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Quad-Cities Nuclear Power Station
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NJK-75-272

May 13, 1975

Director of Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: Quad-Cities Nuclear Power Station
Docket No. 50-254, DPR-29
Appendix A, Sections 3.3.D, 6.6.B.1.a

Enclosed please find Abnormal Occurrence Report No. AO 50-254/75-10 for Quad-Cities Nuclear Power Station. This occurrence was previously reported to Region III, Directorate of Regulatory Operations by telephone on May 4, 1975 and to you and Region III, Directorate of Regulatory Operations by telecopy on May 5, 1975.

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

Very truly yours,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

N. J. Kalivianakis
Station Superintendent

NJK/JAS/lk

cc: Region III, Directorate of Regulatory Operations
J.S. Abel

REPORT NUMBER: AO 50-254/75-10

REPORT DATE: May 13, 1975

OCCURRENCE DATE: May 3, 1975

FACILITY: Quad-Cities Nuclear Power Station
Cordova, Illinois 61242

IDENTIFICATION OF OCCURRENCE:

Two control rods withdrawn for maintenance separated by only one inserted control rod.

CONDITIONS PRIOR TO OCCURRENCE:

Unit 1 was shutdown with the mode switch in REFUEL.

DESCRIPTION OF OCCURRENCE:

Three control rod drives (J-13, N-9, and J-15) were scheduled for replacement during the Unit 1 outage. A test fixture was installed in the RPIS to simulate a full in position signal for J-13 in order to allow the concurrent withdrawal of a second rod. On May 3, 1975 at 0400 a.m. CRD J-13 was returned to service but left at position 48. At 0831 a.m. CRD J-15 was withdrawn and taken out of service. At 1825, while returning J-15 to service, it was recognized that J-13 and J-15 were within a nine rod array and that Technical Specification 3.3.D had therefore been violated. The initial action was to reinsert CRD J-13. A review of the nuclear instrumentation recorder charts (SRMs and IRMs) verified that no nuclear response had occurred.

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE:

The apparent cause of this occurrence is attributed to inadequate procedure. Although both maintenance and operating procedures for replacement of control rod drives contained no reference to the nine rod array criteria of specification 3.3.D, a contributing cause of operator error must also be assigned.

ANALYSIS OF OCCURRENCE:

Since no observable response was indicated on any nuclear instrumentation, there were no significant consequences from the standpoint of public health and safety.

Control rod J-15 is a peripheral rod on the west face of the core which is separated by one control cell from rod J-13. During BOC 2 startup testing a shutdown margin of 2.8% ΔK was demonstrated. At that time the full withdrawal of two face adjacent rods and the partial withdrawal of a third adjacent rod to position 08 was required to achieve criticality in the calculated worst case. The core is calculated to become more shutdown with exposure so that the present margin is over 3% ΔK with the strongest rod out.

Since the core was subcritical with two face-adjacent rods withdrawn at BOC, the May 3 configuration of two non-adjacent rods separated by a fully inserted rod would be subcritical with a wide margin. In addition the peripheral location of J-15 further minimizes the worths involved in this occurrence. There were thus no adverse effects on public health & safety related to this occurrence.

CORRECTIVE ACTION:

Control Rod Drive Replacement procedures QOP 300-14 (Operating) and 45-3.13 (Maintenance) will be revised to include references to the Specification 3.3.D limitation which allows only one rod in any nine rod array to have an inoperable accumulator and to the Specification 3.3.B.2 limitation which allows two drives to be removed only if the shutdown margin specification 3.3.A.1 is met. These requirements will also be reviewed with operating and maintenance personnel to minimize the possibility of a recurrence of this incident.

FAILURE DATA:

Since this is the first occurrence of its kind at Quad-Cities Station, no safety implications related to cumulative experience exist.