



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

NJK-75-81

February 21, 1975



Mr. John F. O'Leary, Director
Directorate of Licensing Regulation
U. S. NUCLEAR REGULATORY COMMISSION
Washington, D. C. 20545

REFERENCE: Quad-Cities Nuclear Power Station
Docket No. 50-254, DPR-29
Appendix A, Sections 1.0.A.8, 6.6.B.1.a

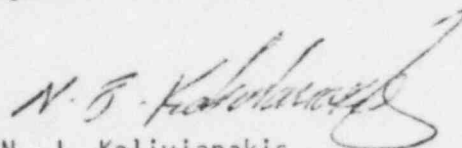
Dear Mr. O'Leary:

Enclosed please find Abnormal Occurrence Report No. 50-254/75-4 for Quad-Cities Nuclear Power Station. This occurrence was previously reported to Region III, Directorate of Regulatory Operations by telephone on February 12 and February 13, 1975, and to you and Region III, Directorate of Regulatory Operations by telecopy on February 13, 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

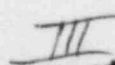
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cc: Region III, Directorate of Regulatory Operations
J. S. Abel

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REPORT NUMBER: AO-50-254/75-4

REPORT DATE: February 21, 1975

OCCURRENCE DATE: February 12, 1975

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

IDENTIFICATION OF OCCURRENCE:

Fuel mispositioned in Unit 1 cycle 2 core.

CONDITIONS PRIOR TO OCCURRENCE:

At the time the abnormal occurrence was discovered, Unit 1 was shutdown for piping repairs. Prior to this time the unit had experienced six months of normal power operation with the fuel mispositioned. There were no measurable indications of abnormal fuel performance in the core power distribution or unit off gas release rates observed.

DESCRIPTION OF OCCURRENCE:

On February 12, 1975, while performing a core verification prior to replacement of the reactor head, a fuel assembly was found to be in its proper core location but misoriented 180 degrees. Then, during the process of reviewing video tapes of the core verification to assure there were no other loading errors, three peripheral fuel assemblies were found not fully seated due to spring clips being hung-up on the core upper grid.

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE:

Operator Error - In the case of the fuel assembly rotated 180 degrees, at least two errors occurred. The bundle was misloaded and the loading error was not discovered in the core verification.

In the case of the fuel assemblies that were hung up on the upper core grid, station personnel were not aware of any spring clip design problem that would allow this to occur. The small difference in the relative bundle height was not recognized in the core verification.

ANALYSIS OF OCCURRENCE:

The fuel assembly that was misoriented was an initial cycle (7X7) fuel assembly that, at the beginning of Cycle 2, had approximately 8000 MWD/T of exposure. For a fuel assembly in this exposure range, with the local peaking factor increased by as much as 35% due to the misorientation, it is estimated that the peak linear heat generation rate (LHGR) was about 17 Kw/Ft. There is no possibility that either 1% plastic strain or departure from nucleate boiling limits were reached.

The fuel assemblies that were not fully seated in the lower grid are located on the core periphery and therefore run at approximately 60% of the power level of an average assembly. At the reduced power level of a peripheral assembly there is no possibility of departure from nucleate boiling even if the assembly received no forced circulation.

It is therefore concluded that no safety limit was exceeded as a result of this abnormal occurrence and that there were no effects on the health and safety of the public.

CORRECTIVE ACTION:

The misoriented assembly was replaced with an assembly of the same type that was removed from the core during the last refueling. The three spring clips on the peripheral assemblies were replaced and the assemblies returned to the core. These reloaded assemblies were subsequently verified for proper identification, orientation, and seating.

The present core verification procedure requires verification of proper assembly orientation, location, and seating during one video taping of the core. Performing all three verifications simultaneously may have contributed to the failure to detect the mispositioned fuel. To prevent repetition of this and similar occurrences, the core verification procedure will be changed to require a separate verification of bundle orientation and bundle heights before the assembly ID numbers are verified.

The misoriented assembly that was removed from the core will be sipped to determine if there were any gross failures of the fuel cladding. Based on the fact that the operational off-gas release rates were not excessive, it is felt that there were no gross failures of this or any other assembly in the core.

FAILURE DATA:

There has been no previous case of fuel misloading that was not detected during the core verification. Therefore, there are no safety implications resulting from cumulative experience.