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RLB-91-018

January 21, 1991

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) 90-014, 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)(B): The licensee shall report 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 B of R. L. Bax Station Manager

RLB/MJB/j1g

Enclosure

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cc: R. Stols T. Taylor INPO Records Center NRC Region III

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

ABSTRACT:

On December 20, 1990, at 0500 hours Unit Two was in the RUN mode at 94 percent of rated core thermal power. Operating personnel determined that a a primary containment violation existed because the torus level sightglass was left valved in since 0040 hours on December 17, 1990. The valving error was corrected upon discovery. The sightglass is not seismically qualified and therefore cannot function as a containment boundary.

An Emergency Notification System (ENS) phone notification was completed at 0558 hours under 10CFR50.72(b)(1)(i)(B). After further review, the ENS should have been completed in accordance with 10CFR50.72(b)(1)(ii)(B).

The cause of this event was personnel error during a valving evolution. Although not contributing causes to this event, incorrect labeling of the sightglass isolation valves, no labeling on other valves near the sightglass, and poor lighting in the area were found.

Corrective action will include enhancing training and stressing the importance of performing adequate independent verifications. A discussion with the individuals involved will be held and disciplinary action will be considered.

Further corrective action will be to correct the lack of labeling and labeling errors, and investigate the need for additional lighting near the sightglass.

This report is being submitted as required by IOCFR50.73(a)(2)(11)(B).

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PLANT AND SYSTEM IDENTIFICATION:

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

EVENT IDENTIFICATION: Torus Level Sightglass Left Valved in Due to Personnel Error Causing a Containment Integrity Violation.

A. CONDITIONS PRIOR TO EVENT:

Unit: Two Event Date: December 20, 1990 Event Time: 0500 Reactor Mode: 4 Mode Name: RUN Power Level: 94%

This report was initiated by Deviation Report D-4-02-90-075

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 20, 1990, at 0500 hours Unit Two was in the RUN mode at 94 percent of rated core thermal power. Operating personnel determined that a primary containment [NH] violation existed because the Torus [NH] Level Sightglass [IP] [LG], 2-1602-10, was mistakenly left valued in. The sightglass is not seismically qualified and therefore cannot function as a containment boundary.

Prior to this, on December 16, 1990, at 2356 hours, the Unit Two Equipment Attendant (EA) was directed to perform QOS 1600-25, Weekly Suppression Chamber Level Verification. This procedure uses the level sightglass to verify control room [NA] indication of torus water level.

The sightglass isolation valves [ISV], 2-1601-100 upper and 2-1601-101 lower, are controlled by the Station S-lock program and are locked in the closed position. The EA unlocked and opened these valves [V] a minimum of two full turns as required by the procedure. The EA noted the water level in the sightglass, and closed and locked what he believed to be the correct isolation valves. The EA apparently closed and locked the isolation valve for Torus Level Transmitter (LT) [IP] [LT], 2-1626, instead of the 2-1601-101 valve. This isolated the high pressure side of the transmitter.

Procedure QOS 1600-25, requires that an independent verification of the sightglass isolation valves be performed. At approximately 0200 hours on December 17, 1990, another EA performed the second verification but did not identify the error.

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At approximately 0412 hours on December 17, 1990, annunciator A-14 [IB] [ANN], TORUS HI/LOW LEVEL, was received at control room panel [PL] 902-3. This annunciator receives its signal from LT 2-1626. Operations personnel checked torus level on Torus Level Recorder [IP] [LR] 2-1602-7, and found the level to be near the high level alarm [ALM] of +1.25 inches. Torus level is normally maintained between -.3 inches and +1.25 inches.

Operations personnel began lowering torus level. At 0517 hours, Operations personnel stopped torus level reduction at a level of approximately -0.05 inches; however, the alarm did not clear. Work request Q88944 was written to investigate.

On December 20, 1990, at approximately 0300 hours, an Instrument Maintenance (IM) technician, while investigating the level alarm, discovered that the sightglass lower isolation valve was open and not locked and the normally open lower isolation valve for LT 2-1626 was closed and locked. The level transmitter valve is not required to be locked and normally has a lead seal on it to indicate that the valve should not be moved. The IM Technician found the lead seal broken and hanging from the valve. The IM Technician immediately halted work and notified his foreman of the situation.

The IM Foreman notified the Shift Engineer (SE) who dispatched an EA to investigate the valve line-up. At approximately 0330 hours, the EA verified the valving error and corrected the valve line-up.

The SE notified an Operating Engineer (OE) of the situation. The OE inspected the sightglass piping and valves. At approximately 0500 hours on December 20, 1990, the OE concluded that the sightglass had been functioning as a primary containment boundary probably since the morning of December 17, 1990 at 0040 hours.

An Emergency Notification System (ENS) phone notification was completed at 0558 hours under 10CFR50.72(b)(1)(i)(B). Further review shows that the ENS should have been completed in accordance with 10CFR50.72(b)(1)(ii)(B).

C. APPARENT CAUSE OF EVENT:

This report is being submitted to comply with CCFR50.73(a)(2)(ii)(B) which requires the licensee report any event or condition that resulted in the plant being in a condition that was outside the design basis of the plant.

The apparent cause of the event is personnel error. The EA who performed the surveillance closed and locked the lower isolation valve for the 2-1626 level transmitter instead of the sightglass lower isolation valve. The EA performing the independent verification failed to identify the incorrect valve line-up.

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Readings from the 2-1626 transmitter became erratic when the isolation valve was closed. Computer [CPU] point history for the 2-1626 level transmitter shows that readings became extremely erratic at 0040 hours on December 17, 1990, trended high until 0650 hours, and fluctuated erratically and randomly until December 20, 1990 at 0410 hours.

There is no evidence of any other cause for the valving error. The S-key Check Out Sheet,QAP 1900-S5, shows that between 2100 hours on December 16, 1990 and 1039 hours on December 17, 1990, the only S-key checked out was checked out to the EA who performed the surveillance.

Although not a cause of this event, it was discovered that there was incorrect labeling of the sightglass isolation valves, no labeling of other valves in the vicinity, and poor lighting in the area which made valve labels and the lead seal difficult to see. The Equipment Part Number (EPN) was reversed on the upper and lower sightglass isolation valves. The 2-1626 level transmitter isolation valves are not labeled. The valves are located in the reactor building basement about ten feet from the floor in an area of poor lighting.

D. SAFETY ANALYSIS OF EVENT:

The safety of the public and plant personnel was not affected by this event. All required torus level instrumentation was available during the event.

Engineering analysis shows that the sightglass would withstand post-Loss of Coolant Accident (LOCA) pressure. Following installation of the sightglass in October of 1976, either a pneumatic pressure test at 61.6 psig or a hydrostatic test at 84 psig was performed on the sightglass. In addition, the sightglass has been tested to full Integrated Primary Containment Leak Rate Test (IPCLRT) pressure, 48 psig.

However, the sightglass is not a primary containment boundary. Engineering analysis shows that the sightglass would not withstand a Significant Seismic Event (SSE).

The sightglass was valved in for about 75 hours. The likelihood of a LOCA coincident with a seismic event during this time is minimal. In this event the leakage through the small one inch diameter instrument line would be minimal and would be contained by secondary containment.

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E. CORRECTIVE ACTIONS:

The initial corrective action was to correct the valve line-up which was accomplished by an EA within one hour of initial discovery by the IM technician.

The event will be discussed at a weekly safety meeting. Operating personnel will be reminded of the importance of performing adequate independent verifications. (NTS 2652009007501)

Further discussions will be held with the individuals involved in this event and disciplinary action will be considered. (NTS 2652009007502)

Further corrective action will be to correct the sightglass isolation valve labels. (NTS 2652009007503) A walkdown will be done on other valves in the area and labels will be installed as necessary. (NTS 2652009007504) Review the EA on-the-job (OJT) training program to ensure that the torus level verification procedure is performed. (NTS 2542009007505)

The station will investigate the need for the installation of additional lighting near the sightglass. (NTS 2652009007506)

F. PREVIOUS EVENTS:

There has been one previous similar event. Deviation Report (DVR) 04-C2-83-39 documents and event on July 14, 1983, in which an EA failed to close and lock the 2-1601-101 valve on completion of the QOS 1600-25 surveillance. The EA mistakenly placed the lock on another valve located next to the 2-1601-101 valve.

The conclusions of the previous event were that Primary Containment was intact at all times during the event. This conclusion was based on the fact that the sightglass had been tested to full IPCLRT pressure.

G. COMPONENT FAILURE DATA:

There is no component failure associated with this event.