



U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

NRC Public Meeting

Davis Besse Shield

Building Cracks

August 9, 2012



Welcome

Charles Casto
Regional Administrator
NRC Region III



Meeting Information

Steve Reynolds

Director

Division of Reactor Safety

NRC Region III



Meeting Agenda

- Meeting Purpose & Background
- Licensee Presentation
- NRC Shield Building Inspection & Conclusions
- License Renewal Inspections
- Summary
- Break
- Public Questions and Comments

Meeting Purpose

- **Inform public about safety of Davis Besse shield building through:**
 - **Presentation by licensee on results of root cause evaluation and corrective actions**
 - **Presentation by NRC on NRC's inspection of licensee's root cause activities and actions going forward**



Safety Issue

- **On October 10, 2011, licensee promptly notified NRC upon identifying cracking in the Davis Besse shield building.**
- **NRC determined there was no immediate safety concern. The plant was shut down at the time.**
- **NRC conducted a rigorous inspection resulting in licensee performing additional testing and more extensive, sophisticated calculations.**



NRC Safety Conclusion Regarding Operability

- **Shield building is safe despite the cracking**
- **Licensee could safely restart the plant**
- **Public meeting held 1/5/12 on NRC's safety conclusion**



Confirmatory Action Letter Issued to Licensee

- Letter dated December 2, 2011
- Implement a short-term monitoring program
- Complete a root cause evaluation
- Develop and implement corrective actions
- Develop and implement a long-term monitoring program



Additional NRC Actions to Ensure Continued Safety of the Shield Building

- **Conducted a follow-up inspection of root cause evaluation and proposed corrective actions**
- **Continued relentless monitoring of licensee correction actions**
- **Scrutinous oversight of licensee actions going forward**



Introductions - NRC

- **Charles Casto, Regional Administrator, Region III**
- **Steve Reynolds, Director, Division of Reactor Safety**
- **Ann Marie Stone, Chief, Engineering Branch 2**
- **Melvin Holmberg, Senior Reactor Inspector**
- **James Neurauter, Senior Reactor Inspector**
- **Daniel Kimble, Senior Resident Inspector**



Introductions - NRC

- **Jared Heck, Meeting Facilitator**
- **David Hills, Chief, Engineering Branch 1**
- **Jamnes Cameron, Chief, Reactor Projects Branch 6**
- **Brian Harris, Project Manager, DLR, Office of Nuclear Reactor Regulation**
- **Bryce Lehman, Structural Engineer, DLR, Office of Nuclear Reactor Regulation**
- **Michael Mahoney, Project Manager, DORL, Office of Nuclear Reactor Regulation**



First Energy Nuclear Operating Company (FENOC) Introductions and Presentation



NRC Root Cause Inspection

Melvin Holmberg
Senior Reactor Inspector
Division of Reactor Safety
NRC Region III



NRC Safety Focused Inspection

- **Early NRC Engagement with the Root Cause Investigation - December of 2011.**
 - **Provided NRC with real time results**
 - **Facilitated independent NRC observations and interaction with licensee and vendor staff**
 - **Facilitated coordination of independent NRC inspections onsite**



NRC Safety Focused Inspection

- **NRC Actions – Assess Validity of the Causes of the Shield Building Cracking.**
 - **Team of 4 NRC Inspectors**
 - **Independently observed cracks in:**
 - 1. SB access opening**
 - 2. Core bores**
 - 3. Removed core samples**
 - **Observed offsite vendor test facilities- core bore samples**



NRC Safety Focused Inspection

- Reviewed licensee and vendor Root Cause Reports**
- Evaluated licensee cause determination process**
- Evaluated inputs/assumptions/modeling for SB calculations**
- Evaluated licensee and vendor experience and education**

NRC Conclusion – Causes of Shield Building Cracking

- **Sufficient basis established for the causes of the shield building laminar cracking:**
 - **Blizzard of 1978**
 - **Lack of exterior moisture barrier**
 - **Structural design elements of shield building**

Basis for NRC Conclusion

- **Systematic Root Cause Process Followed with Qualified Subject Matter Experts**
 - **Experts in concrete degradation and root cause analysis considered and eliminated a wide range of possible causes**
 - **Comprehensive analysis in accordance with well known and accepted root cause processes**

Basis for NRC Conclusion

- **Causes Supported by:**
 - **Objective Evidence:**
 - Weather records, core bore sample and impulse response test results
 - **Analytical Analysis**
 - Five analytical model results
 - **Operating Experience**
 - Similar structures identified with laminar cracking which supports the identified causes



NRC Conclusions - Corrective Actions

- **The NRC determined that the licensee's proposed corrective actions, if adequately implemented, should keep the shield building safe to operate.**

Basis of NRC Conclusion - Correction Actions

- **Exterior moisture barrier to prevent additional moisture related laminar cracking.**
- **Procedures to examine the exterior moisture barrier and monitoring of extent of existing cracking**
- **NRC follow-up inspections to closely monitor licensee implementation of corrective actions**



NRC Identified Weakness in Root Cause Report

- **Certain details associated with supporting the licensee's analysis and conclusions**
 - **The licensee entered these weaknesses into the Corrective Action Program**
- **Two examples for which the corrective actions proposed by licensee were too narrow**
 - **The licensee entered these observations into the Corrective Action Program.**



License Renewal Inspections

Ann Marie Stone
Engineering Branch Chief
Division of Reactor Safety
NRC Region III

License Renewal Perspectives

- **Operating Experience has a KEY role in the License Renewal process**
 - **Incorporation of Shield Building cracking in the License Renewal process**
- **License Renewal application process**
 - **Perform detailed technical reviews and audits**
 - **Perform independent inspections**

License Renewal Perspectives

- **Davis Besse License Renewal Inspections**
 - In-plant walk downs, and review of current credited programs, planned future programs/actions, and operating experience.
 - Determine if licensee's programs, when implemented, will be consistent with requirements.
 - Inspection Results Documented in Inspection Reports 05000346/2011010 and 05000346/2011012

License Renewal Perspectives

- **Current and future actions**
 - **Application: Licensee’s proposed aging management program titled “Shield Building Monitoring Program” being reviewed**
 - **(If a renewed license is granted) Post Renewal: Additional NRC inspections to verify the licensee completed the commitments and license conditions**



Regulatory Overview

- **Shield Building is safe**
- **NRC continues to provide close oversight going forward**
- **NRC will keep the public informed**



Summary

Charles Casto
Regional Administrator
NRC Region III



Meeting Contacts

- **Followup Questions - Contact the NRC Region III Office of Public Affairs**

Viktoria Mitlyng / Prema Chandrathil

Tel: (630) 829-9500

OPA3@nrc.gov