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RLB-91-006

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U. S. Nuclear Regulatory Commission
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Reference: Quad Cities Nuclear Power Station
Docket Number 50-254, DPR-29, Unit One

Enclosed is Licensee Event Report (LER) 90-025, 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)(iv): The licensee shall report any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF).

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD CITIES NUCLEAR POWER STATION

Gary Spell for RLB
R. L. Bax
Station Manager

RLB/MJB/jmt

Enclosure

cc: R. Stols
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 One	0 5 0 0 0 2 5 4	1 of 0 4

Title (4)
Engineered Safety Feature (ESF) Group II Isolation Due to a Spurious Signal from LT 1-263-58A While Valving Into Service.

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	0 6	9 0	9 0	0 2 5	0 v	0 1	0 7	9 1		0 5 0 0 0		

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	X	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	TELEPHONE NUMBER AREA CODE
M. Brown, Regulatory Assurance Ext. 3102	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 6, 1990, at 1340 hours, Unit One was Shutdown at 00% of rated core thermal power undergoing a refueling outage. At this time, a Group II isolation, Engineered Safety Feature (ESF), occurred.

An immediate investigation was conducted by the Operations Department. It was determined that, while Reactor Water Low Level transmitter (LT) 1-263-58 B was being valved into service, a spurious trip signal was received on the A channel logic. A trip signal was already present on the B channel logic due to the 1B Drywell Radiation Monitor being inoperable. This resulted in the Group II actuation. All components were determined to have actuated as designed with the exception of the valves that were out of service as part of the outage.

At 1419 hours, the Group II isolation was reset.

At 1727 hours, an Emergency Notification System (ENS) phone call was completed as required by 10 CFR 50.72 (b)(2)(ii).

As further corrective action, the procedure for vessel draining and filling will be enhanced to provide guidance and returning the level instruments to service. The out of service procedure will be revised to include instrument manifold sequencing.

This event is being reported in accordance with 10 CFR 50.73 (a)(2)(iv).

PLANT AND SYSTEM IDENTIFICATION:

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

EVENT IDENTIFICATION: Engineered Safety Feature (ESF) Group II Isolation Due to a Spurious Signal from LT 1-263-58A While Valving Into Service.

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: December 6, 1990 Event Time: 1340
Reactor Mode: 1 Mode Name: SHUTDOWN Power Level: 00%

This report was initiated by Deviation Report D-4-1-90-136

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 December 6, 1990, at 1340 hours, Unit One was SHUTDOWN at 00% of rated core thermal power undergoing a refuel outage. At this time, an Engineered Safety Feature (ESF) [JE] Group II isolation trip occurred. No alarms [ALM] were received as the annunciators [ANN] on the 901-5 panel [PL] were out-of-service for the Detailed Control Room Design Review (DCRDR) modification. The Reactor Building [NG] [VA] and Control Room [NA] Ventilation systems [VI] isolated, Standby Gas Treatment (SBGT) [BH] auto-started, and the Group II valves [ISV] which were not out-of-service (OOS), operated as designed. The Shift Engineer (SE) was present in the control room [NA] at the time, and having observed the components actuate and reviewing the alarm [ALM] typer [TPW], knew that an ESF had occurred. The trip signal cleared 5.6 seconds later.

An investigation was immediately conducted by the Operating Department in accordance with Temporary Procedure 6371, 901-5 Panel Annunciators Out-of-Service. The Shift Control Room Engineer (SCRE) and SE knew that the annunciator modification work was in progress for the Control Room 901-5 panel [PL] which involved the Group II isolation trip relays [RLY] in the 901-15 panel. However, the SCRE discovered that the work being performed at that time did not affect this circuitry.

Also in progress at this time was a return-to-service (RTS) for OOS #664. OOS #664 was written to allow the draining of the reactor [RCT] vessel, cavity, and recirculation (RR) [AD] loops, which is normally performed during a refuel outage. This OOS required that Reactor Water Low Level transmitters (LT) [LT] 1-263-58 A and B, among others, be isolated. These transmitters were being valved in at this time and the Operating Equipment Attendant (EA) and Instrument Maintenance (IM) person performing the valving were contacted immediately. The SE ordered that the RTS be stopped and the transmitters be taken back out of service until the cause of the ESF could be determined. After a discussion with the IM foreman, it was determined that LT 1-263-58 A had initiated a spurious signal while being valved back into service.

At 1419 hours, the Group II isolation alarm was reset.

At 1428 hours, Reactor Building Ventilation was restarted and SBGT was secured and placed in Primary.

At 1727 hours, an Emergency Notification System (ENS) phone call was completed in accordance with 10 CFR 50.72(b)(2)(ii).

C) APPARENT CAUSE OF EVENT

This event is being reported in accordance with 10 CFR 50.73 (a)(2)(iv): The licensee shall report any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF).

The cause of this event was determined to be a spurious signal initiated by LT 1-263-58 A while being valved back into service.

The 1B Drywell [NH] Radiation Monitor [MON] [IL] had been declared inoperable on October 29, 1990 due to spiking problems and a B channel half Group II isolation signal was inserted. When the A channel trip signal was received, this completed the trip logic required for the Group II actuation.

The spurious signal is believed to have originated as a result of the formation of an air pocket in the transmitter's reference leg. The air pocket could have formed when the vessel was drained down, and upon reflooding, the reference leg did not refill properly.

LT 1-263-58 B was valved in prior to the 1-263-58 A and no alarm was received. The reason for this could not be determined. LT 1-263-58 B utilizes the same sensing lines as 1-263-58 A.

Although not a contributing cause to this event, a review of the Master OOS Checklist, QAP 300-S5, for OOS #664 showed that the numbering sequence for returning the transmitters to service was not in accordance with established IM procedure requirements. The RTS sequence of the transmitter manifold isolation valves [ISV] was; close the bypass valve [V], open the low side, and open the high side. IM procedures require that the transmitters be returned to service by; opening the low side, closing the bypass, and opening the high side. A discussion with the operating personnel involved with the initial OOS and RTS revealed that they were not aware of this requirement.

D) SAFETY ANALYSIS OF EVENT

The safety consequences of this were minimal. The unit was in cold shutdown. With the exception of the valves that were out-of-service, all components operated as designed. Technical Specification 3.7.D.1 requires that the Group II isolation valves be operable only during reactor power operation.

E) CORRECTIVE ACTIONS

The immediate actions taken were to verify that a Group II isolation had occurred. An investigation was conducted as to the cause and it was determined that while performing the RTS of reactor low water level transmitter 1-263-58 A, a spurious signal had been initiated while valving the transmitter back into service.

QAP 300-14, OOS procedure will be revised to include information on the sequencing of instrument manifold valves. (2542009013602)

The procedures for draining and filling the vessel will be enhanced to provide guidance on returning level instruments to service and the possibility of ESF actuation. (2542009013601)

F) PREVIOUS EVENTS

There was 1 other event found that dealt with the reactor low water level transmitters. LER 254/89-019 was written as a result of LTs 1-263-58 A and B initiating an ESF actuation. While valving 58 B back into service after completing a surveillance test (ST), a spurious signal was received. The cause for this was determined to be a failure to equalize pressure prior to valving into service and a leaky manifold isolation valve.

G) COMPONENT FAILURE DATA

There was no component failure associated with this event.