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Quad Cities Nuclear Power Station
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RLB-92-021

January 16, 1992

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Reference: Quad Cities Nuclear Power Station
Docket Number 50-265, DPR-30, Unit Two

Enclosed is Licensee Event Report (LER) 91-014, Revision 00, for Quad Cities Nuclear Power Station.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(ii). Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded, or that resulted in the nuclear plant being in a condition that was outside the design basis of the plant.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD CITIES NUCLEAR POWER STATION

R. L. Bax
Station Manager

RLB/TB/kas

Enclosure

cc: J. Schrage
T. Taylor
INPO Records Center
NRC Region III

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Quad Cities Unit Two	0 5 0 0 0 2 6 5	1 of 0 4

Title (4) 2A RHR Heat Exchanger Support Beams Found To Be Outside Basis During Lifting Due To Notches In The Flange Area.

Event Date (5)			LER Number (6)			Report Date (7)			Other Facilities Involved (8)	
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)
										0 5 0 0 0
1 2	1 8	9 1	9 1	0 1 1 4	0 0	0 1	1 6	9 2		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more of the following) (11)			
		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	Other (Specify in Abstract below and in Text)
4	0 6 6	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	X 50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER
	AREA CODE
Michael Ford, Technical Staff Engineer, Ext. 2118	3 0 9 6 5 4 - 2 2 4 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)

		Expected Submission Date (15)	Month	Day	Year
Yes (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single-space typewritten lines) (16)

ABSTRACT:

On December 18, 1991, at 0810 hours Unit Two was in the RUN Mode at 56 percent of rated core thermal power. At this time the station was notified by Engineering of an analysis which determined that two beams supporting the 2A Residual Heat Removal HR) [BO] Heat Exchanger [HX] exceeded Final Safety Analysis Report (FSAR) allowable limits. This over stressed condition was due to notches which had been cut in the beam flanges.

Engineering examined the degraded support beams, and determined that no excessive deformation or deflection existed. It was determined that the degradation did not diminish the operability of the heat exchanger or the RHR system.

Work Request Q96769 was initiated to reinforce the degraded support beams. This work will insure that the supports are within the FSAR allowable design limits. The reinforcement of the beams will be performed during the Unit Two refuel outage, January 1992 (Q2R11).

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 MWt rated core thermal power.

EVENT IDENTIFICATION: 2A RHR Heat Exchanger Support Beams found to be outside design basis during lifting rig evaluation due to notches in the flange area.

A. CONDITIONS PRIOR TO EVENT:

Unit: Two Event Date: December 18, 1991 Event Time: 0810
Reactor Mode: 4 Mode Name: RUN Power Level: 66%

This report was initiated by Deviation Report D-4-2-91-085.

RUN Mode (4) - Run - In this position the reactor system pressure is at or above 825 psig, and the reactor protection system is energized, with APRM protection and RBM interlocks in service (excluding the 15% high flux scram).

B. DESCRIPTION OF EVENT:

On December 18, 1991, at 0810 hours Unit Two was in the RUN Mode at 66 percent of rated core thermal power. At this time the station was notified by the Nuclear Engineering Department (NED) that an engineering analysis determined that two beams supporting the 2A Residual Heat Removal (RHR) [BO] Heat Exchanger [HX] exceeded the Final Safety Analysis Report (FSAR) allowable limits due to notches in the beam flanges. At 0846 hours the station notified the Nuclear Regulatory Commission (NRC) that the supports [SPT] were outside the design basis of the plant.

Previous to this, during the course of a rigging evaluation to support valve [V] maintenance and replacement of an RHR motor [MO] during the upcoming Unit Two refueling outage, discrepancies were discovered. The structural framing affected by the proposed rigging loads had existing flange defects. Two man-made notches in the flanges were found that were not shown on design drawings. The beams in question were a W16 X 36 and W14 X 68. The W14 beam had a small notch to allow movement of a pipe support. This notch exists in each RHR corner room, and alone does not exceed design limits. The W16 beam has a substantial notch that is a foot and a half long and goes all the way back to the webbing. This damage is isolated to the 2A RHR Heat Exchanger. Upon further investigation, the beams that support the 2A RHR Heat Exchanger were determined to exceed the FSAR allowable limits.

Sargent and Lundy (S&L) Engineers examined the degraded support beams, and determined that no visible signs of excessive deformation or unusual deflection conditions existed. It was determined that the degradation did not diminish the operability of the heat exchanger or the RHR system.

Work Request Q96769 was initiated to make repairs to the degraded support beams. The beams will be reinforced during the Unit two refuel outage, beginning in January 1992.

C. APPARENT CAUSE OF EVENT:

This event is being reported in accordance with 10CFR50.73(a)(2)(ii), which requires the reporting of any event or condition that resulted in the nuclear plant being in a condition that was outside the design basis of the plant.

Notches in the flange area of the support beams for the 2A RHR Heat Exchanger resulted in the structural framing being outside the design basis. The cause of the notches is not known. No documented modifications have been performed on the support beams for the RHR Heat Exchanger that could result in this degradation.

The notches could have existed from original installation, or from past maintenance activities that were not documented and controlled under the present design change methodology.

D. SAFETY ANALYSIS OF EVENT:

The safety consequences of the support beams for the 2A RHR Heat Exchanger being notched were minimal. Although the degradation caused stresses in these beams to be beyond FSAR allowable limits, the beams remained capable of performing required support. An Engineering assessment of the heat exchanger supports determined the RHR system was still operable [CHRON 0114403; CAM-91-506]. The heat exchanger was capable of performing its required design function at all time.

E. CORRECTIVE ACTIONS:

The immediate corrective action was to determine the operability of the RHR Heat Exchanger. Upon discovery of the notches, S&L examined the degraded support beams and determined that the operability of the system was not compromised by this condition.

Work Request Q96769 was initiated to reinforce the degraded support beams. This work will insure that the RHR Heat Exchanger supports are within the FSAR allowable design limits. The reinforcement of the beams will be performed during the Unit Two refuel outage, beginning in January, 1992 (Q2R11).

The station walkdown group and Technical Staff personnel will be informed of the need to be cognizant of support beams that may have unanalyzed damage (NTS #265 200 91 08501. These groups examine various station systems during their normal job performance, and are in a position to determine similar deficiencies.

Station and Engineering control of plant design changes has been greatly improved in recent years. There is also a much higher awareness of the design of the plant, and the potential problems associated with unauthorized design changes. The present design change controls are deemed adequate to prevent reoccurrence of this type of unauthorized design change.

A walkdown of all the RHR corner rooms determined that the substantial damage associated with the W16 X 36 beam is isolated to the 2A RHR Heat Exchanger. The minor hanger notch that exists in each RHR corner room will be detailed on the design drawings (NTS #265 200 91 08502).

F. PREVIOUS EVENTS:

A review of Deviation/Licensee Reports found no similar events that documents a beam being damaged or degraded, causing it to be outside the FSAR allowable limits. Several events discuss pipe supports and embedment plates being over stressed, causing them to exceed design limits.

G. COMPONENT FAILURE DATA:

There was no component failure associated with this event.