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RLB-92-133

July 1, 1992

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 is Licensee Event Report (LER) 89-014, 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)(i)(B) which states that the licensee shall report any operation or condition prohibited by the plant's Technical Specifications.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD CITIES NUCLEAR POWER STATION

G. C Tait fn

R. L. Bax
Station Manager

RLB/TB/plm

Enclosure

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

STMGR 379

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
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Title (4) Exceeding Technical Specification Leakage Limits for Containment Isolation Valves and Main Steam Isolation Valves - Causes to be Determined

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
0 9	1 0	8 9	8 9	0 1 1 4	0 1	0 9	2 6	8 9		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)			
	1	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)
	0 0 0	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)	X 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	TELEPHONE NUMBER AREA CODE
Dave Kunzmann, Technical Staff Engineer Ext. 2162	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)

On September 10, 1989, Quad Cities Unit One was shut down for the end of cycle 10 refueling and maintenance outage. At 0955 hours while local leak rate testing (LLRT) the Drywell/Torus purge volume [VB] bounded by AO-1-1601-23, 24, 60, 61, 62, and 63 valves [NH][ISV], it was determined that the measured combined leakage rate of 522.0 standard cubic feet per hour (SCFH) from all penetrations [PEN] and valves [V] excluding the Main Steam [SB] Isolation Valves (MSIV) [ISV] had exceeded the Technical Specification 3.7.A.2.a.2 limit of 293.75 SCFH (0.6 La).

On September 11, 1989, at 2035 hours while performing LLRT on the Unit One Main Steam Isolation Valves, AO 1-203-2A and AO 1-203-2D were found to leak in excess of the Technical Specification (3.7.A.2.a.3) limit of 11.5 SCFH. AO 1-203-2A leaked at a rate of 27.65 SCFH and AO 1-203-2D leaked at 24.19 SCFH.

The root cause of the excessive leakages have been determined where possible, repairs have been completed and the valves have been retested. This report is being submitted to comply with 10CFR50.73(a)(2)(i)(B).

PLANT AND SYSTEM IDENTIFICATION:

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

EVENT IDENTIFICATION: Exceeding Technical Specification Leakage Limits for Containment Isolation Valves and Penetrations and Main Steam Isolation Valves.

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: September 10, 1989 Event Time: 0955
Reactor Mode: 1 Mode Name: SHUTDOWN Power Level: 00%

This report was initiated by Deviation Report D-4-1-89-075 and Supplement 1.

SHUTDOWN Mode (1) - In this position, a reactor scram is initiated, power to the control rod drives is removed, and the reactor protection trip systems have been deenergized for 10 seconds prior to permissive for manual reset.

B. DESCRIPTION OF EVENT:

On September 10, 1989, Unit One was shut down for the end of cycle 10 refueling and maintenance outage. On September 10, 1989, at 0955 hours while performing local leak rate testing (LLRT), the Drywell/Torus purge volume [VB] bounded by AO-1-1601-23, 24, 60, 61, 62, and 63 valves [NH][ISV] was found to have a leakage rate of 522.0 standard cubic feet per hour (SCFH). During this event, the Technical Specification (3.7.A.2.a.2) limit of 293.75 SCFH (0.60 La) combined leakage from all valves [NH][ISV] and penetrations [NH][PEN] except Main Steam [SB] Isolation Valves [ISV] (MSIV) was exceeded.

On September 11, 1989, at 2035 hours while performing LLRT on the Unit One MSIVs, AO 1-203-2A was found to have a leakage rate of 27.65 SCFH and AO 1-203-2D a leakage rate of 23.04 SCFH. While performing a check of the leakage rate calculations, 1-203-2D was actually determined to leak at 24.19 SCFH. The rate for both valves exceeded the Technical Specification (3.7.A.2.a.3) limit of 11.5 SCFH for any one MSIV.

The failure mode for these and other valves [V] and penetrations tested during the refuel outage are detailed in Section E.

C. APPARENT CAUSE OF EVENT:

This report is being submitted to comply with the requirements of 10CFR50.73(1)(2)(i)(B) which states that the licensee shall report any operation or condition prohibited by the plant's Technical Specifications.

The cause of the excessive leakages have been determined where possible, the repairs have been completed and the valves have been retested.

D. SAFETY ANALYSIS OF EVENT:

The safety consequences of this event were minimal since LLRT is a conservative method for quantifying containment leakage. The actual leakage under accident conditions would be less than that determined by LLRT, because some lines would be filled with water rather than air, and some lines would be isolated by non-primary containment isolation valves [NG][ISV]. Also, where more than one valve is present in a line, as in the case of the MSIVs, it is realistic to expect the leakage to be equal to the lesser leakage of the two valves. However, the maximum pathway leakage is used for comparison with the Technical Specification requirements, which assumes the best valve fails to isolate and the leakage is equal to the greater leakage of the two valves.

Secondary Containment [JM] and the Standby Gas Treatment [BH] system were operable to provide additional safety barriers.

E. CORRECTIVE ACTIONS:

Corrective actions have been taken at this time. The causes and repairs taken to bring the combined leakage and the MSIV leakage below the required limits is as follows:

OUTBOARD MAIN STEAM ISOLATION VALVES
1-203-2A and 2D

1-203-2A valve was found to have a leaking pilot valve. The pilot valve seating surfaces were machined and lapped. In addition, live-load packing was installed.

1-203-2D valves pilot and main seating surfaces were found to be dirty. The seating surfaces were cleaned and lapped.

FEEDWATER CHECK VALVES
1-220-58B and 62B

The 58B valve was found to have excessive wear on one side and the seat ring assembly was replaced. The 62B valve leakage was not specifically determined; however, the replacement of the seat ring assembly resulted in a successful re-test.

RWCU ISOLATION VALVES
1-1201-2 and 5

Both valves were found to have packing leaks. The packing was adjusted on valve 1-1201-2 and the 1-1201-5 valve was replaced per Mod M-4-1-88-029.

DRYWELL/TORUS EXHAUST
1-1601-24 and 60

Both valves had no detectable signs of wear or damage that could have attributed to the leakage. Both valves were replaced and the new valves were successfully retested.

HPCI Exhaust CV
1-2301-45

The valve was found to be steam cut. The valve was replaced. A new type of valve and a modification M4-1-91-013 are expected to reduce or eliminate the steam cutting problem.

DRYWELL - ACAD
1-2599-23B

The valve was disasembled, inspected and cleaned. No corrosion or damage was noted. The valve was reassembled after cleaning and successfully retested.

O_2 ANALYZER RETURN
AO-1-8803

The Valve internals were dirty. The valve was cleaned and the seats were lapped.

F. PREVIOUS EVENTS:

265/88-007	Leak Rate From all Valves and Penetrations Excluding MSIVs on Unit Two in Excess of Technical Specification Limit
254/87-016	Leak Rate From all Valves and Penetrations Excluding MSIVs on Unit One in Excess of Technical Specification Limit
265/86-014	Leak Rate From all Valves and Penetrations Excluding MSIVs on Unit Two in Excess of Technical Specification Limit
254/86-002	Unit One MSIV in Excess of Allowable Leakage
265/86-013	Unit Two MSIV in Excess of Allowable Leakage
265/86-006	Unit Two MSIVs in Excess of Allowable Leakage

These are the most recent reported events; other failures have occurred previous to 1986.

G. COMPONENT FAILURE DATA:

Component failure data is listed as follows:

COMPONENT DESCRIPTION	MANUFACTURER/ MODEL	AS FOUND AS LEFT (SCFH)
Main Steam Isolation		
1-203-2A	Crane 20 inch 1250 lb. model B102681-D	27.65/6.91
1-203-2D	Crane 20 inch 1250 lb. model B102681-D	24.19/1.15
Feedwater Check Valves		
1-220-58B	Crane 18 inch 900 lb. model 973	undetermined/.045
1-220-62B	Crane 18 inch 900 lb. model 973	533./6/0.05
RWCU Valves		
1-1201-2	Crane 6 inch model 783 UL	*860/*5.54
1-1201-5	Crane 6 inch model 783 UL	*860/*5.54
Drywell/Torus Exhaust		
1-1601-24	Pratt, Henry 18 inch 175 lb. model 2F11 W/D1200GAD	*522.0/*18.0
1-1601-23	Pratt, Henry Co. 6 inch model N-2F 11	*522.0/*18.0
HPCI Exhaust CV		
1-2301-45	Marlin 24 inch 150 lb. model 24A-150-G15SEF-N44	1135.06/1.61
Drywell ACAD		
1-2599-23B	Hancock Co. model 5580W	73.3/0.05
O_2 Analyzer		
1-8803	Crane 2 inch 150 lb. model 3652-U	undetermined/0.0

*Combined leakage of multiple valves.