



**Commonwealth Edison**  
Quad-Cities Nuclear Power Station  
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Cordova, Illinois 61242  
Telephone 309/654-2241

*D. L. Anderson*  
**IE FILE COPY**

NJK-76-365



October 4, 1976

J. Keppler, Regional Director  
Office of Inspection and Enforcement  
Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Reference: Quad-Cities Nuclear Power Station  
Docket No. 50-254, DPR-29, Unit 1  
Appendix A, Sections 3.2.C.1, 6.6.B.1.h

Enclosed please find Reportable Occurrence Report No. RO 50-254/76-31 for Quad-Cities Nuclear Power Station. This occurrence was previously reported to Region III, Office of Inspection and Enforcement by telephone on September 21, 1976 and by telecopy on September 21, 1976.

This report is submitted to you in accordance with the requirements of Technical Specification 6.6.B.1.

Very truly yours,

COMMONWEALTH EDISON COMPANY  
QUAD-CITIES NUCLEAR POWER STATION

*N. J. Kalivianakis*  
N. J. Kalivianakis  
Station Superintendent

NJK/EAS/1k

cc: G. A. Abrell

10073

8306170048 761004  
PDR ADOCK 05000254  
S PDR

OCT 6 1976

# LICENSEE EVENT REPORT

CONTROL BLOCK: 1         6

[PLEASE PRINT ALL REQUIRED INFORMATION]

LICENSEE NAME <span style="border: 1px solid black; padding: 2px;">01</span> <span style="border: 1px solid black; padding: 2px;">I</span> <span style="border: 1px solid black; padding: 2px;">L</span> <span style="border: 1px solid black; padding: 2px;">Q</span> <span style="border: 1px solid black; padding: 2px;">A</span> <span style="border: 1px solid black; padding: 2px;">D</span> <span style="border: 1px solid black; padding: 2px;">1</span>	LICENSE NUMBER <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">-</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">-</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span>	LICENSE TYPE <span style="border: 1px solid black; padding: 2px;">4</span> <span style="border: 1px solid black; padding: 2px;">1</span> <span style="border: 1px solid black; padding: 2px;">1</span> <span style="border: 1px solid black; padding: 2px;">1</span> <span style="border: 1px solid black; padding: 2px;">1</span> <span style="border: 1px solid black; padding: 2px;">1</span>	EVENT TYPE <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">1</span>
7 8 9 14	15 25	26 30	31 32

  

CATEGORY <span style="border: 1px solid black; padding: 2px;">01</span> CONT	REPORT TYPE <span style="border: 1px solid black; padding: 2px;">T</span>	REPORT SOURCE <span style="border: 1px solid black; padding: 2px;">L</span>	DOCKET NUMBER <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">5</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">-</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">2</span> <span style="border: 1px solid black; padding: 2px;">5</span> <span style="border: 1px solid black; padding: 2px;">4</span>	EVENT DATE <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">9</span> <span style="border: 1px solid black; padding: 2px;">2</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">7</span> <span style="border: 1px solid black; padding: 2px;">6</span>	REPORT DATE <span style="border: 1px solid black; padding: 2px;">1</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">4</span> <span style="border: 1px solid black; padding: 2px;">7</span> <span style="border: 1px solid black; padding: 2px;">6</span>
7 8	57 58	59 60	61 68	69 74	75 80

## EVENT DESCRIPTION

02 | On September 20, 1976 the Station was informed by General Electric Company of an error | 80

03 | in the Unit One Reload-2 Licensing Submittal in determining the maximum change in the | 80

04 | Critical Power Ratio (CPR) due to an abnormal operating transient. The Licensing | 80

05 | Submittal states that the maximum change in CPR for 7X7 array fuel is 0.23 for a | 80

06 | turbine trip without steam bypass. This value, when added to the Safety Limit | 80

SYSTEM CODE	CAUSE CODE	COMPONENT CODE	PRIME COMPONENT SUPPLIER	COMPONENT MANUFACTURER	VIOLATION
<span style="border: 1px solid black; padding: 2px;">07</span> <span style="border: 1px solid black; padding: 2px;">Z</span> <span style="border: 1px solid black; padding: 2px;">Z</span>	<span style="border: 1px solid black; padding: 2px;">F</span>	<span style="border: 1px solid black; padding: 2px;">Z</span> <span style="border: 1px solid black; padding: 2px;">Z</span> <span style="border: 1px solid black; padding: 2px;">Z</span> <span style="border: 1px solid black; padding: 2px;">Z</span> <span style="border: 1px solid black; padding: 2px;">Z</span> <span style="border: 1px solid black; padding: 2px;">Z</span>	<span style="border: 1px solid black; padding: 2px;">Z</span>	<span style="border: 1px solid black; padding: 2px;">Z</span> <span style="border: 1px solid black; padding: 2px;">9</span> <span style="border: 1px solid black; padding: 2px;">9</span> <span style="border: 1px solid black; padding: 2px;">9</span>	<span style="border: 1px solid black; padding: 2px;">N</span>
7 8 9 10	11	12 17	43	44 47	48

## CAUSE DESCRIPTION

08 | (Proximate Cause-Other) This occurrence was caused by incorrect analysis in preparing | 80

09 | the Licensing Submittal. The actual transient analyses were correct, but the wrong | 80

10 | conclusions were drawn in determining the operating limit for minimum Critical Power | 80

FACILITY STATUS	% POWER	OTHER STATUS	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION
<span style="border: 1px solid black; padding: 2px;">11</span> <span style="border: 1px solid black; padding: 2px;">E</span>	<span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">9</span> <span style="border: 1px solid black; padding: 2px;">6</span>	<span style="border: 1px solid black; padding: 2px;">NA</span>	<span style="border: 1px solid black; padding: 2px;">D</span>	Notification from G.E. Company
7 8 9	10 12 13	44	45	46 80

  

FORM OF ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY	LOCATION OF RELEASE
<span style="border: 1px solid black; padding: 2px;">12</span> <span style="border: 1px solid black; padding: 2px;">Z</span>	<span style="border: 1px solid black; padding: 2px;">Z</span>	<span style="border: 1px solid black; padding: 2px;">NA</span>	<span style="border: 1px solid black; padding: 2px;">NA</span>
7 8 9	10 11	44	45 80

## PERSONNEL EXPOSURES

NUMBER	TYPE	DESCRIPTION
<span style="border: 1px solid black; padding: 2px;">13</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span>	<span style="border: 1px solid black; padding: 2px;">Z</span>	<span style="border: 1px solid black; padding: 2px;">NA</span>
7 8 9 11	12	13 80

## PERSONNEL INJURIES

NUMBER	DESCRIPTION
<span style="border: 1px solid black; padding: 2px;">14</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">0</span>	<span style="border: 1px solid black; padding: 2px;">NA</span>
7 8 9 11	12 80

## OFFSITE CONSEQUENCES

15 | NA | 80

## LOSS OR DAMAGE TO FACILITY

TYPE	DESCRIPTION
<span style="border: 1px solid black; padding: 2px;">16</span> <span style="border: 1px solid black; padding: 2px;">Z</span>	<span style="border: 1px solid black; padding: 2px;">NA</span>
7 8 9 10	80

## PUBLICITY

17 | NA | 80

## ADDITIONAL FACTORS

18 | (EVENT DESCRIPTION CONTD) Minimum CPR of 1.06, gives the operating limit for | 80

19 | Minimum CPR of 1.29 for 7X7 fuel. However, examination of the Licensing Submittal (contd) | 80

NAME: Eric Schweitzer

PHONE: 309-654-2241 ext. 244

## ADDITIONAL FACTORS

### EVENT DESCRIPTION CONTD

shows that the Rod Withdrawal Error (RWE) is the limiting Minimum CPR transient, and would result in a larger change in CPR than 0.23. This is for a Rod Block Monitor (RBM) rod block line setpoint of 110% at rated core flow. This oversight was apparently made when determining the actual Minimum CPR limitations for Unit One Cycle 3. As given in the License Submittal, the worst case RWE would result in a RBM rod block at 11.5 feet control rod withdraw motion (23 notches, position 46). This rod movement would give a net CPR change of 0.255 for 7X7 fuel, and a subsequent Minimum CPR limit of 1.315. This value exceeds the Technical Specification Limiting Condition for Operation of 1.29 for 7X7 Fuel.

The safety implications of this occurrence are minimized by the fact that the lowest CPR for Unit One 7X7 fuel was greater than 1.315. Therefore, the reactor has never been operated at a condition which could potentially cause the CPR to go below 1.06 in the event of the worst rod withdrawal error. Thus, this occurrence did not pose any threat to the safe operation of the plant, nor to the health and safety of the public.

### CORRECTIVE ACTION TO PREVENT RECURRENCE

In response to this occurrence, a work request was issued to lower the Rod Block Monitor trip level from 110% to 107%. A corresponding Technical Specification change for Table 3.2-3 has also been initiated. At a setpoint of 107%, the worst case rod withdrawal error would be blocked at 7 feet withdrawn, which would result in a maximum change in CPR of 0.16. This is much less than the 0.23 CPR change for the turbine trip without bypass transient, and the value of 1.29 Minimum CPR value for 7X7 fuel is now correct. The RBM setpoint change was completed on September 22, 1976 on Unit One. During the time interval between the notification of the error until the time the RBM setpoint was changed, all rod movement was suspended. There have been no previous occurrences of this nature at Quad-Cities Station. The corrective actions taken should be adequate to resolve this occurrence.