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APR 30 2015

GO2-15-069

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. 2015-001-00**

Dear Sir or Madam:

Transmitted herewith is Licensee Event Report No. 2015-001-00 for Columbia Generating Station. This report is submitted pursuant to 10 CFR 50.73(a)(2)(i)(B), 10 CFR 50.73(a)(2)(ii)(B), 10 CFR 50.73(a)(2)(v)(B), and 10 CFR 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 Mr. J.R. Trautvetter, Regulatory Compliance Supervisor, at (509) 377-4337.

Executed on 4/30/15

Respectfully,

W. G. Hettel  
Vice President, Operations

Enclosure: Licensee Event Report 2015-001-00

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

**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 [infocollections.Resource@nrc.gov](mailto: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**

Columbia Generating Station

**2. DOCKET NUMBER****05000 397****3. PAGE****1 OF 3****4. TITLE**

Non-Conservative Compensatory Measure for Flooding Barriers

**5. EVENT DATE**

MONTH	DAY	YEAR
03	02	2015

**6. LER NUMBER**

YEAR	SEQUENTIAL NUMBER	REV NO.
2015	001	00

**7. REPORT DATE**

MONTH	DAY	YEAR
04	30	2015

**8. OTHER FACILITIES INVOLVED**

FACILITY NAME	DOCKET NUMBER
	<b>05000</b>
FACILITY NAME	DOCKET NUMBER
	<b>05000</b>

**9. OPERATING MODE**

1

**11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)**

<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 checked="" 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 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 checked="" 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 checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

## FACILITY NAME

JR Trautvetter, Compliance Supervisor

## TELEPHONE NUMBER (Include Area Code)

509-377-4337

**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**☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO**15. EXPECTED  
SUBMISSION  
DATE**

MONTH DAY YEAR

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

On March 2, 2015, it was identified that Columbia Generating Station's (Columbia) barrier impairment procedure which allowed for floor plugs in the room above the Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) System pump rooms to be removed was non-conservative and Columbia had been non-compliant with Technical Specifications. Specifically, from December 3, 2014, until December 19, 2014, floor plugs over Residual Heat Removal (RHR) System B pump were removed without an adequate flood barrier resulting in RHR System B being inoperable. The barrier impairment procedure allowed for removal of ECCS or RCIC floor plugs with either a one hour flood tour or installation of a berm as a compensatory measure to maintain operability of the applicable ECCS or RCIC System. A one hour flood tour was initiated per the procedure, and a berm was erected; however both the one hour flood tour and the berm were inadequate. Corrective actions planned to prevent recurrence includes revising the barrier impairment process.

**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 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> <b>Columbia Generating Station</b>	<b>2. DOCKET</b> <b>05000 397</b>	<table border="1"> <tr> <th colspan="3">6. LER NUMBER</th></tr> <tr> <th>YEAR</th><th>SEQUENTIAL NUMBER</th><th>REV NO.</th></tr> <tr> <td>2015</td><td>- 001</td><td>- 00</td></tr> </table>	6. LER NUMBER			YEAR	SEQUENTIAL NUMBER	REV NO.	2015	- 001	- 00	<b>3. PAGE</b>  <b>2 OF 3</b>
6. LER NUMBER												
YEAR	SEQUENTIAL NUMBER	REV NO.										
2015	- 001	- 00										

**NARRATIVE**

**Plant Conditions**

At the time of the event reactor power was 100% from December 3, 2014, to December 19, 2014, except from December 13, 2014, 23:05 until December 14, 2014, 00:20 when it was 97% for Main Steam Bypass Testing. There were no structures, systems, or components that were inoperable at the start of the event which contributed to the event.

**Event Description**

On March 2, 2015, it was identified that Columbia Generating Station's (Columbia) barrier impairment procedure which allowed for floor plugs over the Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) [BN] System pump [P] rooms to be removed with a one hour flood tour to maintain operability of the system was non-conservative and Columbia had been non-compliant with Technical Specifications (TS).

On December 3, 2014, a floor plug for the Residual Heat Removal (RHR) [BO] System B on the Reactor Building (RB) [NG] 471' elevation was removed per the barrier impairment process. A one hour flood tour was initiated for this barrier impairment, and a berm was erected; however, the one hour flood tour was non-conservative and the berm did not meet procedural requirements for flood height nor was it a continuous berm. On December 18, 2014, the NRC Resident questioned the adequacy of the installed berm and its non-compliance with the barrier impairment procedure. On December 19, 2014, a berm was erected which met procedural requirements to protect against flooding in the RHR System B pump room below.

**Cause**

The cause of the non-compliance with TS occurred because the flood tour was allowed by the barrier impairment procedure as a compensatory measure to support operability based on engineering judgement without a thorough technical evaluation. The inadequate compensatory measure was allowed because specific guidance for the evaluation of compensatory measures for barrier impairments was not available.

**Extent of Condition**

Extent of condition was examined for all of the ECCS and RCIC Systems during the past three years when floor plugs were removed. Floor plugs were removed from above 5 of the 6 ECCS and RCIC System pump rooms 7 times during the modes of applicability, Modes 1, 2, and 3. Below is a list of the dates of times when a floor plug was removed and additional conditions prohibited by TS were found to exist.

1. March 5, 2012 – RHR A – 14 days inoperability time – TS 3.5.1, 3.6.1.5, and 3.6.2.3 completion times were exceeded
2. May 2, 2013 – RHR B – 9 days inoperability time – TS 3.5.1, 3.6.1.5, and 3.6.2.3 completion times were exceeded.
3. December 3, 2014 – RHR B – 16 days inoperability time – TS 3.5.1, 3.6.1.5, and 3.6.2.3 completion times were exceeded
4. December 17, 2014 – RHR A, RHR B, and Low Pressure Core Spray (LPCS) [BM] – 8 hours and 42 minutes of inoperability time – TS 3.5.1 completion times were exceeded and LCO 3.0.3 was not entered

LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET

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## NARRATIVE

**Immediate Corrective Action**

When it was discovered on December 18, 2014, that the installed berm was inadequate, actions were taken to erect a berm which is compliant with the barrier impairment procedure. This was completed on December 19, 2014. An operations standing order was put in place to ensure that floor plugs would not be removed without either declaring the affected system inoperable or erecting a berm which can maintain operability.

**Operating Experience & Previous Occurrences**

A previous occurrence has been found to have a similar cause. A NRC violation from 2013 was found against the same barrier impairment procedure for failure to translate flooding design and calculation into procedures. An extent of condition was performed which reviewed the barrier impairment procedure for compensatory measures which were based on calculations or quantitative analysis. Floor plug removal was identified as having no quantitative analysis, however based upon engineering judgement an hourly flood tour which had been in place since 2002 was determined to be adequate.

**Further Corrective Actions**

A revision to the barrier impairment procedure has been completed which removes the option for an hourly flood tour to maintain operability of the ECCS and RCIC systems when floor plugs are removed.

Planned corrective actions include further enhancement to the barrier impairment procedure and creation of a procedure for proper berm installation.

**Assessment of Safety Consequences**

There were no actual safety consequences of the event. There was no equipment damage, injuries or dose exposure to station personnel. There was no change in plant status or operating condition and there was no actual risk to the public at any time. The floor plugs are designed to protect the ECCS and RCIC systems during a medium energy line crack (MELC). During each instance where floor plugs were removed, although systems were not declared inoperable, no actual MELC occurred.

There was a potential safety consequence if a MELC were to have occurred while the floor plugs were removed. Flooding procedures direct operators to physically render the ECCS and RCIC pumps inoperable upon flooding in the respective pump room; therefore, the pump with the floor plugs removed would not have been available to perform its safety function.

During the period of time when floor plugs were removed there was a period of inoperability of other ECCS systems which resulted in a loss of safety function. This was due to inoperability of three ECCS Systems, RHR A, RHR B, and LPCS. On December 17, 2014, with RHR B floor plugs removed and RHR A, and LPCS systems declared inoperable, the RHR A and LPCS systems were maintained available to provide cooling to the reactor since they were operating in suppression pool cooling mode and suppression pool mixing mode, respectively, during this time period. The High Pressure Core Spray (HPCS) [BG] system was also operable and available to support ECCS injection/spray. The normal method of heat removal from the reactor, the condenser, was also available for heat removal. At no period of time, with the provision of operating the pumps, was there more than one pump, RHR B, incapable of providing cooling to the reactor.

**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.