

April 10, 2002

MEMORANDUM TO: Stephanie M. Coffin, Section Chief  
Structural Integrity and Metallurgy Section  
Materials and Chemical Engineering Branch

FROM: Steven D. Bloom, Lead Project Manager for Bulletin 2002-01(RA by SB)  
Structural Integrity and Metallurgy Section  
Materials and Chemical Engineering Branch

SUBJECT: SUMMARY OF MEETING HELD ON MARCH 19, 2002, WITH NUCLEAR  
ENERGY INSTITUTE AND ELECTRIC POWER RESEARCH  
INSTITUTE - MATERIAL RELIABILITY PROGRAM TO DISCUSS THE  
GENERIC IMPLICATIONS OF THE DAVIS-BESSE REACTOR VESSEL  
HEAD DEGRADATION

On March 19, 2002, representatives of Nuclear Energy Institute (NEI) and Electric Power Research Institute - Material Reliability Program (EPRI-MRP) met to discuss the generic implications of the Davis-Besse reactor vessel head degradation. This was a Type 2 public meeting. Copies of the slides used during the meeting are available under ADAMS accession number ML020920666 and ML020920585 the NRC web site at <http://www.nrc.gov/reactors/operating/ops-experience/vessel-head-degradation.html>.

The meeting started with a description of the purpose of the meeting, and the NRC public meeting policy. The meeting continued with some brief comments by Brian Sheron, Associated Director, ADPT who gave a brief overview of the issue at Davis-Besse and then by Alex Marion of NEI, who stated that he believed that the bulletin was appropriate. The meeting attendance is attachment 1.

Mike Short, Chairman of the Issues and Integration Group (IIG), of EPRI-MRP, started his presentation with a review of the March 11, 2002, letter from Brian Sheron to Alex Marion. He reviewed the three questions asked in the letter and some brief responses to them. Mike Short stated that work being performed on the probabilistic fracture mechanics (PFM) which was supposed to be completed in May 2002, will be impacted pending the root cause of the Davis Besse degradation. He described three potential root causes: (1) leakage from sources above the head, (2) leakage of reactor coolant through flaws in penetration nozzles, and (3) previous stable accumulation of boric acid deposits wetted by leakage through flaws in penetration nozzles. He stated that they are not ruling out any potential root causes, but are leaning toward 2 and 3. He stated that if the nozzle at Davis-Besse had not fallen over, they would have repaired the nozzle, and then gone back and cleaned the head and would have performed further inspection which would have found the cavity.

Mike Short stated that MRP had sent the licensees four questions and then established acceptance criteria for the responses. The questions were grouped in two areas, most recent inspections and future inspections and spring outages. The acceptance criteria grouped the plants in categories 1 through 4 and an "other" category. He stated that their assessment was

in progress and that they would be supplying the responses and their assessment to the NRC. He stated that category 1 plants performed both qualified and effective visual inspections per Bulletin 2001-01. He stated that following the root cause evaluation, MRP would review previous work performed in 1990s in this area and if not enough information, would consider additional testing. The EPRI would be reviewing the Boric Acid Corrosion Guidebook if additional revision was necessary.

Mike Short went over the various categories from the recent survey and combined that with the susceptibility rankings from Bulletin 2001-01.

1. All 11 plants in the < 5 Effective Full Power Year (EFPY) susceptibility group (except Davis-Besse) have already performed 100% bare-head inspections. These plants found no significant boric acid deposits on their vessel heads.
2. The nine plants in the 5-10 EFPY group have either performed 100% bare-head inspection or will be during their upcoming spring 2002 outages. The six plants which have already performed their inspections found no significant boric acid deposits.
3. There are 11 plants in the 10-15 EFPY susceptibility group, two of which have performed 100% bare-head inspections with no boric acid deposits. Three of these plants have had limited visual head inspections with no above-head events, and 2 of them will have spring 2002 outages. There were five plants which had limited visual head inspections with some previous leakage, one plant performed a supplemental inspection in response to the Davis-Besse concern. The remaining four plants will be performing inspections during their spring 2002 outages. There was one plant in the "other" category because it had identified boric acid and evaluated minor wastage on the head.
4. The remaining plants were in the > 15 EFPY grouping, with eight in the 15-20 EFPY Group, five in the 20-30 EFPY group, and 25 in the > 30 EFPY group. Within each of these groupings, there were numerous plants with outages during the spring 2002 outages and others with outages in the future. There was one plant in the "other" category in the 15-20 EFPY group and four plants in the "other" group from the >30 EFPY group.

The MRP will be working on a response plan to the Davis-Besse degradation, by reviewing the root cause analysis and reviewing it for generic implications, using the November 2001 Boric Acid Corrosion Guidebook. Mike Short stated that the nozzle repair at Oconee was different than that at Davis-Besse. At Oconee they had greater than 20 nozzles where they used a manual process and where as at Davis-Besse it was by machine. At Oconee, the post repair, pre-weld NDE verified material outside the nozzle. The MRP stated that if the repair had been completed at Davis-Besse, the post repair pre-weld NDE would have discovered the cavity. Based on Davis-Besse, no plants were moving up their outages, however, Vogtle was modifying its inspections to perform an under insulation inspection.

Ken Karwoski described Bulletin 2002-01 by detailing the information required for the 15-day, 30-day and 60-day responses. The 15-day response is requiring information about the licensee's reactor pressure vessel head inspections and any history of leakage of boric acid in the life of the plant, and the ability to identify degradation on the head. The 30-day response requires information 30 days following the next outage during which the licensee performs a

vessel head inspection. The 60-day response requires information about the effectiveness of the boric acid inspection program maintaining reactor coolant pressure boundary integrity.

Project No. 0689

Attachment: As stated

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MEETING WITH NUCLEAR ENERGY INSTITUTE (NEI) AND ELECTRIC POWER  
RESEARCH INSTITUTE - MATERIAL RELIABILITY PROGRAM (EPRI-MRP)

MEETING ATTENDEES

GENERIC IMPLICATIONS OF THE DAVIS-BESSE REACTOR VESSEL HEAD  
DEGRADATION

MARCH 19, 2002

<u>NAME</u>	<u>AFFILIATION</u>
B. Sheron	NRC
J. Strosnider	NRC
J. Grobe	NRC
W. Bateman	NRC
K. Karwoski	NRC
S. Bloom	NRC
A. Mendiola	NRC
S. Long	NRC
A. Lee	NRC
B. Wetzel	NRC
M. Switzer	NRC
W. Cullen	NRC
M. Weston	NRC
T. Koshy	NRC
J. Starefos	NRC
J. Chung	NRC
L. Gerke	NRC
T. Bilik	NRC
J. Medoff	NRC
P. Kuo	NRC
H. Nieh	NRC
J. Colaccino	NRC
A. Hiser	NRC
E. Hackett	NRC
G. Longo	NRC
V. Dricks	NRC
F. Jaxheimer	NRC
J. Dozier	NRC
B. McCabe	NRC
M. McConnell	NRC
A. Passarelli	NRC
R. Taylor	NRC
J. Beall	NRC
W. Beckner	NRC
J. Calvo	NRC
I. Jung	NRC
J. Uhle	NRC
K. Wichman	NRC

M. Short

SCE & MRP

**ATTACHMENT**

L. Hartz	Dominion Engineering & MRP
A. Marion	NEI
J. Woodard	SNC
G. Vine	EPRI
L. Mathews	SNC
D. Lochbaum	UCS
G. Tesfaye	CCNPPI
D. Wight	FERC
F. Madden	STARS
J. Widay	RG&E
B. Flynn	RG&E
D. Mauldin	APS
B. Beasley	SNC
L. Bohn	NMC
E. Weinkam	NMC
D. Pace	Entergy
D. Horner	McGraw-Hill
J. Wood	FENOC
B. Miller	Entergy
B. Wendland	ANI
P. Rush	MPR
D. Raleigh	Scientech
R. Huston	Licensing Support Services
C. Brinkman	Westinghouse Electric Co.
S. Mori	Kansai Electric
B. Bishop	Westinghouse Electric Co.
S. Lurie	Westinghouse Electric Co.
H. Fontecilla	Dominion Engineering
D. Gortcheus	TVA
M. Murphy	PABRP
C. Welty	EPRI
V. Wagoner	CP&L
M. Fleming	Dominion Engineering
T. Alley	Duke Energy
M. Robinson	Duke Energy
D. Lounsbury	PSEG
M. Bezilla	PSEG
J. Meister	Exelon
R. Brown	TVA
S. Traiforos	SAT Consultants, Inc.
D. Schlader	Framatome - ANP
K. Moore	Framatome - ANP
E. Schoonover	SCE
R. Cohen	Sitcap
L. Connor	Consultant
F. Ammirato	EPRI
A. Wyche	SERCH Licensing/Bechtel
T. Satyansharma	AEP
D. Moody	SAB

P. Bryant	NEI
P. Campbell	Winston & Strawn

G. Orrill	Lehman Brothers
D. Mattson	Structural Integrity Associates (By phone)
A. Goyen	Duke Energy (By phone)
J. Bostelman	ITSC (By phone)
K. Scherich	MRP (By phone)
M. Lashley	STPNOC (By phone)
M. Wilken	American Electric Power (By phone)
R. Schonenberg	Dominion Connecticut (By phone)

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<b>DATE</b>	04/10/02	04/10/02

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