Commonwealth Edison
Quad-Cities Generating Station
Post Office Box 216
Cordova, Illinois 61242
Telephone 309/654-2241

NJK-74-274

September 10, 1974

Mr. John F. O'Leary, Director
Directorate of Licensing Regulation
U. S. Atomic Energy Commission
Washington, D. C. 20545

Reference: Quad-Cities Nuclear Power Station, Unit 2
Docket No. 50-265, DPR-30, Appendix A
Sections 1.0.A.2, 3.9.B, and 6.6.B.1.a

Dear Mr. O'Leary:

Enclosed please find Abnormal Occurrence Report No. AO 50-265/74-22 for Quad-Cities Nuclear Power Station. This occurrence was previously reported to Region III, Directorate of Regulatory Operations by telephone on September 1, 1974, and to you and Region III, Directorate of Regulatory Operations by telecopy on September 1, 1974.

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/CWS/jeh

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

Enclosure: AO 50-265/74-22

50-265
Inquiry

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COPY SENT REGION III

REPORT NUMBER: AO 50-265/74-22

REPORT DATE: September 10, 1974

OCCURRENCE DATE: August 31, 1974

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

IDENTIFICATION OF OCCURRENCE:

Unit 2 250 volt battery discharged.

CONDITIONS PRIOR TO OCCURRENCE:

Unit 2 at 100 MWe decreasing following difficulty in reactor water level control and discovery of leak in "D" heater bay. Unit 1 steady state at 790 MWe.

DESCRIPTION OF OCCURRENCE:

On August 31, 1974, at approximately 11 p.m., problems were experienced in controlling reactor vessel level. The cause of the problems was a failure of the feedwater low flow regulating valve air supply. Attempts were made to control reactor water level by intermittent operation of the reactor feed pumps. Subsequently, trouble with the reactor feed pump vent fan dampers prevented restarting a feed pump. As a result of the reactor level oscillations, a reactor scram occurred. An attempt was made to start the HPCI System, but the associated valves could not be operated. The RCIC System was operated in manual to restore vessel level to normal. Investigations at this time discovered that the 250 volt DC battery for Unit 2 had been discharged to approximately 70 volts. This was the reason why the HPCI valves would not operate. Further investigation determined that the battery charger to battery breaker was actually tripped. This accounted for the battery itself being discharged. The breaker was reset immediately and shortly thereafter, normal power was available for the systems supplied by this battery, primarily the Unit 2 HPCI System and the Unit 1 RCIC System.

The reactor was shutdown in a normal manner and remained shutdown for several days for maintenance.

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE: Operator Error

The cause of this occurrence is attributed to the following multiple operator errors:

1. Incorrect observation of the position of the 250 volt battery charger-to-battery breaker as closed and not tripped.

2. Incorrect determination that the "Breaker Tripped" alarm was a faulty alarm based on (1) above.

3. Failure to report or cause subsequent investigation of observed dim HPCI valve lights on Unit 2.

4. Failure to notice dim valve lights on Unit 1 RCIC and other equipment.

Any of the above should have led to investigation of low voltage on the 250 volt battery and termination of start up until resolution of the problem.

5. Failure to secure operation of the main turbine emergency bearing oil pump shortly after the turbine trip, causing unnecessary drain on the 250 volt battery.

ANALYSIS OF OCCURRENCE:

On August 26, 1974, a routine weekly operator check of the Unit 2 250 volt DC battery showed satisfactory specific gravity and voltage.

At 2:07 a.m. on August 31, 1974, Unit 2 scrammed due to APRM high-high flux following an MG set oil pump trip and manual restart. The Unit 2 battery charger-to-battery breaker tripped at that time and the appropriate alarm indication was received. An operator was dispatched to visually check this breaker and incorrectly determined that it was closed. The breaker tripped alarm indication was thus considered faulty.

By 5 a.m., the minimum start up checklist was completed, including checkoff that the batteries and chargers were operable. This was probably true at that time since the 250 volt battery should not yet have been drained and the battery charger itself was operable but not connected to the battery due to the tripped breaker. Thereafter, the 250 volt battery was discharged to 70 volts at 11 p.m. due to equipment operation including the emergency bearing oil pump which should have been secured shortly after the 2:07 a.m. turbine trip. The reactor was made critical at 3:05 p.m., thus, probably exceeding the requirement for 250 volt battery operability prior to making the reactor critical.

The safety implications of this occurrence were minimized by the division of the Unit 1 and Unit 2 250 volt buses, thus maintaining availability of the Unit 2 RCIC (normally fed from Unit 1) when required. Similarly, the Unit 1 RCIC (normally fed from Unit 2) was inoperable but all other Unit 1 ECCS Systems (normally fed from Unit 1) were operable.

CORRECTIVE ACTION:

The 250 volt battery charger-to-battery breaker was reset at 11:25 p.m. on August 31, 1974. The Unit 2 HPCI System was returned to normal at 1:10 a.m. on September 1, 1974.

This Abnormal Occurrence Report will be circulated to all licensed operators with an additional statement from station management. Also, a modification has been initiated to install battery voltage meters in the control room.

FAILURE DATA:

This occurrence is attributed to operator error and represented a major deviation from the normal high quality of operations at Quad-Cities Station. No previous such occurrence has occurred at Quad-Cities; therefore, no cumulative experience is available.