



Commonwealth Edison
Quad-Cities Generating Station
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NJK-74-299

September 26, 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
Docket No. 50-265, DPR-30
Appendix A, Sections 1.0.A.5 and 6.6.B.1.a
DRO Bulletin Number 74-10

Dear Mr. O'Leary:

Enclosed please find Abnormal Occurrence Report No. AO 50-265/74-25 for Quad-Cities Nuclear Power Station. This occurrence was previously reported to Region III, Directorate of Regulatory Operations by telephone on September 16, 1974 and to you and Region III, Directorate of Regulatory Operations by telecopy on September 17, 1974.

This report is submitted to you in accordance with the requirements of Technical Specification 6.6.B.1.a., and is also submitted in compliance with the action requested in item 4 of the referenced DRO bulletin.

Very truly yours,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

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

NJK/REQ/lk

cc: Region III, Directorate of Regulatory Operations
J. S. Abel
DRO, Assistant Director for Construction and Operations

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REPORT NUMBER: AO 50-265/74-25

REPORT DATE: September 26, 1974

OCCURRENCE DATE: September 16, 1974

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

IDENTIFICATION OF OCCURRENCE:

Crack at weld 02BB-F10; 4 inch pipe to weldolet weld of Reactor Recirculation System Loop 2B discharge valve bypass line.

CONDITIONS PRIOR TO OCCURRENCE:

Unit 2 Reactor in cold shutdown condition.

DESCRIPTION OF OCCURRENCE:

On September 15, 1974 the station was advised of a problem discovered at Dresden Nuclear Power Station that involved the failure of welds on the Reactor Recirc Pump Discharge Valve Bypass line. Since Quad-Cities Unit 2 was shutdown at the time for a maintenance outage, plans were made to inspect the similar piping on that unit. Longitudinal and shear wave ultrasonic nondestructive tests were performed on both loops of the Unit 2 Reactor Recirculation System Discharge Valve Bypass lines. A total of 22 welds were inspected. On September 16, 1974 the tests indicated a nonvisible anomaly at weld number 02BB-F10 on the 'B' loop discharge bypass line. A subsequent radiograph on September 16, 1974 confirmed the anomaly as a 3 inch long subsurface crack at the top of the 4 inch bypass line approximately 1/4 inch away from the pipe to weldolet weld. Each end of the crack terminated at the weld. The weldolet is located on the upstream side of the 2B recirc pump discharge valve (MO-2-0202-5B) at the point where the bypass line (2-0203B-4") joins the recirc pump discharge line (2-0201B-28"). Unit 2 remained shutdown and plans were made to repair the defective weld.

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE:

The mode of failure and thus the cause of this occurrence had not been established as of the date of this report. The failure is being studied by representatives of the CEC Co OAD

department, the General Electric Company, and Argonne National Laboratory to determine the failure mechanism. Further information will be provided when the studies are concluded and the failure mode is determined.

ANALYSIS OF OCCURRENCE:

Since the crack was detected before it had completely penetrated through the pipe, there was no leakage or damage to other systems associated with this occurrence. The repairs made to the line restored it to its original configuration since the repair specifications and materials were the same as the original installation. There were no changes to the system as previously designed and analyzed, and the repairs performed restored the level of integrity as required by the Technical Specifications. Therefore, no unreviewed safety questions are created because of this occurrence or the repairs made. Additionally, there were no effects on the health and safety of the public associated with this occurrence.

Considering that the system as originally installed did fail, and that the mode of failure is presently unknown, it is recognized that the possibility of this type of failure reoccurring does exist. However, it is felt that the normal drywell leakage and atmospheric monitoring systems are adequate to give warning of this type of failure in the future. Since the failure was not catastrophic and would probably not be such if it occurred again, any leakage as a result of a similar failure would be detected and the appropriate plant actions per the Technical Specifications would take place. As a final consideration, a gross failure of this line would be within the capabilities of the ECCS systems. Thus, the safe operation of the reactor was not threatened by this occurrence and is not compromised by the repairs made.

CORRECTIVE ACTION:

Plans were developed to repair the failed weld immediately since the point of failure was in a location that was able to be isolated with the normal valves associated with the 'B' loop recirc pump. The repairs consisted of removing approximately a 9 1/2 inch long piece including the failed portion and replacing it with a new piece. The repair procedures and required Quality Control Records are documented with Safety Related Work Request Number 3711-74. Following completion of the repairs, dye penetrant tests were performed, radiographs were made, and ultrasonic tests were performed. The completed repairs and tests were approved by the ASME Authorized Inspector representing the Hartford Steam Boiler Company. The repairs were successfully completed and the unit was returned to power operation on September 25, 1974.

* * Prior to startup of the unit, strain gauges and accelerometers were installed on the repaired bypass line in order to remotely monitor the line vibration characteristics during operation. The resultant data will be analyzed by the Southwest Research Institute to help evaluate the occurrence and determine the cause.

As an additional precautionary measure, all other 4" and less diameter pipes connected to the recirc discharge piping were visually inspected for any signs of leakage. No signs of failures were noted during this inspection.

FAILURE DATA:

The initial phone conversations with the Region III representatives had reported that a discontinuity had been found in this weld during the baseline piping inspection of this system. A closer review of our records has shown that this was not the case and that there were no discontinuities associated with this weld at the time of the baseline inspection. There have been no other similar failures related to the recirc system piping thus, there is no failure data associated with this occurrence. Also, since there is no failure data, there are no safety implications related to cumulative experience associated with this occurrence.