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Omaha, NE 68102-2247

LIC-11-0011  
June 7, 2011

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

- References:
1. Docket Number 50-285
  2. Letter from NRC (T. R. Farnholtz) to OPPD (D. J. Bannister) dated December 30, 2009 (NRC-09-0096)
  3. Letter from NRC (T. R. Farnholtz) to OPPD (D. J. Bannister) dated August 26, 2010 (NRC-10-0067)
  4. Regulatory Conference with Omaha Public Power District (OPPD) at the NRC Region IV Headquarters, Arlington TX, held on August 18, 2010
  5. Letter from NRC (R. J. Caniano) to OPPD (D. J. Bannister) dated July 15, 2010 (NRC-10-0054) (EA-10-0084)
  6. Letter from OPPD (J. A. Reinhart) to NRC Document Control Desk (DCD) dated September 23, 2010 (LIC-10-0091)
  7. Letter from NRC (E. E. Collins) to OPPD (D. J. Bannister) dated October 6, 2010 (NRC-10-0080) (EA-10-0084)
  8. Letter from NRC (E. E. Collins) to OPPD (D. J. Bannister) dated October 7, 2010 (NRC-10-0082)
  9. Letter from OPPD (J. A. Reinhart) to NRC DCD dated November 5, 2010 (LIC 10-0098)

**SUBJECT: NRC Inspection Report 05000285/2010008, Reply to a Notice of Violation (NOV); EA-10-084 (Revision 1)**

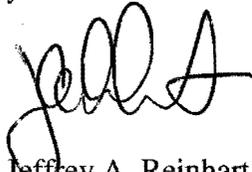
In Reference 7, the Nuclear Regulatory Commission (NRC) transmitted a Notice of Violation (NOV) to the Omaha Public Power District (OPPD) that contained a Yellow finding. This Yellow finding involved the failure to maintain procedures for combating a significant flood as required by Fort Calhoun Station (FCS) Technical Specification 5.8.1.a, *Procedures*. In Reference 9, OPPD provided an initial response to the Yellow finding.

In Reference 8, OPPD was notified by the NRC, that supplemental inspection IP 95002, *Inspection for one Degraded Cornerstone or any Three White Inputs in a Strategic Performance Area*, would be performed at FCS. As required by the IP 95002 process an expanded analysis of the Yellow finding was performed and pursuant to the provisions of 10 CFR 2.201 the results are provided in the Enclosure to this letter. OPPD accepts the violation and has elected not to appeal the staff's final significance determination decision. This letter is a revision to Reference 9 and changes are identified by revision bars.

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The protection against and mitigation of an external flooding event are of the utmost importance to OPPD. Actions have been completed and are on-going to address deficiencies in the station design basis, procedures, equipment and training. Based on these actions OPPD is in full compliance with FCS Technical Specifications.

This letter contains regulatory commitments that are summarized on the last page of the Enclosure. If you should have any questions, please contact me.



Jeffrey A. Reinhart  
Site Vice President

Enclosure

JAR/rmc

c: E. E. Collins Jr., NRC Regional Administrator, Region IV  
L. E. Wilkins, NRC Project Manager  
J. C. Kirkland, NRC Senior Resident Inspector

**REPLY TO A NOTICE OF VIOLATION**

**Omaha Public Power District  
Fort Calhoun Station**

**Docket No. 50-285  
License No. DPR-40  
EA-10-084**

**During an NRC Inspection conducted from January 1 to June 21, 2010, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:**

**Technical Specification 5.8.1.a, *Procedures*, states, “Written procedures and administrative policies shall be established, implemented, and maintained covering the following activities: (a) The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, 1978.” NRC Regulatory Guide 1.33 *Quality Assurance Program Requirements (Operation)*, Appendix A, *Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors*, section 6, recommends procedures for combating emergencies and other significant events. Section 6.w, *Acts of Nature*, includes, in part, procedures for combating floods.**

**Contrary to Technical Specification 5.8.1.a, since 1978, written procedures and administrative policies were not maintained covering the applicable procedures recommended by NRC Regulatory Guide 1.33, Revision 2, Appendix A. Specifically, the licensee failed to maintain written procedures for combating a significant external flood as recommended by NRC Regulatory Guide, Appendix A, Section 6.w, *Acts of Nature*. The licensee’s written procedures did not adequately prescribe steps to mitigate external flood conditions in the auxiliary building and intake structure up to 1014 feet mean sea level, as documented in the Updated Final Safety Analysis Report.**

**This violation is associated with a Yellow significance determination process finding in the Mitigating Systems Cornerstone.**

## **OPPD Response**

### **1. Reason for the Violation**

A comprehensive root cause analysis (RCA) of the development and revision history of the external flooding protection procedures was performed to establish the context and progression of the procedure deficiencies. Documentation relating to the origin of statements in the FSAR/USAR, early procedures associated with flooding protection, changes to flooding protection procedures over time, engineering analyses related to flooding protection and previous condition reports (CRs) on flooding protection procedures were reviewed. Safety culture components as they related to identified performance issues were also evaluated during the RCA process.

The RCA concluded that from 1972 to 2009 procedures associated with external flooding did not provide adequate guidance for the protection of the intake structure and auxiliary building to 1014-ft mean sea level (MSL). Generally, the procedure deficiencies (which changed over time) were in the areas of flood protection levels, availability of sandbagging material and equipment, configuration of sandbag berms, and command and control during a flooding event. The RCA identified the following root causes for the failure to adequately maintain procedures for combating an external flood:

1. Historically, when procedures for flooding protection were restructured or substantially augmented, a weak procedure revision process did not assure that Fort Calhoun Station (FCS) met its USAR requirements.
2. Supervisory and management oversight of work activities associated with external flooding matters was not sufficient to prevent this issue from recurring.
3. The FCS organization has not been effective in ensuring that performance deficiencies related to external flooding are adequately identified, evaluated and resolved.
4. Mindsets existed that FCS was safe "as-is" relative to external flooding events. These mindsets collectively led to the incorrect conclusion that regulatory requirements were being met.

The RCA also identified 13 contributing causes. The two key contributing causes that are discussed in this letter include:

1. An adequate technical basis for flood protection was not established. A comprehensive evaluation of the external flooding susceptibility of the auxiliary building and intake structure had not been performed.
2. When strategies for protecting against high level floods (to 1014-ft MSL) were developed, they were neither viable nor cohesive. Additionally, the original flood protection strategy and subsequent strategies were not adequately validated.

There were missed opportunities that directly contributed to the failure to implement appropriate corrective actions when new external flooding information became available. A review of the FCS corrective action program (CAP) and other activities/correspondence from 1996-2010, identified activities or recommendations that if applied, would have identified the procedure deficiencies and prompted corrective action. The key missed opportunities included the review/updating of flooding protection procedures, the USAR Verification Project, Design Basis Reconstitution Project findings, NRC inspector questions, and the failure to apply the recommendations from an engineering site flooding analysis.

## **2. Corrective Steps Taken and the Results Achieved**

Appropriate flooding response procedures were initially revised and subsequently enhanced, validated and training provided to include the external flooding protection strategies described in revised USAR Section 2.7, "Hydrology."

Internal and external operating experience (OE) concerning external flooding for flood barrier/penetrations was reviewed to establish a valid mental model and understanding of flooding vulnerabilities. The lessons learned from this review were factored into the applicable procedures and associated equipment.

A comprehensive command and control strategy that cohesively addresses the unique issues associated with flooding preparations and mitigation was developed.

An expanded evaluation and field verification of potential sources of water leakage into the FCS intake structure and auxiliary buildings was performed. The evaluation identified several unsealed penetrations that were subsequently repaired. Appropriate unsealed leakage paths were reported to the NRC per 10 CFR 50.72 and 10 CFR 50.73.

A site wide briefing was performed to communicate to FCS personnel how flawed responses to CRs contributed to the procedure inadequacies that led to the NRC Yellow finding on external flooding protection. This site wide briefing also reinforced the importance of thorough and appropriate responses to CRs.

Site wide briefings were provided to reinforce the importance of maintaining a "questioning attitude" and "conservative decision making." Additionally, FCS leaders were briefed on the importance of avoiding "flawed mindsets" that are detrimental to nuclear safety and what behaviors must change in the Problem Identification and Resolution (PI&R) and safety culture areas.

The CAP was revised to require an extent of condition review for certain Level C CRs. This will ensure that the potential scope of identified deficiencies is evaluated. Condition Reporting Group (CRG) members were briefed on these new requirements.

The FCS self-assessment and quality assurance audit programs were revised to require that procedures that implement specified USAR requirements are verified during engineering assessments and audits on a periodic basis.

**3. Corrective Steps That Will be Taken**

The FCS procedure revision process will be improved to ensure that new and revised procedures are correctly classified, adequate technical bases are included and documented, appropriate consideration is given to the viability and cohesiveness of the procedure strategy, and design and licensing basis requirements are adequately addressed.

A technical basis document that details the design and the basis for the design adequacy of each applicable flood barrier/penetration will be developed.

An evaluation of the CAP using Institute of Nuclear Power Operations (INPO) and NRC guidance documents will be performed to identify performance gaps and other improvements. The CAP program will be revised to include the results of the above evaluation.

A site wide nuclear safety culture monitoring program based on NEI 99-07, "Fostering a Strong Nuclear Safety Culture," will be developed, implemented, and training provided.

**4. Date When Full Compliance Will be Achieved**

OPPD is in full compliance with Technical Specification 5.8.1.a, *Procedures*. Appropriate procedures that describe steps to mitigate external flood conditions in the auxiliary building and intake structure up to 1014-ft MSL, as documented in the USAR, have been developed or revised.

### Regulatory Commitments

<b>Commitment</b>	<b>CR Number</b>
The FCS procedure revision process will be improved to ensure that new and revised procedures are correctly classified, adequate technical bases are included and documented, appropriate consideration is given to the viability and cohesiveness of the procedure strategy and design and licensing basis requirements are adequately addressed.	2010-2387
A technical basis document that details the design and the basis for the design adequacy of each applicable flood barrier/penetration will be developed.	2010-2387
An evaluation of the CAP program using Institute of Nuclear Power Operations (INPO) and NRC guidance documents will be performed to identify performance gaps and other improvements. The CAP program will be revised to include the results of the above evaluation.	2010-2387
A site wide nuclear safety culture monitoring program based on NEI 99-07, "Fostering a Strong Nuclear Safety Culture," will be developed, implemented, and training completed.	2010-2387