

June 26, 2002

MEMORANDUM TO: File (Davis-Besse)

FROM: Douglas V. Pickett, Senior Project Manager, Section 2 /RA/
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION - SUMMARY OF
NUCLEAR REGULATORY COMMISSION (NRC) ACTIVITIES FOR THE
WEEK OF MARCH 4, 2002, RE: CONTROL ROD DRIVE MECHANISM
(CRDM) NOZZLE PROJECT (TAC NO. MB4479)

March 6:

Nuclear Reactor Regulation (NRR) staff became aware on the morning of March 6 that on March 5 at 5:30 PM, during the repairs to Davis-Besse CRDM nozzle penetration No. 3, the licensee discovered the nozzle to be cocked in its penetration in the vessel head. Additional inspection by the licensee discovered that a cavity exists in the carbon steel head into which the cut-off (machined) bottom of the nozzle had shifted.

A conference call was held with the licensee on the afternoon of March 6 to get an update and discuss the status of CRDM nozzle penetration No. 3, as well as the repairs for the other four penetrations (total of five). Attachments 1, 2, and 3 were provided by the licensee for the call.

From the phone call, the staff learned that the licensee plans to remove (pull) the nozzle from the head, make a visual examination of the area and seek to characterize the void and its dimensions by taking an impression using dental material. Once that information is assessed, the licensee will evaluate three options for repair:

- 1) repairing the nozzle,
- 2) replacing the nozzle, or
- 3) plugging the penetration (Framatome, the vendor, has executed this method at a French plant).

Additionally, the licensee intends to have a Level III inspector review the 5 CRDMs that have indicated flaws.

Until the CRDM penetration is repaired, the licensee committed to a daily telecon to update the staff on the status of CRDM repairs. The licensee daily status summary will be used as the agenda for the daily call, which is scheduled for 2:00 PM.

March 7:

J. Jacobson (RIII) provided an updated status (see Attachment 4) on licensee activities. Nozzle No. 3 was removed and quarantined during the evening of March 6. Attachment 5 includes the

NRR briefing notes for March 7 regarding a description of the vessel head inspection findings, possible generic implications, and planned actions. The staff is considering the following:

- Communication Plan and/or Information Notice
- Press release and/or 10 CFR 50.72 report
- Special Inspection
- Commissioners TA Briefing
- Interaction with Research and other industry groups
- RIS to plants that are currently in outages
- Justification for continued operation (JCO) for other plants

Attachment 6 is the licensee's agenda for the daily status call.

March 8:

A morning telecon was held to identify questions and issues. Participants included Christine King of MRP, Dominion Power, Beaver Valley Power Station, Los Alamos National Lab, and Region 3. A brain-storming session identified the following issues:

- Not clear that degradation is solely caused by axial cracking. Boric acid needs to be wet to corrode. Wiping may have occurred. Could flange leakage cause corrosion?
- Is ultrasonic test (UT) exam alone sufficient to identify problem?
- How good were previous inspections? Was sufficient UT done and did they go high enough in tube to identify?
- Cannot wait for root cause evaluation from licensee to take action.
- Could other plants have identified similar degradation through their inspections?
- Need JCO. Need new bulletin.
- Risk assessment needed. Probabilistic risk assessment can't be done without knowledge of severity of problem.
- Combustion Engineering plants insulation directly on reactor pressure vessel (RPV) head. Can UT convince plants of no problems?
- If boron left on head, how do plants identify problem?
- We want JCO from MRP/industry. Issue may be outside scope of Bulletin 2001-01.
- Concern of issuing new bulletin prematurely. Coordinate with root cause. Must show why inspections provide assurance. Show why you don't have the problem. What are other susceptible areas of the reactor coolant system. Implications of life-extension efforts.

March 8:

Licensee daily status summary and information regarding the wastage area at penetration No. 3 are provided in Attachments 7 and 8. Region III issued PNO-III-02-006. Licensee notified NRC operations center of a principle safety barrier in degraded condition (EN 38757). Licensee and NRC decided to continue daily 2:00 PM status calls throughout the weekend.

No evidence of similar head corrosion surrounding Nozzle 2. Licensee still evaluating UT results. Licensee has formed a Root Cause Team and an Engineering Evaluation Team. Boron still on RPV head.

March 9:

Status call participants:

NRC: Mendiola, Hiser, Wetzel, Lipa, LSmith (RIV)

Licensee: Dozier, Wuokko, Powers, Loehlein, Wood, Cook, et al.

March 10:

Status call participants:

NRC: Mendiola, Hiser, Wetzel, Lipa, Jacobson, Sands, Bateman, et al.

Licensee: Wuokko, et al.

Attachment 9 is a licensee e-mail with attached photos showing the sequence of gaining access to the affected area of the vessel head and an overview organization chart of the licensee investigation team.

Docket No. 50-346

- Attachments:
1. E-mail from D. Wuokko (licensee) to S. Sands (NRR), dated March 6, call information (8 pages)
 2. Simple sketches (not to scale) diagramming the nozzle shift and location of the void (2 pages)
 3. Notes from the licensee to detail the issue and provide repair information (7 pages)
 4. E-mail from J. Jacobson (RIII) to A. Mendiola (NRR), et al., dated March 7, significant damage to Davis-Besse head (1 page)
 5. March 7 briefing notes (3 pages)
 6. March 7 licensee status summary (1 page)
 7. March 8 licensee status summary (1 page)
 8. Characterization of Wastage Area (3 pages)
 9. E-mail from D. Wuokko (licensee) to S. Sands (NRR), dated March 10, photos and organization chart (10 pages)

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