



10 CFR 50.73

LIC-15-0001
February 13, 2015

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

Fort Calhoun Station, Unit No. 1
Renewed Facility Operating License No. DPR-40
NRC Docket No. 50-285

Subject: Licensee Event Report 2014-007, Revision 0, for the Fort Calhoun Station

Please find attached Licensee Event Report 2014-007, Revision 0. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A), Specified System Actuation (RPS). There are no new commitments being made in this letter.

If you should have any questions, please contact Terrence W. Simpkin, Manager, Site Regulatory Assurance, at (402) 533-6263.

Sincerely,



Louis P. Cortopassi
Site Vice President and CNO

LPC/epm

Attachment

c: M. L. Dapas, NRC Regional Administrator, Region IV
C. F. Lyon, NRC Senior Project Manager
S.M. Schneider, NRC Senior Resident Inspector

LE22
NRR

LICENSEE EVENT REPORT (LER)(See Page 2 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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollect.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.

1. FACILITY NAME Fort Calhoun Station	2. DOCKET NUMBER 05000285	3. PAGE 1 OF 3
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Plant Trip Due to Moisture Intrusion into a Transformer Control Cabinet

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
12	17	2014	2014	007 - 00		02	13	2015		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<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)
10. POWER LEVEL 100	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" 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
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Erick Matzke	TELEPHONE NUMBER (Include Area Code) 402-533-6855
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	EA	63	GE	Y					

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH DAY YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On December 17, 2014, at 1014 Central Standard Time (CST), the Fort Calhoun Station (FCS) reactor tripped due to a loss of load signal from the main turbine. The loss of load signal actuates the reactor protective system (RPS) which tripped the plant. The trip of the turbine was caused by a spurious actuation of a relay on the station unit auxiliary transformer that normally provides power to 4160 VAC bus 1A2.

The root cause was that FCS had not ensured that an identified single point vulnerability for T1A-2 transformer was eliminated or had an adequate mitigating strategy.

The control cabinet sealing was improved to reduce moisture from the interior of the cabinet. The relay that caused the trip was removed from the trip circuit. The station will modify the control circuits to eliminate the single point vulnerability in the transformer control cabinets.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollections.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.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Fort Calhoun Station	05000285	2014	- 007	- 00	2 OF 3

NARRATIVE**BACKGROUND**

Fort Calhoun Station (FCS) is a two-loop reactor coolant system of Combustion Engineering design.

EVENT DESCRIPTION

On December 17, 2014, at 1014 Central Standard Time (CST), the Fort Calhoun Station (FCS) reactor tripped due to a loss of load signal from the main turbine. The loss of load signal actuates the reactor protective system (RPS) which tripped the plant. The trip of the turbine was caused by a spurious actuation of the 63FPXA/T1A-2, "63FP Seal-in relay A" on transformer T1A-2. This transformer is the station unit auxiliary transformer that normally provides power to 4160 VAC bus 1A2. This transformer is a 22kV to 4160 VAC transformer.

The transformer is protected from overpressure events internally by a 63FP/T1A-2 sudden pressure relay. This relay actuates downstream auxiliary relays that cause annunciation in the control room and a plant trip by tripping the turbine generator and isolating 345kV to the site. Upon discovery, the auxiliary relay 63FPXA/T1A-2 was found picked up and sealed in, and the 63FPXB/T1A-2 was found de-energized with no target flags actuated. The circuit is designed so that the "B" relay must actuate in order for the "A" relay to actuate. However, the circuit is designed in such a way that the actuation of the "A" relay without the "B" relay actuating will trip the plant. Additionally, moisture was found on the internals of the cabinet, and signs of water intrusion were found on the 63FPXA/T1A-2 relay.

Immediate response by operations personnel included implementing emergency operating procedure (EOP)-00, Standard Post Trip Actions, and subsequent entry into EOP-01, Reactor Trip Recovery. Based on plant system response this is considered an uncomplicated trip.

At 1156 CST, the NRC Headquarter Operations Officer (HOO) was notified of the event per 10 CFR 50.72(b)(2)(iv)(B) (RPS Actuation) and 50.72(b)(3)(iv)(A) (Specified System Actuation (RPS)). This report is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A), Specified System Actuation (RPS).

CONCLUSION

The auxiliary relays were functionally tested and were acceptable. Troubleshooting has revealed that the direct cause of the reactor trip is moisture intrusion into the T1A-2 transformer control cabinet causing a spurious actuation of 63FPXA/T1A-2 relay.

A root cause evaluation was conducted and determined that the plant trip occurred because FCS had not ensured that an identified single point vulnerability for T1A-2 transformer was eliminated or had an adequate mitigating strategy.

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NARRATIVE**CORRECTIVE ACTIONS****Immediate Corrective Actions**

Inspections were conducted of the control cabinets for transformers T1, T1A-1 and T1A-2. The control cabinets for T1 and T1A-1 were found to be acceptable.

The T1A-2 unit auxiliary control cabinet sealing was improved to reduce moisture from the interior of the cabinet. The panel contained a terminal block which had signs of corrosion, and has since been replaced. 63FPXA/T1A-2 was removed from the trip circuit.

Long Term Corrective Actions

Install a modification to transformers T1, T1A-1, and T1A-2 that aligns with the industry standard for the sudden pressure relay scheme. This includes installation of a relay containing logic redundancy, and the installation of a solid state relaying scheme.

SAFETY SIGNIFICANCE

The plant responded normally as designed to a failure of a protective relay that resulted with the isolation of transformers supplying power to the station. Plant systems responded as designed in response to the spurious transformer fault signal. There were no failures of safety equipment in the automatic reactor shutdown. The loss power from the transformers did not result in the unavailability of other plant equipment.

SAFETY SYSTEM FUNCTIONAL FAILURE

This does not represent a safety system functional failure in accordance with NEI 99-02, revision 7.

PREVIOUS EVENTS

None