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January 7, 2016
GO2-16-010

10 CFR 50.73

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397**
LICENSEE EVENT REPORT NO. 2015-007-00

Dear Sir or Madam:

Transmitted herewith is Licensee Event Report No. 2015-007-00 for Columbia Generating Station. This report is submitted pursuant to 50.73(a)(2)(v)(C) and 50.73(a)(2)(v)(D).

There are no commitments being made to the NRC by this letter. If you have any questions or require additional information, please contact Ms. D.M. Wolfgramm, Regulatory Compliance Supervisor, at (509) 377-4792.

Executed on January 7, 2016

Respectfully,

W.G. Hettel
Vice President, Operations

Enclosure: Licensee Event Report 2015-007-00

cc: NRC Region IV Administrator
NRC NRR Project Manager
NRC Senior Resident Inspector/988C
CD Sonoda – BPA/1399
WA Horin – Winston & Strawn

NRC FORM 366 (01-2014) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block).

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Columbia Generating Station	05000 397	1 OF 3

4. TITLE

REACTOR BUILDING PRESSURE GREATER THAN TECHNICAL SPECIFICATIONS REQUIREMENT

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
									N/A	05000
11	09	2015	2015 – 007 – 00			01	07	2016	FACILITY NAME N/A	DOCKET NUMBER 05000

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

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Desiree Wolfgramm	509-377-4792

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ **YES** *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO				

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

On November 9, 2015 at 20:40 PST, Secondary Containment (Reactor Building) became inoperable due to pressure increasing above the Technical Specifications (TS) limit of -0.25 inches water gauge (inwg).

At the time of the event the Division 2 Reactor Building Heating, Ventilation and Air Conditioning System (HVAC) was controlling Secondary Containment differential pressure. Power supply E-E/S-299 then failed, causing Division 2 Secondary Containment Pressure controller to lose power. This resulted in the Division 2 Reactor Building Exhaust Fan flow being reduced, causing Secondary containment pressure to rise above TS limit of -0.25 inwg.

Operations personnel manually started the Division 2 SGT lead fan to restore negative pressure. The lead fan operated at max flow (due to the failure of E-E/S-299) resulting in the restoration of Secondary Containment pressure to within TS limits.

The Division 1 HVAC was manually started, allowing Operations personnel to manually secure the Division 2 SGT lead fan and maintain Secondary Containment pressure.

The direct cause for the loss of E-E/S-299 was due to an incorrect lug size installed in the fuse block during initial construction. Current procedures are adequate to prevent a similar error.

NARRATIVE

Plant Conditions

At the time of the event the plant was operating in Mode 1 at 100% power. The Division 1 Standby Gas Treatment (SGT) [BH] system was inoperable and unavailable due to annual system maintenance.

Event Description

On November 9, 2015 at 20:40 PST, Secondary Containment [NG] became inoperable as pressure increased above the -0.25 inches water gauge (inwg) required by Technical Specification (TS) Surveillance Requirement (SR) 3.6.4.1.1. This was due to failure of a power supply (E-E/S-299) [JX], which supplied power to the Secondary Containment Division 2 Pressure Controller (REA-DPIC-1B) [PDC]. Consequently, the Division 2 Reactor Building Exhaust Fan (REA-FN-1B) [FAN] dropped to minimum exhaust flow, and for approximately seven minutes, the Secondary Containment pressure rose above -0.25 inwg, which exceeded the TS limit.

High pressure alarms were received in the Control Room and Operators proceeded to manually start the safety related Division 2 Standby Gas Treatment [BH] lead fan (SGT-FN-1B2) [FAN] to restore negative pressure. The flow controller for this lead fan (SGT-DPIC-1B2) [PDC] also had failed as a result of the loss of power, causing its vortex damper (SGT-AD-1B2) [FAN] to remain fully open, resulting in the restoration of Secondary Containment pressure to within TS limits. The Division 1 Reactor Building Heating, Ventilation and Air Conditioning System (HVAC) [VA] was then placed in automatic mode, which maintained Secondary Containment pressure within TS limits, thus allowing Operators to manually secure SGT- FN-1B2.

During the event, there were no radioactive releases or other safety system malfunctions, other than the systems involved in the inoperability of Secondary Containment as affected by the electrical power supply failure.

Cause

Secondary Containment was lost when power supply E-E/S-299 failed. The direct cause for the loss of the power supply E-E/S-299 was an inappropriate lug size installed within the fuse block. The lug used was thicker than required for the fuse block connection and a tight mechanical connection in the lug landing area did not exist, which resulted in a loose fuse block termination. The station determined that the apparent cause of the event was a latent human performance error, in which an incorrectly sized lug was installed during initial construction. A review of the work history for E-E/S-299 showed that no work had been performed on this component after initial installation.

Immediate Corrective Action

Operators manually started the Division 1 SGT lead fan to restore Secondary Containment pressure. The lead fan operated at max flow (due to the failure of E-E/S-299) resulting in the restoration of Secondary Containment pressure to within TS limits. Operators then placed Division 1 Reactor Building HVAC into automatic to maintain Secondary Containment pressure within TS limits.
A temporary alteration in support of maintenance was performed to provide temporary power while a new terminal block for E-E/S-299 was installed.

A condition report was initiated to document the potential degradation of critical power supplies and to ensure operability review of the potentially degraded components.

Additional Corrective Actions
An extent of condition will be performed to inspect the terminations for critical power supplies located inside the Main Control Room and Remote Shutdown Room that were fused with the same style fuse block as E-E/S-299.

Columbia currently has adequate barriers in place to prevent installation of an oversized lug. Guidance in Maintenance procedures prevents installation of an incorrectly sized lug; specifically, Maintenance procedures provide instructions on the correct way to terminate a lug connection, and instructions on terminal blocks and acceptable ways to install the terminations. Additionally, Quality Control hold points are utilized to independently verify correct installation, and Human Performance Error Prevention Tools such as pre-job briefs and procedure use/adherence are used in the field to reduce human performance errors.

Operating Experience and Previous Occurrences
An extent of condition and cause review was performed for similar LERs. There have been multiple secondary containment events reported by Columbia, with several being weather-related events caused by improper tuning of the Reactor Building Outside Air differential pressure controllers. Specifically, LERs 2014-001-01 and 2013-007-01 were weather-related. LERs 2013-001-00, 2012-007-00, and 2012-003-00 describe Secondary Containment events not caused by weather. Other reported secondary containment event causes are not applicable to the current cause of an initial construction issue.

Assessment of Safety Consequences
This event resulted in an unplanned entry into LCO 3.6.4.1.A. Secondary containment pressure was greater than - 0.25 inwg for seven minutes. While the actual pressure was beyond the range allowed by Technical Specifications, the SGT system is designed to maintain Secondary Containment at a negative pressure with respect to atmosphere to minimize the release of airborne radioactive material during emergency operation. During this event Division 2 SGT was utilized to restore Secondary Containment to TS required pressure of less than -0.25 inwg. There were no potential or actual safety consequences during this event.

This event was investigated as an event that could have prevented the fulfillment of the safety function of systems that are needed to control the release of radioactive material and mitigate the consequences of an accident, in conformance with reporting requirements in 10 CFR 50.73(a)(2)(v)(C) and 10 CFR 50.73(a)(2)(v)(D) as a result of the temporary loss of Secondary Containment. However, because it was demonstrated in this event that SGT had the ability to restore Secondary Containment pressure within the time frame allowed by the safety analysis, this event does not affect the NRC Performance Indicators. Columbia Generating Station (Columbia) reported this under Event Notification No. 51526.

Energy Industry Identification System Information
Energy Industry Identification System information codes from IEEE Standards 805-1984 and 803-1983 are represented in brackets as [X] and [XX] throughout the body of the narrative.