

LICENSEE EVENT REPORT (LER)

Facility Name (1) QUAD-CITIES NUCLEAR POWER STATION, UNIT ONE										Docket Number (2) 0 5 0 0 0 2 5 4 1 of 0 4				Page (3) 1 of 4																									
Title (4) INADVERTENT CONTROL ROD SCRAM DURING SCRAM TIMING DUE TO TEST PANEL DESIGN DEFICIENCY AND PERSONNEL ERROR (OPERATOR BUMPED TEST SWITCH)																																							
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)																											
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OPERATING MODE (9) POWER LEVEL (10) 0 2 4			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11) <table border="0" style="width:100%;"> <tr> <td><input type="checkbox"/> 20.402(b)</td> <td><input type="checkbox"/> 20.405(c)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(iv)</td> <td><input type="checkbox"/> 73.71(b)</td> </tr> <tr> <td><input type="checkbox"/> 20.405(a)(1)(i)</td> <td><input type="checkbox"/> 50.36(c)(1)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)</td> <td><input type="checkbox"/> 73.71(c)</td> </tr> <tr> <td><input type="checkbox"/> 20.405(a)(1)(ii)</td> <td><input type="checkbox"/> 50.36(c)(2)</td> <td><input type="checkbox"/> 50.73(a)(2)(vii)</td> <td><input type="checkbox"/> Other (Specify in Abstract below and in Text)</td> </tr> <tr> <td><input type="checkbox"/> 20.405(a)(1)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> 20.405(a)(1)(iv)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(B)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> 20.405(a)(1)(v)</td> <td><input type="checkbox"/> 50.73(a)(2)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(x)</td> <td></td> </tr> </table>													<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)		<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)		<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	
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LICENSEE CONTACT FOR THIS LER (12)																																							
Name JOHN LECHMAIER, TECHNICAL STAFF ENGINEER, EXTENSION 2173										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	MANUFAC-TURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPDOS																													
SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)																													
Yes (If yes, complete EXPECTED SUBMISSION DATE)										X NO																													
ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single-space typewritten lines) (16)																																							

On December 26, 1987, Quad Cities Unit One was in the RUN mode at 24 percent thermal power. At 1048 hours, while performing hot scram timing utilizing the control rod scram test panel, an inadvertent control rod scram occurred when control rod H-9 (30-35) was scrambled per procedure. A diagonally adjacent control rod, G-10 (26-39) was observed to scram to its fully inserted position along with control rod H-9. Control rod G-10 was restored to its in-sequence position per appropriate procedures at 1052 hours. NRC notification of this event was completed at 1120 hours per 10 CFR 50.72.

The cause of this event is a combination of personnel error and the compact design of the control rod scram test panel. The adjacent control rod was inadvertently bumped during scram timing because the test switches on the panel are small and closely spaced.

The corrective action was to return the control rod to its prescram position and subsequently reviewing this event with each on-coming shift. Further corrective action will be a procedure revision and installation of a caution sign. This report is provided per 10 CFR 50.73 (a)(2)(iv).

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 MWt rated core thermal power. Energy Industry Identification System (EIIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION: Inadvertent rod scram during scram timing due to design deficiency of scram test panel and personnel error where operator inadvertently bumped test switch.

A. CONDITIONS PRIOR TO EVENT:

Unit: One	Event Date: December 26, 1987	Event Time: 1048
Reactor Mode: 4	Mode Name: RUN	Power Level: 24%

This report was initiated by Deviation Report D-4-1-87-122

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 26, 1987, at 1048 hours, Quad Cities Unit One was in the RUN mode at 24 percent of rated core thermal power. Hot scram timing was being performed on all Unit One control rods [AA, JC] using a Temporary Procedure 5098 to QTS 130-4, "Control Rod Scram Timing". On step 10 of QTS 130-S4, "Control Rod Drive Scram Timing Data Sheet Seq. A. Approximately 25 Percent Power," control rod H-9 (30-35) was to be scrammed from position 48 to position 00. During the scram action, the Unit One Nuclear Station Operator (NSO) and a Qualified Nuclear Engineer (QNE) present at control room panel 901-5 [PL] noted that rod G-10 (26-39) was also moving into the core and its 901-5 panel scram light [IL] was lit. Both control rods scrammed to position 00. The Shift Control Room Engineer (SCRE) and Shift Engineer (SE) went to the control rod scram test panel 901-16 to investigate. The test switch [HS] for control rod H-9 was found correctly located in its full up position while the test switch for control rod G-10 was found incorrectly located in its intermediate position. Procedures QOA 300-4, "Mispositioned Control Rod", and QTP 1600-5, "Returning Out-of-Sequence Control Rods to Their In-Sequence Positions", were consulted. Under the direction of the QNE utilizing QTP 1600-S5, "Control Rod Special Maneuver", control rod G-10 was returned to its in-sequence position of 48 at 1052 hours. Control rod H-9 was then returned to position 48 using the established sequence for scram timing.

An inadvertent control rod scram is considered an Engineered Safety Feature (ESF) [JE] actuation as a result of On-site Review 87-31, which was completed on August 31, 1987. NRC telephone notification via the Emergency Notification System (ENS) was made at 1120 hours as required by 10 CFR 50.72.

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C. APPARENT CAUSE OF EVENT:

This report is submitted to comply with the requirements of 10 CFR 50.73 (a)(2)(iv), which requires the reporting of any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature.

The cause of this event has been determined to be due to a combination of personnel error and the compact design of the control rod scram test panel. Apparently, the NSO present at the test panel for scram timing had inadvertently bumped the test toggle switch for control rod G-10 to its intermediate position while lifting up the test switch to scram rod H-9. However, the NSO did not feel the test switch being bumped. These two switches are located diagonally adjacent. The test switches on the test panel are small and closely spaced. The compact design of the test panel and the operator's inattention to detail are the causes for this event.

D. SAFETY ANALYSIS OF EVENT:

The safety consequences of an inadvertent control rod scram during hot scram timing are minimal. During the performance of hot scram timing, reactor power is normally maintained between 20 and 25 percent of rated core thermal power. Below 25 percent power, the fuel bundle powers are so low that a calculation of fuel thermal limits is not required. Above 20 percent power, the characteristics of the reactor core are such that the worst case control rod drop accident will not result in a peak fuel enthalpy greater than the 280 calories per gram design limit. The reactor was operating at approximately 24 percent power before the event occurred. The reactor was at 23.6 percent power after both control rod H-9 and G-10 had scrambled to position 00.

QTS 130-4 cautions the operator that once the scram of a control rod has been initiated, whether planned or inadvertent, no attempt should be made to stop the travel of the rod by placing the test switch in the down position. QTS 130-4 also instructs the operator to verify that any inadvertently scrambled control rod reaches position 00, and if it does not, to continuously insert the rod to position 00 using the Rod Motion Control Switch [HC]. These actions will ensure that no fuel overpowering will occur when scram timing at higher powers due to a scrambled rod tip being located at the same position as an adjacent rod tip, and will also ensure that Banked Position Withdrawal Sequence requirements are satisfied so that the result of a rod drop accident would be within the 280 calories per gram design limit should the scrambling of a rod cause reactor power to fall below 20 percent.

E. CORRECTIVE ACTIONS:

The immediate corrective action was to return control rods G-10 and H-9 to their pre-scram positions using appropriate procedures. Further corrective action included reviewing the event with all of the operators on each of the on-coming shifts.

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No corrective action is deemed necessary regarding the design of the control rod scram test panel. Redesign of the control rod scram test panel would be impractical because it is used infrequently and the test conditions are controlled to minimize the safety consequences of an event of this type. QTS 130-4 will be revised to provide an additional precaution and a sign will be installed on the test panel's plexiglass cover warning of the necessity for additional care in the operation of these toggle switches. These corrective actions will be tracked with Nuclear Tracking system numbers 2542008712201 and 2542008712202 respectively.

F. PREVIOUS EVENTS:

Commonwealth Edison

DEVIATION REPORT

SUBJECT

D-4-1-86-92	Inadvertent rod scram - operator's finger slipped during scram timing resulting in scrambling the wrong rod.
D-4-1-77-45	Inadvertent rod scram - operator scrambled wrong rod during scram timing.

G. COMPONENT FAILURE DATA:

There was no component failure in this event.



Commonwealth Edison

Quad Cities Nuclear Power Station
22710 206 Avenue North
Cordova, Illinois 61242
Telephone 309/654-2441

RLB-88-16

January 14, 1988

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 please find Licensee Event Report (LER) 87-033, 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), which requires the reporting of any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

R. L. Bax
Station Manager

RLB/MSK/dak

Enclosure

cc: I. Johnson
R. Higgins
INPO Records Center
NRC Region III

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