

March 12, 2003

LICENSEE: FirstEnergy Nuclear Operating Company

FACILITY: Davis-Besse Nuclear Power Station, Unit 1

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1 - MEETING SUMMARY OF NOVEMBER 26, 2002, TO DISCUSS THE REACTOR VESSEL INCORE MONITORING INSTRUMENTATION NOZZLES, INSPECTION AND POTENTIAL FOR LEAKAGE

On November 26, 2002, Nuclear Regulatory Commission (NRC) management and staff conducted a public meeting in Rockville, Maryland, with representatives of FirstEnergy Nuclear Operating Company. The purpose of the meeting was to discuss the inspection of the Davis-Besse Nuclear Power Station reactor vessel incore monitoring instrumentation nozzles and the potential for leakage from them. The meeting was noticed on November 15, 2002. A telephone conference bridge was established for members of the public who were unable to attend.

The licensee presented a summary of the status of the Davis-Besse reactor vessel incore monitoring instrumentation nozzles, their plans for testing and inspection, and their plans for deploying online leak monitoring equipment. The licensee discussed the configuration of the nozzles and the modification performed in the 1970s on them. The licensee stated that the nozzles are slip-fit and not shrunk-fit, so there should be a small annulus of 5 - 10 millimeters.

The licensee performed a bare-metal visual inspection during this outage. The inspection found that there were rust and boron trails down the side and across the bottom of the reactor vessel. In response to a question from the NRC staff, the licensee stated that the rust and boron trails did not line up with holes in the service structure, but appeared to be related to washing of the head prior to detensioning. In order to rule out a cracked and leaking incore instrumentation nozzle as a source of the rust and boron, the licensee took several samples of the rust and boron from different locations for chemical analysis; however, the licensee found that the analysis results were inconclusive for determining the source of the rust and boron.

The licensee discussed test options with Framatome-ANP to look for cracked and leaking nozzles. The licensee concluded that using reactor coolant pump heat to go to normal operating pressure and temperature and holding for 7 days was the best option for looking for possible cracked and leaking nozzles. The licensee stated that Framatome would be performing some laboratory leak rate tests to understand the capability of visual inspection to detect very small leaks. In response to a NRC staff question, the licensee stated that the critical flaw size with a safety factor of three is a 219 degree circumferential crack. Testing the capability of visual inspection and online leak monitoring equipment would be based on leakage from flaws up to this critical flaw size.

The licensee also discussed their current repair approach if a leaking nozzle is found. The licensee stated that the repair method is similar to that performed for pressurizer nozzles and that NRC approval of an alternative to the American Society of Mechanical Engineers Code would be needed for such a repair. Additionally, the licensee stated that they will be installing an online leak monitoring system, possibly prior to restart.

The NRC staff provided many comments to the licensee regarding its test plans. Principal comments were in regard to the effectiveness and sensitivity of the planned normal operating temperature and pressure test, and the subsequent in-cycle monitoring to identify potential leakage. The mock-up work described by the licensee will provide a better understanding of the sensitivity and the benefits of the planned testing and monitoring activities. The staff stated that it was interested in seeing the results of both the mockup tests and the in-situ test.

In conclusion, the staff noted that assuming positive test results, the licensee's test plans will provide reasonable assurance that the incore instrumentation nozzles are not leaking. Also, the licensee's plans to install leak detection equipment in the vicinity of the reactor vessel prior to plant operation will provide additional assurance that if a leak were to develop, it will be detected prior to the next opportunity to perform a visual inspection. Finally, the staff stated that its consideration of this issue did not constitute consideration of readiness for the plant to restart.

The meeting attendees are included as Enclosure 1. The presentation slides used by the licensee are accessible on the portion of the NRC website ([www.nrc.gov](http://www.nrc.gov)) established for the public meetings associated with the Davis-Besse reactor vessel head degradation issue, in the Agencywide Documents Access and Management System (ADAMS) under ADAMS accession number ML023530645, and are included as Enclosure 2.

*/RA/*

Jon B. Hopkins, Senior Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosures: 1. Meeting Attendees  
2. Meeting Slides

cc w/encls: See next page

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Division of Licensing Project Management  
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cc w/encls: See next page

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MMarshall	KMcConnell	GGrant, RIII

**ADAMS Accession: ML023460064**  
**Slides: ML023530645**

**Meeting Notice: ML023190321**  
**Package: ML023530404**

\*See previous concurrence

OFFICE	PM:LPD3-2	BC:EMCB	LA:LPD3-2	SC:LPD3-2
NAME	JHopkins	WBateman*	THarris	AMendiola
DATE	3/7/03	2/ 6 /03	3/7/03	3/7/03

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MEETING ATTENDEES  
NRC AND FENOC  
DISCUSSION OF INCORE INSTRUMENTATION NOZZLES  
NOVEMBER 26, 2002

NRC

B. Sheron  
B. Dean  
B. Bateman  
A. Mendiola  
J. Hopkins  
A. Hiser  
W. Cullen  
M. Marshall  
K. McConnell  
B. Moroney  
M. Chawla  
E. Sullivan  
K. Wichman  
S. Collins  
S. Rosenberg  
P. Balmain  
J. Golla  
C. Lipa

GAO

D. Brack

Union of Concerned Scientists

D. Lochbaum

Cleveland Plain Dealer

S. Koff

FENOC

G. Leidich  
R. Schrauder  
J. Powers  
D. Wuokko  
K. Spencer

Framatome-ANP

S. Fyfitch  
P. Sherburne  
D. Waskey  
B. Grambau

Enercon Services

D. Studley

NEI

K. Cozeas

Morgan Lewis

S. Frantz

Pittsburgh Post Gazette

M. Woods