Information from the Davis-Besse situation is being studied.

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Attachment

List of Participants of March 21, 2002, Telephone Conference
Between the U.S. Nuclear Regulatory Commission (NRC) and
Waterford Steam Electric Station, Unit 3 (Waterford)

| Name | Organization |
|---|---|
| Steven Bloom | NRC |
| Kenneth Karwoski | NRC |
| Gregory Pick | NRC |
| Thomas Farnholtz | NRC |
| Robert Gramm | NRC |
| Bryan Miller | Waterford/Corp. Licensing |
| Craig Lambert | Waterford/Eng. Director |
| John Houghtaling | Waterford/Head Inspection Project Manager |
| John Hamilton | Waterford/Central Eng. Manager |
| Kevin Walsh | Waterford/Outage Manager |
| Mark Berendt | Waterford/Eng. Supervisor |
| David Madere | Waterford/Licensing Supervisor |
| J.B. Perez | Waterford/Engineer |
| Ronnie Swain | Waterford/NDE Specialist |