



Davis-Besse Reactor Vessel Head Damage NRC UPDATE

February 2004

This is the eighteenth periodic update on the NRC response to the reactor vessel head damage at the Davis-Besse Nuclear Power Station. The updates will be available at public meetings of the NRC Davis-Besse Oversight Panel which is coordinating the agency's activities related to the damage.

NRC Process for Reviewing Possible Restart

In the February 12 meeting to discuss possible restart of the Davis-Besse plant, FirstEnergy Nuclear Operating Company will discuss the basis for its request for restart authorization and interested stakeholders may raise their questions, comments, and concerns.

The NRC oversight panel will review the information presented in the meeting as well as the findings of NRC inspections and reviews since the plant was shut down in February 2002.

The panel will submit its written recommendation to James Caldwell, NRC Regional Administrator, on the readiness of the plant, including its management and staff, to resume operations.

Mr. Caldwell will confer with other senior NRC officials before reaching his decision of whether the plant may resume operation.

As part of a possible restart decision, the NRC may require additional commitments or actions on the part of FirstEnergy. These measures could be included in an Order issued to the utility, in a Confirmatory Action Letter, or in another regulatory action.

The decision on restart will be announced publicly. Mr. Caldwell's decision, along with the panel's recommendation and supporting documentation, will be posted on the NRC's web site.

If the NRC authorizes restart, it will perform enhanced inspections of plant activities, including round-the-clock coverage for up to 14 days. The three-person NRC resident inspection staff will be assisted by other NRC inspectors.

The NRC Oversight Panel will continue to monitor plant activities and meet periodically with the utility and the public until the agency is satisfied that the plant's performance warrants resuming normal regulatory oversight.

Key steps in restart decision

- Public restart meeting between FirstEnergy and NRC Oversight Panel
- NRC Oversight Panel recommendation to James Caldwell, NRC Regional Administrator
- Mr. Caldwell confers with other NRC senior officials
- Decision by Mr. Caldwell on possible restart authorization. Decision will be provided to FirstEnergy and posted on NRC web site.

NRC Issues Three Inspection Reports

Completeness and Accuracy of Required Records and Submittals to the NRC Inspection (Report No. 50-346-03-19), issued January 28, 2004, includes the results of an NRC inspection conducted to determine whether the NRC can have reasonable confidence that information submitted by FirstEnergy is complete and accurate and that the licensee has taken appropriate corrective actions to ensure that future regulatory submittals are complete and accurate.

This inspection did not review records concerning the reactor vessel head degradation. The circumstances surrounding this issue and associated documents were reviewed in previous NRC inspections and in the NRC Office of Investigations investigation.

This inspection focused on reviewing selected documents submitted to the NRC between January 1996 and March 2002, evaluating relevant procedures, observing activities, and interviewing personnel. Inspectors identified three findings:

- (1) The failure to provide the NRC with complete and accurate information regarding the unqualified protective coatings and the likelihood of clogging of the containment emergency sump screen in response to an NRC Generic Letter 98-04. This apparent violation is being considered for further enforcement action.
- (2) The failure to provide accurate information in response to NRC Generic Letter 88-14 on instrument air problems. This is a finding of very low safety significance.
- (3) The failure to provide complete and accurate information in a Licensee Event Report concerning leakage protection for Reactor Coolant Pump motor oil piping in 1997. This issue is under review.

Integrated Resident Inspection (Report No. 50-346/03-25), issued January 28, 2004, includes the results of seven weeks of inspection by the NRC resident inspectors. The report details one finding of very low safety significance: a component cooling water valve was de-energized and left in the open position without the knowledge of control personnel for around 6 hours, which is a violation of plant procedures. This report also documents the closure of restart checklist item # 5.d, Test Program Development and Implementation.

Restart Readiness Assessment Team Inspection (Report No. 50-346/03-011), issued February 4, 2004, evaluated the readiness of plant hardware, plant staff and management programs to support a safe restart and continued operation of Davis-Besse. NRC inspectors found that plant staff failed to consistently implement plant management's expectations and standards. They concluded that the results of the inspection did not provide the NRC with reasonable assurance that plant staff were ready at that time to safely operate the Davis-Besse station and that follow-up NRC inspection was necessary.

Inspection Reports in Preparation

- **Corrective Action Team Inspection** - This inspection looked at the effectiveness of the corrective action program at Davis-Besse – how the utility finds, evaluates, and fixes problems.
- **Management and Human Performance, Phase III (Safety Culture)** - This inspection focused on FirstEnergy's actions to improve management effectiveness and human performance and its processes to survey and assess the safety culture among the staff at Davis-Besse – how the management and workers will identify and deal with safety concerns.
- **Restart Readiness Assessment Team Followup Inspection** - This inspection was performed in February to review the readiness of the plant and the plant staff to resume plant operations safely and in compliance with NRC requirements.
- **Management and Human Performance Followup Inspection (Safety Culture)** - This inspection was performed in January to follow up on issues identified during the Management and Human Performance inspection, completed in December.

The report details four findings of very low safety significance: (1) failure to assure that deficiencies identified in a previous Davis-Besse Operational Readiness Assessment Report were promptly and effectively corrected; (2) failure to effectively implement corrective actions to address operational deficiencies identified during the September 2003 normal operating pressure and temperature test; (3) operators' lack of proper knowledge of plant equipment procedures and evolutions; (4) multiple examples of personnel failing to document the usage of measuring and test equipment from safety-related surveillance testing.

NRC Davis-Besse Oversight Panel

An NRC Davis-Besse Oversight Panel was created in April 2002 to make sure that all corrective actions, required to ensure that Davis-Besse can operate safely, are taken before the plant is permitted to restart and that Davis-Besse maintains high safety and security standards if it resumes operations. Should the plant restart, the Oversight Panel will evaluate if Davis-Besse's performance warrants reduction of the NRC's heightened oversight and, if so, recommend to NRC management that the plant return to a regular inspection schedule. The panel was established under the agency's Manual Chapter 0350.

The panel brings together NRC management personnel and staff from the Region III office in Lisle, Illinois, the NRC Headquarters office in Rockville, Maryland and the NRC Resident Inspector Office at the Davis-Besse site. The eight-member panel's chair and co-chair are John Grobe, a senior manager from Region III, and William Ruland, a senior manager from NRC headquarters.

Davis-Besse Restart Checklist

The Oversight Panel has created a "restart checklist" categorizing 31 actions in seven major areas which FirstEnergy needs to complete before the NRC can consider making a decision on whether Davis-Besse may restart. The NRC oversight panel has determined that the utility has adequately completed 27 of those actions.

NRC inspections are directed at evaluating the checklist items as well as reviewing the ongoing work at Davis-Besse.

The completed items are shown in italics and have a check mark in front of the item. For the completed items, the list also includes the inspection report which documents the NRC's review of the item. The items that remain to be completed are underlined.

1. Adequacy of Root Cause Determinations

- ✓ *1.a Penetration Cracking and Reactor Pressure Vessel Corrosion (Report No. 50-346/03-04)*
- ✓ *1.b Organizational, Programmatic and Human Performance Issues (Report No. 50-346/02-18)*

2. Adequacy of Safety Significant Structures, Systems, and Components

- ✓ *2.a Reactor Pressure Vessel Head Replacement (Report No. 50-346/04-02 - to be issued)*
- ✓ *2.b Containment Vessel Restoration Following Reactor Pressure Vessel Head Replacement (Report No. 50-346/03-05)*
- ✓ *2.c Structures, Systems, and Components Inside Containment (Report No. 50-346/03-10 - to be issued)*
- ✓ *2.c.1 Emergency Core Cooling System and Containment Spray System Sump (Report No. 50-346/03-17)*
- ✓ *2.d Extent-of-Condition of Boric Acid in Systems Outside Containment (Report No. 50-346/03-22)*
- 2.e High Pressure Injection Pump Internal Clearance/Debris Resolution

3. Adequacy of Safety Significant Programs

- ✓ 3.a *Corrective Action Program* (Report No. 50-346/03-10 - to be issued)
- ✓ 3.b *Operating Experience Program* (Report No. 50-346/03-09)
- ✓ 3.c *Quality Audits and Self-Assessments of Programs* (Report No. 50-346/03-23)
- ✓ 3.d *Boric Acid Corrosion Management Program* (Report No. 50-346/03-17)
- ✓ 3.e *Reactor Coolant System Unidentified Leakage Monitoring Program* (Report No. 50-346/03-09)
- ✓ 3.f *In-Service Inspection Program* (Report No. 50-346/03-09)
- ✓ 3.g *Modification Control Program* (Report No. 50-346/03-09)
- ✓ 3.h *Radiation Protection Program* (Report No. 50-346/03-17)
- ✓ 3.i *Process for Ensuring Completeness and Accuracy of Required Records and Submittals to the NRC* - (Report No. 50-346/03-19)

4. Adequacy of Organizational Effectiveness and Human Performance

- ✓ 4.a *Adequacy of Corrective Action Plan* (Report No. 50-346/02-18)
- ✓ 4.b *Effectiveness of Corrective Actions* (Report No. 50-346/04-03 - to be issued)

5. Readiness for Restart

- ✓ 5.a *Review of Licensee's Restart Action Plan* (Report No. 50-346/03-22)
- 5.b Systems Readiness for Restart
- 5.c Operations Readiness for Restart
- ✓ 5.d *Test Program Development and Implementation* (Report No. 50-346/03-25)

6. Licensing Issue Resolution (Items 6a-6f discussed in Report No. 50-346/03-04 and Item 6g discussed in Report No. 50-346/03-17)

- ✓ 6.a *Verification that Relief Requests A8 and A12 regarding the Shell to Flange Weld (previously submitted by letter dated September 19, 2000) is not Impacted by the Midland RPV Head*
- ✓ 6.b *American Society of Mechanical Engineers (ASME) Code Relief Request for Failure to Maintain Original Radiographic Tests of the Midland Head to Flange Weld (Planned Relief Request A26)*
- ✓ 6.c *ASME Code Relief Request for Inability to Radiographically Test 100% of the Midland Reactor Pressure Vessel Head to Flange Weld (Planned Relief Request A27)*
- ✓ 6.d *Resubmit Relief Request A2 (previously submitted by letter dated September 19, 2000) for ASME Code for Inability to Perform 100% volumetric and surface examination of Head to Flange Weld*
- ✓ 6.e *Reconciliation Letter that Demonstrates How the New Reactor Pressure Vessel Head Correlates With the ASME Code and QA Index for Section III and Section XI - Commitments*
- ✓ 6.f *Verification Letter of Technical Specification Pressure/Temperature Curves for New Vessel Head - Commitment*
- ✓ 6.g *Request to relocate High Pressure Injection and Low Pressure Injection Subsystems Flow Balance Testing from Technical Specifications 4.5.2.h to Updated Safety Analysis Report Technical Requirements Manual*

7. Confirmatory Action Letter Resolution

- 7.a Verification that Confirmatory Action Letter Items are Resolved, Including a Public Meeting to Discuss Readiness for Restart