

April 11, 2014

AEP-NRC-2014-29  
10 CFR 50.73

Docket No.: 50-315

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
11555 Rockville Pike,  
Rockville, MD 20852

Donald C. Cook Nuclear Plant Units 1 and 2  
LICENSEE EVENT REPORT 315/2014-001-00  
Non-Compliance with LCO 3.4.3 during Reactor Coolant System Vacuum Fill

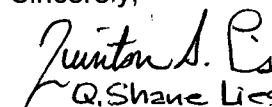
In accordance with the criteria established by 10 CFR 50.73, Licensee Event Report System, the following report is being submitted:

LER 315/2014-001-00: "Non-Compliance with LCO 3.4.3 during Reactor Coolant System Vacuum Fill"

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.

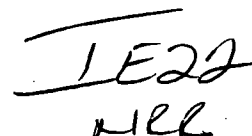
Sincerely,

 for J.P. Gebbie  
Q. Shane Lies  
Joel P. Gebbie  
Site Vice President

JEN/raw

Enclosure

c: J. T. King, MPSC  
MDEQ – RMD/RPS  
NRC Resident Inspector  
C. D. Pederson, NRC Region III  
T. J. Wengert, NRC Washington, DC  
A. J. Williamson – Ft. Wayne AEP, w/o enclosures

  
1E22  
MLL

**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 [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.

**1. FACILITY NAME**

Donald C. Cook Nuclear Plant Unit 1

**2. DOCKET NUMBER**

05000315

**3. PAGE**

1 OF 3

**4. TITLE**

Non-Compliance with LCO 3.4.3 During Reactor Coolant System Vacuum Fill

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
02	20	2014	2014	001	00	04	11	2014	Donald C. Cook Nuclear Plant Unit 2	05000316
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
5	<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	<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
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" 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

Michael K. Scarpello, Regulatory Affairs Manager

TELEPHONE NUMBER (Include Area Code)

(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**☐ 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 February 20, 2014, following a review of a Pressurized Water Reactor Owners Group notification of a recent Non Cited Violation at another nuclear power plant, Donald C. Cook Nuclear Plant (CNP) staff determined that CNP was in a similar circumstance of having been in an Operation or Condition Prohibited by Technical Specifications (TS).

At the end of each refueling outage, CNP draws a vacuum on the Reactor Coolant System (RCS) in order to refill the system. The RCS temperature and pressure (T/P) Limiting Condition for Operation (LCO), LCO 3.4.3, references two associated T/P operational limit figures, both of which terminate at a lowest pressure of 0 pounds per square inch gauge (psig). Therefore, operation at a vacuum is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by TS.

The apparent cause is that the 10 CFR 50.59 screening for the original RCS vacuum fill procedures did not consider LCO 3.4.3 and its associated figures. The procedures have been put on administrative hold to preclude drawing a vacuum on the RCS until the LCO is revised to accommodate operation at a vacuum.

**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](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	2. DOCKET	6. LER NUMBER			3. PAGE
Donald C. Cook Nuclear Plant Unit 1	05000315	YEAR	SEQUENTIAL NUMBER	REV NO.	2 OF 3
		2014	- 001	- 00	

**NARRATIVE**

Energy Industry Identification System codes are identified in the text as [XX].

The following information applies to both Unit 1 and Unit 2.

**INTRODUCTION**

On February 20, 2014, following a review of a Pressurized Water Reactor Owners Group notification of a recent Non Cited Violation at another nuclear power plant, CNP staff determined that CNP was in a similar circumstance of having been in an Operation or Condition Prohibited by TS.

Plant operating condition in all instances was Mode 5 following refueling. There were no inoperable structures, components or systems that contributed to the event.

**EVENT DESCRIPTION**

The RCS [AB] T/P LCO, LCO 3.4.3 references two associated T/P operational limit figures, both of which terminate at a lowest pressure of 0 psig.

LCO 3.4.3 states:

RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within the limits specified in Figures 3.4.3-1 and 3.4.3-2 with:

- a. A maximum heatup of 60 degrees Fahrenheit (F) in any one hour period;
- b. A maximum cooldown of 100 degrees F in any one hour period; and
- c. A maximum temperature change of  $\leq 5$  degrees F in any one hour period, during hydrostatic testing operations above system design pressure.

Applicability: At all times.

During vacuum fill of the RCS, pressure is lowered to less than 0 psig (to approximately 25 inches of mercury vacuum, or -12.3 psig). Because the referenced LCO Figures do not include RCS pressure below 0 psig, operation with the RCS at a vacuum is prohibited by TS. This is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by TS.

Over the previous three years, Unit 1 and Unit 2 each had two refueling outages. At the end of the outages, the vacuum fill evolution was utilized to refill the RCS. Dates that the RCS was operated below 0 psig are as follows:

Unit 1

October 18, 2011

May 7, 2013

May 8, 2013

May 9, 2013

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

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Donald C. Cook Nuclear Plant Unit 1	05000315	YEAR	SEQUENTIAL NUMBER	REV NO.	3      OF      3
		2014	-      001	-      00	

**NARRATIVE**

Unit 2  
April 18, 2012  
April 19, 2012  
April 20, 2012

October 31, 2013  
November 1, 2013

**CAUSE OF EVENT**

The Apparent Cause is that the 10 CFR 50.59 screening for the original RCS vacuum fill procedures did not consider LCO 3.4.3 and its associated figures.

**EVENT ANALYSIS**

Both Unit 1 and Unit 2 have operated at less than 0 psig during RCS vacuum fill. Both units' procedures direct RCS pressure to be taken to a vacuum of approximately 25 inches of mercury for vacuum fill of the system.

The engineering evaluation performed for the initial RCS vacuum fill procedures did review the applicability to the RCS, Residual Heat Removal System (RHR) [BP], and the Reactor Pressure Vessel [RPV]. The evaluation concluded that there are no physical system limitations preventing taking the RCS or RHR to a vacuum. Per this evaluation, there was no safety significance identified by operating the RCS at a vacuum during the vacuum fill evolution, therefore, continued operation of the RCS is acceptable.

**CORRECTIVE ACTIONS**

Taken:

Operational procedures directing vacuum fill of the RCS have been placed in an Administrative Hold status to preclude operating the RCS in a vacuum condition. CNP staff has submitted a License Amendment Request to amend TSs to accommodate operation of the RCS under vacuum.

**PREVIOUS SIMILAR EVENTS**

A review of Licensee Event Reports for the past three years found no similar events.