



**Commonwealth Edison**

Quad Cities Nuclear Power Station  
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RLB-92-027

January 23, 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) 91-016, 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)(11). The licensee shall report 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*  
R. L. Bax  
Station Manager

RLB/TB/plm

Enclosure

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

RTMOR 271

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*JE 2/1/92*

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

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

Design Discrepancy Between FSAR and As-Built for TIP Ball Valves

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)
1   2	2   7	9   1	9   1	0   1   6	0   0	0   1	2   3	9   2	Quad Cities Unit One	0   5   0   0   0   2   5   4
										0   5   0   0   0   1   1

OPERATING MODE (9) 4

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

POWER LEVEL (10) 0   6   3	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)	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: O. Victor Ikoba, Technical Staff Engineer Ext. 2142  
 TELEPHONE NUMBER: AREA CODE 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) X | NO

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

ABSTRACT:

On December 27, 1991, at 1600 hours, Unit Two was in the RUN mode at 63% of rated core thermal power. At this time, Technical Staff Engineers performed a walkdown of the Traversing Incore Probe (TIP) system and discovered that the 902-3, A-16 and 901-3 F-8 annunciators would be activated by loss of power or shear valve actuation and not by a ball valve [ISV] open with Group II isolation signal present as stated in the Updated Final Safety Analysis Report (UFSAR) Section 7.4.5.4. Further reviews did not reveal any adverse effect on the operation of the TIP ball valves with a Group II isolation signal present. The discrepancy resulted from failure to reconcile the UFSAR with the as-built condition. The UFSAR will be changed to reflect the as-built condition. This report is provided to satisfy the requirements of 10CFR50.73(a)(2)(ii)(b).

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

PLANT AND SYSTEM IDENTIFICATION:

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

EVENT IDENTIFICATION: Design Discrepancy Between FSAR and As-Built for TIP Ball Valves.

A. CONDITIONS PRIOR TO EVENT:

Unit: Two                                      Event Date: December 27, 1991   Event Time: 1600  
 Reactor Mode: 4                             Mode Name: RUN                         Power Level: 63%

This report was initiated by Deviation Report D-4-02-91-087.

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 December 27, 1991 at 1600 hours, Unit Two was in the RUN mode operating at 63% of core rated thermal power. Technical Staff Engineers performed a walkdown of the 902-3, A-16 annunciator and found that the as-built condition differed from the Updated Final Safety Analysis Report (UFSAR) Section 7.4.5.4 on page 67. A similar discrepancy was subsequently found for the Unit One 901-3, F-8 annunciator. Nutech had drawn attention to the possible existence of a discrepancy in a letter to CECO dated November 25, 1991. Nutech was writing the 902-3, F-8 annunciator procedure that will result from modification M4-2-87-51B which will functionally move the 902-3, F-8 which is consistent with the as-built condition for Unit One 901-3, F-8 annunciator and the associated electrical print (4E-1575AD).

The Unit Two construction drawing 4E-2575AE (Rev. A) dated 12/15/89 and the Unit One as-built drawing 4E-1575AD (Rev. A) dated 7/7/89 establishes that the 902-3, A-16 and the 901-3, F-8 windows for Unit Two and One, respectively, will annunciate due to loss of power to the Traversing Incore Probe (TIP) shear valve circuitry. In addition, the windows will annunciate with the actuation of the TIP shear valves. The Quad Cities 2, Preoperational Test No. D-14, Traversing Incore Probe Calibration System, verified that the "TIP" Iso. Off Normal" annunciation occurred when a fired shear valve was simulated and when power loss to the shear valve circuitry was tested. Such actuations are consistent with the General Electric vendor manual drawings 130B8978 and 237E699 for the TIP system.

The Quad Cities UFSAR Section 7.4.5.4 states on page 67 that "...a ball valve [ISV] open with a Group II isolation signal present is annunciated." The original Final Safety Analysis Report (FSAR) does not include the UFSAR statement. However, the UFSAR statement is reflected in the station abnormal procedures for the 902-3, A-16 and 901-3, F-8 annunciators and in their respective drawings (4E-2575AE and 4E-1575AD).

The discrepancy between the UFSAR and the as-built condition does not affect the operation of the ball valves in closing automatically or manually with a Group II isolation signal present. Further reviews of the as-built condition indicate that all the functions reflected on the shear valve circuitry are operable with a Group II isolation signal present.

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

C. APPARENT CAUSE OF EVENT:

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10 Part 50.73(a)(2)(11)(B), which requires the licensee to report any event or condition that resulted in the condition of the nuclear power plant, including its principle safety barriers, being seriously degraded, or that resulted in the nuclear power plant being in a condition that was outside the design basis of the plant.

Per Technical Specification (T.S.) Section 3.7.D Table 3.7.1 states that "on an isolation signal, the TIP detector is withdrawn if in use, five ball valves and the nitrogen purge valve are closed." There is no T.S. requirement for the shear valves to actuate when a Group II signal is present. The T.S. requirements for the ball valves closure is satisfied despite the discrepancy between the UFSAR and the as-built condition.

The apparent cause of the discrepancy between the UFSAR and the as-built condition was the failure to reconcile the UFSAR with the as-built condition, the preoperational test results, the relevant vendor manuals and the original FSAR. Revision 1 of the TIP Isolation Off Normal annunciator procedure had the "One or more TIP Isolation valves open with a containment isolation signal present" as the cause of the alarm and subsequent revisions to the procedure have carried the text along in various forms. The discrepant statement in the UFSAR seem to have its origin in the "TIP Isolation Off Normal," abnormal procedure.

D. SAFETY ANALYSIS OF EVENT:

The safety consequence of this event is minimal. The as-built condition of the TIP system provides multiple methods that could be used to isolate the TIP tubing in the event of any ball valve failure. The automatic withdrawal and closure of the ball valves and the ball valves' manual operation are not adversely affected by the as-built condition that is discrepant with the UFSAR. Upon failure of a ball valve to close, the associated shear valve provides an additional means to effect isolation of the TIP tubing as necessary. Containment integrity was verified for any ball valve open when an appropriate shear valve actuation was simulated in the Quad Cities Unit 2, Preoperational Test No. D-14, Traversing Incore Probe Calibration Syst. Consequently, a Group II isolation signal with a ball valve open will not degrade the isolation capability of the TIP tubing. In addition, the abnormal procedures for the Group II isolation signal annunciator (902-5 A-8 and 901-5-A-8) requires closure and verification of the TIP ball valves.

E. CORRECTIVE ACTIONS:

The immediate correction action taken was to establish that the as-built condition does not affect the ability of the ball valve to close with a Group II isolation signal present. The following corrective actions have also been taken or planned:

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		Year 9   1	Sequential Number -   0   1   6	Revision Number -   0   0			
TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]							

- 1) The Quad Cities annunciator procedure QOA 902-5, A-8 and QOA 901-5, A-8, Group II Isolation, will be reviewed for inclusion of steps 2 and 3 of 902-3, A-16 and 901-3, F-8. This is, it shall be clearly stated that the appropriate TIP shear valve be actuated as necessary in the event of a ball valve failure to close with a Group II Isolation signal present (NTS #265 200 91 08701).
- 2) The Nuclear Engineering Group in cooperation with the Instrument Maintenance department have verified that the loss of power to the TIP shear valve circuitry and the simulated actuation of the shear valve both resulted in the TIP Isolation Off Normal logic annunciation. These annunciations are consistent with the preoperational test results:
- 3) UFSAR Section 7.4.5.4 will be changed on page 67 from "... a ball valve open with Group II isolation signal present is annunciated" to read "... loss of power to the shear valve circuitry and the actuation of any shear valve are both annunciated" (NTS #265 200 91 08702).

F. PREVIOUS EVENTS:

The station's records do not identify any similar events involving a discrepancy between the UFSAR and the as-built condition for the TIP system. Also, similar events are not recorded for any other neutron monitoring instrumentation. Further review of the station record's over the last four years indicate that eleven discrepancies between the UFSAR and the as-built condition were found. Some of the discrepancies that are similar to this event are:

LER 2-88-0101 Primary Containment Structural Steel Connection Outside the FSAR Design Criteria due to an Original Construction Oversight.

LER 1-91-14 SGBT Heater Failure Due to inadequate Review of the Original FSAR.

Based on the station records, this event does not indicate an unfavorable trend with the TIP system in the UFSAR.

G. COMPONENT FAILURE DATA:

There was no component failure involved in this event.