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December 6, 2004

SVP-04-103

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

Quad Cities Nuclear Power Station, Unit 1
Facility Operating License No. DPR-29
NRC Docket No. 50-254

Subject: Licensee Event Report 254/04-003, "Control Room Emergency Ventilation Test Failure due to Deficient Modification to Hatch Covers"

Enclosed is Licensee Event Report (LER) 254/04-003, "Control Room Emergency Ventilation Test Failure due to Deficient Modification to Hatch Covers," for Quad Cities Nuclear Power Station, Unit 1.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(i)(B), which requires reporting of any operation or condition that was prohibited by the plant's Technical Specifications, and Part 50.73(a)(2)(v)(D), which requires reporting of any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

Should you have any questions concerning this report, please contact Mr. W. J. Beck at (309) 227-2800.

Respectfully,

Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to infocollects@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
Quad Cities Nuclear Power Station, Unit 1	05000 254	1 OF 4

4. TITLE

Control Room Emergency Ventilation Test Failure due to Deficient Modification to Hatch Covers

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
									Quad Cities Nuclear Power Station, Unit 2	05000265
10	08	2004	2004	- 003 -	00	12	06	2004	FACILITY NAME: N/A	DOCKET NUMBER: 05000 N/A

9. OPERATING MODE

1

10. POWER LEVEL

085%

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

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☒ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☒ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Wally Beck, Regulatory Assurance Manager	(309) 227-2800

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
D	VI	SEAL	N/A	Y					

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 October 8, 2004, at 0300 hours, it was determined that the Control Room Emergency Ventilation System (CREVS) Test had not been performed correctly during the last performance, and TS Surveillance Requirement (SR) 3.0.3 was entered for a missed surveillance. At 2120 hours, the surveillance was performed and the pressure differential was determined to be less than required. The CREVS was declared inoperable, TS SR 3.0.3 was exited and TS Action 3.7.4.A was entered. At 2158 hours, an Emergency Notification System call was made in accordance with 10CFR50.72(b)(3)(v)(D) for loss of safety function of a single train system. The seals for two hatch covers were enhanced and the test was re-performed successfully. On October 9, 2004, at 0400 hours CREVS was declared operable.

This event was caused by an inadequate review of a procedure change in 1998, and a deficient modification to the hatch covers in 1999. Corrective actions include enhancements to the seals and a procedure change to add flow criteria to the test procedure.

The safety significance was minimal because CREVS does not impact reactor safety and the Control Room Emergency zone differential pressure was positive at all times.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 2957 Megawatts Rated Core Thermal Power

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

EVENT IDENTIFICATION

Control Room Emergency Ventilation Test Failure due to Deficient Modification to Hatch Covers

A. CONDITION PRIOR TO EVENT

Unit: 1 Event Date: October 8, 2004 Event Time: 2120 hours
Reactor Mode: 1 Mode Name: Run Power Level: 085%

Power Operation (1) - Mode switch in the RUN position with average reactor coolant temperature at any temperature.

B. DESCRIPTION OF EVENT

On October 8, 2004, at 0300 hours, it was determined, through a review of previous surveillances, that the Control Room Emergency Ventilation System [VI] Test had not been performed correctly during the last performance in 2002. The Technical Specification (TS) surveillance involves measurement of the pressure differential across the Control Room Emergency zone boundary. For the surveillance to be valid, the flow through the Control Room Emergency Ventilation System (CREVS) must be less than or equal to 2000 standard cubic feet per minute (SCFM). It was later determined that the CREVS test had not been performed correctly in 2000. On March 22, 2000, and April 11, 2002, although the pressure differentials were acceptable (i.e., greater than or equal to 0.125 inches water gauge), the surveillances were performed with the flow at 2002.01 SCFM and 2034.95 SCFM, respectively, making the surveillances invalid. At 0300 hours on October 8, 2004, TS Surveillance Requirement (SR) 3.0.3 was entered for these missed surveillances. TS SR 3.0.3 requires the surveillance to be performed within 24 hours.

On October 8, 2004, at 1800 hours, the Unit 1 and Unit 2 cable tunnel access hatches were identified as having potentially inadequate seals [SEAL]. At 2120 hours, the surveillance was performed with CREVS flow at 1996 SCFM, and the pressure differential was determined to be less than 0.125 inches water gauge. The CREVS was declared inoperable, TS SR 3.0.3 was exited and TS Action 3.7.4.A was entered. At 2158 hours, an Emergency Notification System call was made in accordance with 10CFR50.72(b)(3)(v)(D) for loss of safety function of a single train system.

The seals were enhanced, and the pressure differential was determined to be greater than 0.125 inches water gauge. On October 9, 2004, at 0400 hours CREVS was declared operable.

C. CAUSE OF EVENT

The root cause of the failure to perform a valid surveillance in 2000 and 2002 was an inadequate review of a procedure change in 1998. The review did not identify that the TS required flow-verification step was being inadvertently removed from the procedure.

The cause of the failure of the surveillance when performed at the required flow was a deficiency in a modification to install new hatch covers in 1999. This modification did not take into account the effect of counterweights installed on the hatch covers to facilitate opening them. The counterweights decrease the weight of the covers on the seal, allowing a slight bow in the hatch covers to affect the integrity of the seal.

For both the procedure change review process and the plant modification process, the controls in place for these processes have improved significantly since the inadequate procedure/modification reviews discussed above occurred. For procedure changes, a new Station Qualified Reviewer's Guide has been created and implemented that clarifies roles and responsibilities and reduces the potential for inadequate procedure reviews. For design changes, the Configuration Control Process has been implemented, which includes process improvements that ensure the appropriate review is applied to changes made to the plant.

D. SAFETY ANALYSIS

The safety significance of this event was minimal. The CREVS does not affect reactor safety. Although the flow was slightly outside of the allowable value for a valid surveillance, the surveillance results in 2000 and 2002 did show acceptable positive differential pressure. Additionally, the differential pressure during the failed test on October 8, 2004, remained positive. Therefore, personnel within the Control Room Emergency Zone would not have received significantly more dose than originally calculated in the Control Room dose analysis. This LER is being submitted in accordance with 10CFR50.73(a)(2)(i)(B), operation prohibited by Technical Specifications, and 10CFR50.73(a)(2)(v)(D), condition that could have prevented fulfillment of a safety function.

E. CORRECTIVE ACTIONS

Immediate Actions

Additional gasket material was added to the hatches and the CREVS Test was performed with satisfactory results.

Corrective Actions to be Completed

The Control Room Emergency Ventilation System Test will be revised to ensure the airflow rate is determined to be less than or equal to 2000 SCFM before taking differential pressure measurements.

The use of the counterweights on the cable tunnel access hatches will be evaluated and appropriate actions taken as required.

F. PREVIOUS OCCURRENCES

No recent events involving failure of the Control Room Emergency Zone were identified.

One recent event was identified involving inadequate procedure review of an Operations procedure. LER 02-03-001, "Failure to Reset Residual Heat Removal Injection Valve Containment Isolation signal due to Inadequate Procedural Development and Review," was submitted on March 10, 2003. The corrective actions for LER 265/03-001 could not be expected to prevent this event (CREVS failure) because the 2000 and 2002 surveillances had already been performed prior to submittal of LER 265/03-001.

One recent event involving an inadequate historical modification was identified. LER 254/04-002, "Technical Specification Allowable Value Exceeded for Low pressure Coolant Injection Loop Select Reactor Low Pressure Switches," was submitted on September 28, 2004. This event involved an undocumented modification performed prior to 1996 that resulted in an out-of-calibration instrument. The corrective actions for LER 254/04-002 could not be expected to prevent this event (CREVS failure) because the 1999 modification to the hatches had already been performed prior to submittal of LER 254/04-002.

G. COMPONENT FAILURE DATA

The hatch covers that failed to seal adequately were manufactured at Quad Cities Nuclear Power Station in accordance with design documents.