



LIC-11-0023  
April 4, 2011

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

Reference: Docket No. 50-285

**Subject: Licensee Event Report 2011-003, Revision 0, for the Fort Calhoun Station**

Please find attached Licensee Event Report 2011-003, Revision 0, dated, April 4, 2011. This report is being submitted pursuant to 10CFR50.73(a)(2)(v)(D). If you should have any questions, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey Reinhart", is written over a horizontal line.

Jeffrey Reinhart  
Site Vice President

JAR/epm

Attachment

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

# LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.resource@nrc.gov](mailto:infocollects.resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>1. FACILITY NAME</b> Fort Calhoun Station	<b>2. DOCKET NUMBER</b> 05000285	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Inadequate Flooding Protection Due To Ineffective Oversight

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
2	3	2011	2011	- 003	- 04		4	2011		05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> <i>(Check all that apply)</i>									
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
<b>10. POWER LEVEL</b>  100	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)						
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A					
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)							

12. LICENSEE CONTACT FOR THIS LER	
FACILITY NAME Erick Matzke	TELEPHONE NUMBER <i>(Include Area Code)</i> 402-533-6855

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT									
CAUSE SY	STEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE SY	STEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input checked="" type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> <input type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
		6	30	2011

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

During identification and evaluation of flood barriers, unsealed through wall penetrations in the outside wall of the intake structure were identified that are below the licensing basis flood elevation.

A summary of the root causes included: a weak procedure revision process; insufficient oversight of work activities associated with external flood matters; ineffective identification, evaluation and resolution of performance deficiencies related to external flooding; and "safe as is" mindsets relative to external flooding events.

The penetrations were temporarily sealed and a configuration change was developed and implemented whereby permanent seals were installed. Comprehensive corrective actions to address the root and contributing causes are being addressed through the corrective action program.

**LICENSEE EVENT REPORT (LER)  
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Fort Calhoun Station	05000285	YEAR	SEQUENTIAL NUMBER	REV NO.	2 OF	4
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**NARRATIVE**

**BACKGROUND**

As a result of a Nuclear Regulatory Commission (NRC) inspection conducted from January 1 to June 21, 2010, the NRC determined that Fort Calhoun Station (FCS) did not have adequate procedures to protect the intake structure and auxiliary building against external flooding events. Specifically, contrary to Technical Specification 5.8.1.a, the station failed to maintain procedures for combating a significant flood as recommended by Regulatory Guide 1.33, Appendix A, section 6.w, "Acts of Nature." The NRC identified the following violation of NRC requirements associated with a yellow significance determination process finding in the mitigating systems cornerstone in inspection report 05000285/2010008 dated October 6, 2010:

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 [USAR].

The NRC reported that the station's flood protection strategy was not fully effective during worst-case Missouri River flooding scenarios. The strategy required workers to install floodgates in front of the doors to the plant's auxiliary building and intake structure, and then stack and drape sandbags over the top of the floodgates up to a height of five feet. The procedural guidance was inadequate because the cross-section on top of the floodgates would not support a stacked sandbag configuration that would retain five feet of moving water.

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**NARRATIVE**

**EVENT DESCRIPTION**

During identification and evaluation of flood barriers (condition report (CR) 2010-2387), in response to NRC findings previously noted, unsealed through wall penetrations in the intake structure were identified that are below the licensing basis flood elevation. These penetrations were installed during the installation of the upgrades to plant fire protection system. As a result of the penetrations not being sealed, the intake structure was vulnerable to water inflow during an extreme flooding event. This inflow had the potential to affect the operability of both trains of safety related raw water pumps (ultimate heat sink). During the extent of cause analysis for the issue these penetrations were identified as not having been reported. On February 4, 2011, an eight (8) hour report was made under 10 CFR 50.72 (b)(3)(v)(D) to the NRC Headquarters Operation Office (HOO) at 1717 CST. The report should have been made on September 9, 2009. This report is being made per 10 CFR 50.73(a)(2)(v)(D).

**CONCLUSION**

A root cause determination was prepared in connection with CR 2010-2387 which documents the causes of the problem.

The following four (4) root causes explain why written procedures were inadequate to mitigate the external flood conditions prescribed by the Updated Safety Analysis Report (USAR). These root causes address the NRC issued yellow finding as well as the specific penetration being addressed in this LER.

- Historically, when procedures for flooding protection were restructured or substantially augmented, a weak procedure revision process did not assure FCS met its USAR requirements.
- Supervisory and management oversight of work activities associated with external flood matters was not sufficient to prevent this issue from occurring.
- The FCS organization has not been effective in ensuring that performance deficiencies related to external flooding are adequately identified, evaluated, and resolved.
- 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.

**CORRECTIVE ACTIONS**

The penetrations were temporarily sealed. A configuration change was developed and permanent seals were installed in the subject penetrations. Comprehensive corrective actions to address the root and contributing causes are being developed and will be addressed through the corrective action program. Additional corrective actions will be identified in a revision to this LER.

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**NARRATIVE**

**SAFETY SIGNIFICANCE**

The Fort Calhoun Station is required to be protected from flooding within the station's licensing basis. The station raw water pumps, which are part of the ultimate heat sink, are located in the intake structure. The openings could have jeopardized the ability of the raw water pumps to perform their design basis function during an accident. Another method of removing decay heat is available. However, FCS recognizes that external flooding has substantial importance to safety.

**SAFETY SYSTEM FUNCTIONAL FAILURE**

This event does result in a safety system functional failure in accordance with NEI-99-02.

**PREVIOUS EVENTS**

LER 2011-001 documents a similar issue.