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RLB-93-072

April 28, 1993

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) 93-004, 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)(v)(D). The licensee shall report any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

This report is also being submitted in accordance with Code of Federal Regulation, Title 10 Part 50.73(a)(2)(v)(D). The licensee shall report any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems designed to mitigate the consequences of an accident.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD CITIES NUCLEAR POWER STATION

R. L. Bax
Station Manager

RLB/TB/plm

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) Quad Cities Unit One										Docket Number (2) 0 5 0 0 0 2 5 4				Page (3) 1 of 0 5			
Title (4) U-1 RCIC, 1A And 1B RHR Pumps And 1A Core Spray Pump Inoperable Due To Removal Of Floor Drain Isolation 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)				
0 3	3 1	9 3	9 3	0 0 4	0 0	0 4	2 6	9 3					0 5 0 0 0 1 1				
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)														
POWER LEVEL (10) 0 9 9			20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)					
			20.405(a)(1)(i)			50.36(c)(1)			X 50.73(a)(2)(v)			73.71(c)					
			20.405(a)(1)(ii)			50.36(c)(2)			X 50.73(a)(2)(vii)			Other (Specify					
			20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)			in Abstract					
			20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)			below and in					
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)			Text)								
LICENSEE CONTACT FOR THIS LER (12)																	
Name Jerry Carney, Tech Staff Engineer, Ext. 2648										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								
A																	
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 March 31, 1993 at 1430 hours Unit One was in the RUN mode at 99.8 percent of rated core thermal power. At 0900 hours mechanical maintenance personnel had removed the 1A Residual Heat Removal (RHR)[BO] and 1A Core Spray [BM] rooms' floor drain [WK] isolation valves to facilitate hydralasing of the drain lines. At 1430 hours an Equipment Attendant identified that plugs were not installed in the floor drains as is required anytime the isolation valves are removed from the drain lines. The cause of this event was inadequate communication, both verbal and written. The work package contained insufficient detail for the control of the temporary alteration that should have been installed. The communication between Operations and Maintenance was also lacking in that neither Operations nor Maintenance confirmed the installation of the temporary alteration, both assumed it had been installed. Revisions to the Work Request procedure will be developed to positively control temporary alterations used in work packages. Shift Engineers will sign the "shift authorization to start work" only immediately prior to the actual work commencing in the field. Human factor enhancements and training on the temporary alteration process will also take place. This report is being submitted to comply with the requirements of 10CFR50.73(a)(2)(v)(D) and (a)(2)(viii)(D).

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						Year	///	Sequential Number	///	Revision Number													
Quad Cities Unit One		0	5	0	0	0	2	5	4	9	3	-	0	0	4	-	0	0	0	2	OF	0	5
TEXT Energy Industry Identification System (EIIS) 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: U-1 RCIC, 1A and 1B RHR pumps, and 1A Core Spray pumps inoperable due to removal of floor drain isolation valves.

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: March 31, 1993 Event Time: 1655
Reactor Mode: 4 Mode Name: RUN Power Level: 99%

This report was initiated by Deviation Report D-4-01-93-028.

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 March 31, 1993 at 1430 hours Unit One was in the RUN mode at 99.8 percent of rated core thermal power. At the request of Mechanical Maintenance, an Equipment Attendant (EA) was sent down to the Unit One Reactor Building basement to remove floor drain plugs thought to be installed in the 1A Residual Heat Removal (RHR)[BO] and 1A Core Spray [BM] rooms' floor drains [WK]. This was to allow the Mechanical Maintenance Department (MMD) to hydrolase the drain lines. The EA found that there were no plugs installed in any of the floor drains. The EA contacted the Shift Foreman (SF) and inquired if floor drain plugs should be installed in the floor drains. The SF replied that plugs should already be installed in the drains. When the EA informed the SF that there were not any plugs installed in any of the drains he was instructed to install the plugs into the drains. The SF then contacted the MMD Foreman and inquired about the hydrolasing work. The MMD Foreman told the SF that he believed that the floor drain plugs were installed. He stated, in addition, that an operator had been sent down to the RHR and Core Spray rooms to do a temporary lift on the floor drain plugs since he thought that they were on the out-of-service (OOS) for the hydrolasing work. The SF checked the OOS (#9915) and found that there were no OOS cards for the floor drain plugs. The OOS Request did properly state that the floor drain isolation valves were to be disassembled and the OOS was properly written for the job. The control of the floor drains plugs was intended to be the Temporary Alteration process.

Work on the floor drain piping was stopped and the floor drain plugs were installed. The EA estimated that the plugs were installed at 1530 hours.

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

At 1655 hours, the SF contacted the Shift Engineer (SE) and reported to him that the 1A RHR and 1A Core Spray room floor drain isolation valves had been removed from the drain lines to facilitate hydrolasing of the lines. In addition, he reported that no floor drain plugs had been installed. The floor drain plugs are required to be installed any time the floor drain isolation valves are removed from the drain lines. The floor drain isolation valves prevent back flow of water into the ECCS pump rooms in the event of flooding of the Reactor Building Torus area. The absence of the plugs in the floor drains made the 1A and 1B RHR pumps, the 1A Core Spray pump, and the Unit One RCIC [BN] pump to be considered inoperable for the time the isolation valves were removed from the drain lines and prior to the installation of the plugs. It was determined that the isolation valves had been removed from the drain lines at approximately 0900 hours. Therefore, the sump was unprotected for approximately 6.5 hours.

C. APPARENT CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR 50.73 (a)(2)(v)(D) and (a)(2)(viii)(D).

The apparent cause of this event was inadequate communication. The communication breakdown took place in several instances and led to this event. The work package instructions did not include a step for the control of the temporary alteration when a revision was added to the work package. A revision was made to work package Q03829 to allow the floor drain plugs to be installed under the Temporary Alteration (Temp Alt) program. An approved Temp Alt sheet and a revision sheet were added to the work package. The revision sheet stating "This Revision incorporated Temp Alt to allow Plugs to be put in and removed on lines going to the sump. The work instructions remain the same. However, no step was added to the Recommended Work Instruction Sequence of Steps to install the Temp Alt before removal of the drain line isolation valves. Because this was a general work request (non-safety related, non-regulatory related, non-reliability related) the work analyst felt he could not use a full traveller which would contain sequenced steps, prerequisites and sign-offs.

Verbal communication between Operating and Maintenance also was lacking. Both Operations and Maintenance did not confirm the installation of the temporary alteration. Both departments assumed that the temporary alteration was installed. In addition, the SE reviewed the work package and gave shift authorization to start work on the day before the actual inplant work started. In his review of the package he did not notice the Temp Alt paperwork in the package. The work request itself did not identify that the isolation valves were to be disassembled. The work request stated that screens were to be added to the floor drains in the Reactor Building basement. In his review of the package the SE did not see the steps with the isolation valve disassembly or see the temporary alteration in the package. The following day when the work was to be performed, a different SE discussed this job with the Mechanical Maintenance Department. This discussion did not result in questioning whether the floor drain plugs were installed. Assumptions were made that led to inappropriate actions. The Maintenance Foreman in charge of the work believed the floor drain plugs had been installed under the OOS.

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The Maintenance Foreman also stated he was not completely familiar with the Temp Alt paperwork which had been placed in the work package. Looking at the paperwork after this event, he thought that with the cover page completely filled out, that the temporary alteration was indeed installed.

D. SAFETY ANALYSIS OF EVENT:

The safety consequences of this event are minimal. The 1A and 1B RHR pumps, the 1A Core Spray pump and Unit One RCIC were declared inoperable due to potential flooding concerns. These systems were fully functional at all times and would have been able to perform their design function if required.

Fire watches are performed on an hourly basis in the Reactor Building basement torus area and maintenance personnel were periodically in the area during the time the plugs were not installed in the floor drains. Thus, a flooding event would have been detected in a timely manner and allow for the installation of the plugs or early correction of the flooding event.

E. CORRECTIVE ACTIONS:

The immediate corrective action was to install the floor drain plugs to return the systems in the basement rooms to an operable status. Work was stopped on this work package until the package was revised to provide work steps of assuring the temporary alteration was installed. The work packages were then successfully completed.

It has been made clear to the work analysts that they have the ability per QAP 1500-14, "Preparation and Control of General Work Requests" to enhance the level of detail in work instructions by use of a traveller regardless of the work request's classification if in their opinion the work is sufficiently complicated or if the work needs special coordination.

A method will be developed to positively control Temporary Alterations used in work packages. This control will include a signature step to assure the completion of the temporary alteration installation (NTS# 2542009302801).

Shift Engineer's will be instructed to only sign the "shift authorization to start work" immediately prior to the actual work commencing in the field. This will allow for a review of the work package by the shift individuals who will be impacted by the work and allow for the shift engineer to assess the current conditions just prior to work start (NTS# 2542009302802).

A review will be performed of QAP 1500-T4, "Equipment, Components, and Systems exempt from Reliability Related Program". This checklist will be revised to remove of all equipment and systems that could impact Technical Specification related equipment (NTS# 2542009302803).

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Training will be provided to all Maintenance Foremen, work analysts, and Operating Department licensed individuals on the Temporary Alteration process and associated paperwork (NTS# 2542009302804 and 5).

The Temporary Alteration approval sheet, QAP 300-S3, will be enhanced and improved from a human factors stand point so that the status of a temporary alteration is readily apparent (NTS# 2542009302806).

Guidance will be provided to the Shift Engineers in the form of an Operating Department Memo stating the level of detail that should take place when reviewing work packages for "authorization to start work" and the signing of the "approved completion" of a work request (NTS# 2542009302807).

The instructions for the work request classification of "Technical Specification Yes/No" will be changed to clarify that work requests whose work could impact Technical Specification equipment should be marked yes. This will help in the determination of the level of detail needed in the work instructions (NTS# 2542009302808).

F. PREVIOUS EVENTS:

There have been no previous events pertaining to the failure to install floor drain plugs in the floor drains during maintenance activities.

G. COMPONENT FAILURE DATA:

There were no component failures associated with this event.