LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
QUAD-CITIES NUCLEAR POWER STATION, UNIT ONE	0 5 0 0 0 2 5 4	1 of 0 5

Title (4) PIPING SUPPORT OUTSIDE COMPLIANCE WITH SAFETY ANALYSIS REPORT DUE TO DESIGN/CONSTRUCTION ERROR.

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	2 8	8 7	8 7	--- 0 2 6	--- 0 1	0 1	1 3	8 8		0 5 0 0 0

OPERATING MODE (9): 4

POWER LEVEL (10): 0 1 5

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR
(Check one or more of the following) (11)

__ 20.402(b)	__ 20.405(c)	__ 50.73(a)(2)(iv)	__ 73.71(b)
__ 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)
__ 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	
GARY TAGATZ, TECHNICAL STAFF ENGINEER, EXTENSION 2152	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	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)		Expected Submission Date (15)	Month	Day	Year
X Yes (If yes, complete EXPECTED SUBMISSION DATE)	NO		0 5	3 1	8 8

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

On December 28, 1987, Quad Cities Unit One was in the RUN mode at 15 percent reactor thermal power. At 1335 hours, the Station was notified that two piping supports located on Reactor Core Isolation Cooling (RCIC) suction line did not comply with the Final Safety Analysis Report (FSAR) criteria for allowable stress. However, the system was operable. This event was reported to NRC Region III in accordance with the agreement for the Piping Configuration Verification Program. Previously, in LER 254/87-026, Revision 00, a piping support on 1B Core Spray discharge line was found to be beyond FSAR criteria for allowable stress. The PCVP is ongoing and a supplement will be provided upon program completion.

The cause of these conditions is construction/design error during a modification in 1980 because the as-built configuration was not in conformance with as-designed/engineered drawings used for the original piping stress analysis.

Corrective action was to shim the excess clearances between the piping lugs and the support's wide flange, strut removal and support relocation. The new modification program in effect should prevent recurrence. This report is provided per 10CFR50.73(a)(2)(ii).

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PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 MWt rated core thermal power. Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION: Piping supports were found to be outside the Safety Analysis Report for allowable stress due to construction design error.

A. CONDITIONS PRIOR TO EVENT:

Unit: One	Event Date: December 28, 1987	Event Time: 1335
Reactor Mode: 4	Mode Name: Run	Power Level: 15%

This report was initiated by Deviation Report D-4-1-87-105, Revision 1

RUN Mode(4) - 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 November 30, 1987, at 1130 hours, Quad Cities Unit One was in the REFUEL mode at zero percent reactor thermal power. At this time, the Station was notified by the Boiling Water Reactor Engineering Department (BWRED) that piping support (In-service Inspection (ISI) support number) [SPT] 1404-G-214 located on 1B Core Spray pump [BM, P] discharge line 1-1404-12" DX did not comply with the Final Safety Analysis Report (FSAR) criteria for allowable stress.

On December 28, 1987 at 1335 hours, Quad Cities Unit One was in the RUN mode at 15 percent reactor thermal power. At this time, the station was notified by the BWRED that piping supports identified on drawing number M-1603-05 and M-1603-06 located on Reactor Core Isolation Cooling (RCIC) pump [BN,P] suction line 1-1318-6"-LX did not comply with the Final Safety Analysis Report (FSAR) criteria for allowable stress.

On April 1, 1987, Commonwealth Edison (CECo) undertook the Piping Configuration Verification Program (PCVP) to verify the existence and location of pipe supports as well as the details utilized for the construction of branch connections with as designed/analyzed configurations for Quad Cities Units One and Two. The scope of the program consists of safety related piping, greater than four inches in diameter, which was analyzed by Architect/Engineers (A/E) as part of the Torus Attached Piping (TAP) Project in the Mark I Program during the early 1980's.

November 30, 1987:

The piping supports and piping systems affected by this event were analyzed and determined to be operable according to PCVP criteria used to determine operability. NRC Region III was notified at 1130 hours in accordance with PCVP agreement with the NRC.

December 28, 1987:

The piping supports and piping systems affected by this event were analyzed and determined to be operable according to PCVP criteria used to determine operability. NRC Region III was notified at 1400 hours as per the agreement with Piping Configuration Verification Program (PCVP). The PCVP is ongoing and a supplemental report will be provided after its completion to describe the results and corrective actions taken. It is anticipated the supplemental report will be written by May 31, 1988.

C. APPARENT CAUSE OF EVENT:

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

November 30, 1987:

The apparent cause of this event was construction error involving A/E and contractor personnel. The PCVP walkdown and model review identified a discrepancy between support drawing M-1610-18, Revision B, ISI support number 1404-G-214, and the existing "as-built" configuration. The clearance specified between the piping lugs and the support's wide flange exceeds the specified tolerance. It appears that during the original TAP modification the construction contractor failed to build the support to the specified configuration. It also appears that the A/E failed to perform an as-built reconciliation of the drawings used in the original piping stress analysis. The re-analysis incorporated the results of the PCVP walkdown and model review and as a result of these differences, FSAR compliance was not achieved at this location.

December 28, 1987:

The apparent cause of this event was design error involving A/E personnel. The PCVP walkdown and model review identified discrepancies between support drawings M-1603-05, Revision B and M-1605-06, Revision B with the "as-built" configuration and location. The A/E originally modeled piping support M-1603-05 with a lower stiffness than the "as-built" configuration and piping support M-1603-06 in a different location than the "as-built" location. It appears that the A/E failed to perform an as-built reconciliation of the drawings used in the original piping stress analysis. The re-analysis incorporated the results of the PCVP walkdown and model review and as a result of these discrepancies, FSAR compliance was not achieved at these locations.

D. SAFETY ANALYSIS OF EVENTS:

November 30, 1987:

The safety of the plant and personnel were not affected during this event. The formal re-analysis of model Q1.10.2, Core Spray pump 1A/B Discharge line has demonstrated operability for this system even though FSAR criteria was not met. FSAR compliance requires that stresses and/or pipe support reactions satisfy established code allowables, whereas a somewhat less conservative acceptance criteria is permitted for the purpose of an operability assessment. FSAR compliance analysis considers the piping stresses and support reactions acting at those locations under analysis whereas, operability compliance analysis considers the overall effect on the piping system due to the stresses encountered.

December 28, 1987:

The safety of the plant and personnel were not affected during this event. The formal re-analysis of model Q1.03, RCIC pump suction has demonstrated operability for this system even though FSAR criteria was not met.

E. CORRECTIVE ACTION:

November 30, 1987:

The corrective action to return piping support, ISI support number 1404-G-214 on 1B Core Spray discharge line to FSAR compliance was to shim the excess clearance between the piping lugs and the support's wide flange. The work was completed on December 18, 1987 under Nuclear Work Request (NWR) Q62124.

December 28, 1987:

The corrective actions to return piping supports to FSAR compliance are: for support M-1603-05, delete a horizontal strut under Nuclear Work Request (NWR) Q63018; and for support M-1603-06, relocate the existing supporting configuration to the design location of record under NWR Q63017. These NWRs will be tracked to completion by Nuclear Tracking System (NTS) Number 2542008710501.

To prevent recurrence of this event, BWRED now requires a dimensional verification be performed by a certified quality control inspector for all Safety Related modifications involving the installation or modification of Safety Related load carrying members. Resolution of deficiencies will be accomplished before the modification test may be signed off as completed. This is part of the new modification program implemented in April, 1987.

F. PREVIOUS EVENTS:

LER NUMBER	TITLE
254/86-022	Containment Atmospheric Monitoring Line does not meet code allowable stress limits.
254/86-024	U-1 and U-2 Residual Heat Removal Service Water Piping Supports exceed code stress allowable limits.
254/86-025	Torus Attached Small Bore Piping does not meet code allowable limits.
254/87-008	1C Residual Heat Removal Service Water Pump piping in excess of allowable stress due to sheared anchor bolts.
254/87-011	Residual Heat Removal Support Embedment Plate in excess of allowable stress due to improper anchor strap spacing.
265/87-019	Piping Supports Outside Compliance with Safety Analysis Report Due to Design Error.

G. COMPONENT FAILURE DATA:

There was no component failure identified in this event

Commonwealth Edison
Quad Cities Nuclear Power Station
22710 206 Avenue North
Cordova, Illinois 61242
Telephone 309/654-2241

RLB-88-15

January 13, 1988

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

Reference: Quad-Cities Nuclear Power Station
Docket Number 50-254, DPR-29, Unit One

Enclosed please find Licensee Event Report (LER) 87-026, Revision 01, 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)(B), which requires the reporting of any event or condition that resulted in the nuclear power 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
R. L. Bax
Station Manager

RLB/MSK/clr

Enclosure

cc: I. Johnson
R. Higgins
INPO Records Center
NRC Region III

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