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January 28, 2011

AEP-NRC-2011-6
10 CFR 50.73

Docket No. 50-316

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

Donald C. Cook Nuclear Plant Unit 2
LICENSEE EVENT REPORT 316/2010-003-00
CHANGED MODES FROM MODE 5 TO MODE 4
WITH DIVIDER BARRIER INOPERABLE

In accordance with the criteria established by 10 CFR 50.73, Licensee Event Report System, the following report is being submitted:

LER 316/2010-003-00: "Changed Modes from Mode 5 to Mode 4 with Divider Barrier Inoperable"

There are no commitments contained in this submittal.

Should you have any questions, please contact Mr. Michael K. Scarpello, Regulatory Affairs Manager, at (269) 466-2649.

Sincerely,

Joel P. Gebbie
Site Vice President

JEN/jmr

Attachment

c: INPO Records Center
J. T. King – MPSC, w/o attachment
S. M. Krawec – AEP Ft. Wayne, w/o attachment
MDNRE – WHMD/RPS, w/o attachment
NRC Resident Inspector
M. A. Satorius – NRC Region III
P. S. Tam – NRC Washington DC

IE22
NRR

NRC Form 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES 10/31/2013

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, 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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Donald C. Cook Nuclear Plant Unit 2	05000-316	1 of 3

4. TITLE

Changed Modes from Mode 5 to Mode 4 with Divider Barrier Inoperable

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
										05000
11	30	2010	2010	- 003 -	00	01	28	2011	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

4

10. POWER LEVEL

000

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

☐ 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)
☐ 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)
☐ 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 Specify in Abstract below or in NRC Form 366A
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Michael K. Scarpello, Regulatory Affairs Manager	(269) 466-2649

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 30, 2010, at 1749 hours, Donald C. Cook Nuclear Plant Unit 2 Operators determined that the containment divider barrier was inoperable. This occurred approximately 5 hours after Unit 2 ascended from Mode 5 to Mode 4 at 1255 hours. A modification of the containment divider barrier seal had been completed prior to entering Mode 4, but the seal was not recognized as having been reassembled incorrectly at that time. As a result, the entry into Mode 4 was made with the Technical Specification (TS) required containment divider barrier inoperable, and without meeting Limiting Condition for Operation (LCO) 3.0.4 conditions to do so.

During a walkdown of the divider barrier seal modification following ascension to Mode 4, the configuration of a portion of the divider barrier seal directly adjacent to the modification was questioned. This walkdown identified one missing nut and one nut with improper thread engagement. The divider barrier was determined to be inoperable because it did not meet TS 3.6.13 Surveillance Requirement 3.6.13.5, which specifies that the "Seal and seal mounting bolts are properly installed..."

The cause was personnel exceeding written work scope by disassembling and not properly restoring a portion of the divider barrier seal adjacent to the area being modified. Corrective actions included correcting the seal plate assembly, adding a new nut and tightening the nut that had inadequate thread engagement. The surveillance was performed on the affected seal areas. The divider barrier was declared operable on November 30, 2010, at 2302 hours.

Ascension to Mode 4 with the Containment Divider Barrier inoperable without meeting LCO 3.0.4 conditions to do so is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications.

NARRATIVE

Conditions Prior to Event

Mode 5

Description of Event

On November 30, 2010, at 1749 hours, Donald C. Cook Nuclear Plant (CNP) Unit 2 Operators determined that the containment divider barrier was inoperable. This occurred approximately 5 hours after Unit 2 ascended from Mode 5 to Mode 4 at 1255 hours. A modification of the containment divider barrier seal [SEAL] had been completed prior to entering Mode 4, but the seal was not recognized as having been reassembled incorrectly at that time. As a result, the entry into Mode 4 was made with the Technical Specification (TS) required containment divider barrier inoperable, and without meeting Limiting Condition for Operation (LCO) 3.0.4 conditions to do so.

During a walkdown of the divider barrier seal modification following ascension to Mode 4, the configuration of a portion of the divider barrier seal directly adjacent to the modification was questioned. This walkdown identified one missing nut and one nut with improper thread engagement. The divider barrier was determined to be inoperable because it did not meet TS 3.6.13 Surveillance Requirement 3.6.13.5, which specifies that the "Seal and seal mounting bolts are properly installed..."

Ascension to Mode 4 with the Containment Divider Barrier inoperable without meeting LCO 3.0.4 conditions to do so is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications.

Cause of Event

The cause of this event was personnel exceeding their work scope by disassembling a section of the divider barrier seal adjacent to the area being modified, and failure to properly restore the section of the divider barrier seal that had been disassembled. The disassembly of the adjacent section of the divider barrier seal was neither communicated to job oversight personnel nor documented in the work package.

Contributing causes were lack of adequate oversight of the field work such that exceeding work scope was not identified, and a failure of the modification and work control processes to implement the TS Surveillance requirement as a post-modification test/inspection to verify the divider barrier was operable prior to entering Mode 4.

Analysis of Event

The safety function of the divider barrier seal is to provide separation between the upper containment [NH] and lower containment volumes atmospheres. Performance of this safety function following a Loss-of-Coolant Accident (LOCA) assures that high pressure/high temperature gas/steam released into the lower containment from the reactor coolant system [AB] flows from the lower containment volume through the ice condenser [BC] before reaching the upper containment volume. Steam flowing along this flow path condenses on the ice bed, thereby reducing the total volume of gas reaching the upper containment and maintaining overall containment pressure below its design value.

Divider barrier seal performance is credited in the Probabilistic Risk Assessment (PRA) model. Degradation of divider barrier seal performance could affect the risk results of the PRA model due to possible impact on containment pressurization characteristics. For a large LOCA, and some medium LOCAs, extensive degradation of the divider barrier seal would result in a much larger initial containment pressure spike. However, an evaluation of the identified condition determined that the maximum potential divider barrier bypass flow area resulting from this event would be less than the design basis value. Therefore, the divider barrier seal was capable of performing its function while degraded, and, as a result, the actual degradation of the divider barrier seal would have no effect on the PRA model results.

NARRATIVE

Corrective Actions

Completed Corrective Actions

In the affected area, the divider barrier seal assembly was corrected by reworking the seal plate, adding a new nut where one was missing, and tightening the nut that did not have adequate thread engagement.

Performed surveillance of the divider barrier seal areas worked during the modification, and on the section of the divider barrier seal adjacent to the modification.

Planned Corrective Actions

Revise appropriate procedure to ensure that applicable surveillance will be used as post-modification test/inspection for work on safety-related components, including inspection of passive structures. TS surveillance requirements must be used where applicable to verify as-found conditions prior to work and verify as-left conditions via post maintenance/modification test (PMT) after completion of work.

Procedure guidance will be developed to ensure that work performed by contractor personnel must only be within the scope of the work package, and that any difficulties, obstacles, interferences or concerns need to be communicated to oversight personnel for resolution.

Future outage work scope performed by contractor personnel will be reviewed for activities that impact safety-related structures, systems, or components, high risk activities, or where human error poses elevated risk. Activities identified will have a CNP supervisor hold placed on them for oversight to verify all work is complete, the equipment worked or potentially impacted by the work has been fully restored for return to operations, and/or post maintenance inspection or test activities are adequate to verify completion or identify any deficiencies.

Previous Similar Events

The issue reported in this Licensee Event Report (LER) is related to entry into a Mode or condition of Applicability without either having all TS required equipment operable, or complying with the provisions of LCO 3.0.4. A search of LERs for the past 5 years identified the following:

LER 05000-315/2008-003-00, Failure to Comply With Technical Specification Limiting Condition for Operation 3.0.6

LER 2008-003-00 documents a non-compliance with LCO 3.0.6 that was not recognized when it occurred. The similarities between these two LERs are that both involve non-compliance with a TS LCO and both lacked procedural guidance to help ensure compliance. Specifically, LER 2008-003-00 documents that procedures did not effectively cross-reference the aspects of the Safety Function Determination Program. The current LER documents a failure to perform Post-Modification Testing on TS-related equipment.

Because of the difference in the specific LCOs involved, and that the procedure direction that was lacking in each instance was very different, the corrective actions resulting from the incident reported in LER 2008-003-00 could not have prevented the event identified in this LER.

LER 05000-316-/2010-002-00 Containment Divider Barrier Seal Mounting Bolts Not Properly Installed

LER 2010-002-00 documents the following Unit 2 divider barrier seal discrepancies: two retaining bolts missing; one retaining bolt with a loose nut; and one retaining bolt missing its nut. This was determined to be a non-compliance with the Divider Barrier LCO, which was not recognized when it occurred. This is similar in that it is another unrecognized non-compliance with the Divider Barrier LCO. Specifically, LER 2010-002-00 documents that the procedure used to perform the TS Surveillance on the divider barrier lacked the necessary specificity. The current LER documents a failure to perform Post Modification Testing on TS required equipment, which was the divider barrier seal.

Because of the difference in the mechanisms of these two non-compliances related to the divider barrier seal, corrective actions regarding how the surveillance is performed would not have prevented the event identified in this LER.