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NJK-74-88



May 24, 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 1, Docket No. 50-254,
DPR-29, Appendix A, Sections 1.0.A.2, 4.7.D.1.a, 6.6.B.1.a.

Dear Mr. O'Leary:

The purpose of this letter is to inform you of the details of an occurrence which took place on May 14, 1974, whereby two Unit One primary containment isolation valves were timed to close slower than the Technical Specification limitations. The unit was in the cold shutdown condition for refueling at the time of the occurrence. This occurrence was reported to you and to Region III Regulatory Operation's personnel by telephone and telegram on May 15, 1974.

PROBLEM AND INVESTIGATION

At 8 p.m. on May 14, 1974, surveillance testing was being performed on the Unit One power-operated and automatically-initiated primary containment isolation valves according to Technical Specification 4.7.D.1.a. This requires that these valves be tested once each operating cycle for closure times as specified in Table 3.7.1. Drywell purge valves A0-1-1601-21 and A0-1-1601-55 were observed to close in 13.5 seconds and 39 seconds, respectively. The Technical Specification time limit for these valves is 10 seconds. These valves had been in the closed position since April 22, when pressure suppression cleanup was finished. All other isolation valves tested were found to be within specifications.

An operator was sent to observe valve movement and investigate for stem binding or any other abnormalities. Subsequent operations of both valves did not reveal any evidence of binding or defective components on either valve. Both valves were intact and did fully open and close when actuated. However, the slow closure times were still evident. Since no mechanical valve failures were in evidence, maintenance on the valves was not required.

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The instrument air operating mechanism for the I-1601-21 valve consists of a 3/8" check valve upstream of the four-way solenoid which prevents air escape in the event of a low air pressure situation, thus allowing the 1601-21 valve accumulator to inject air to force the valve to fail closed. The check valve is adjustable to control the normal flow rate of instrument air for valve closure from the control room. To correct for the slow valve closing time, the 3/8" valve was adjusted to supply more air to the valve, and thus make it operate faster. Following this minor adjustment, the 1601-21 valve was timed to close in 9.0 seconds. This was verified three times.

The A0-1-1601-55 valve air operator mechanism consists of a 3/8" flow control valve on the instrument air line between the two-way solenoid and the valve cylinder. This control valve is adjustable to regulate the bleed-off of air from the cylinder and thereby adjust valve closing time. As with the 1601-21 valve, the 3/8" valve was adjusted, and A0-1601-55 was timed to close in 9.0 seconds three times.

EVALUATIONS AND CORRECTIVE ACTIONS

Safety Implications

Both of these valves are normally closed during reactor power operation, and are in the open position only during the drywell inerting and de-inerting processes. Upon receipt of a Group II Isolation signal, these valves go closed. Therefore, based on the fact that these valves are normally closed, and simply stay closed under isolation circumstances, the effect of the slow closure times on reactor safety is minimal.

The valves in question were always operable during the operating cycle except during periods of minor maintenance. The packing on A0-1-1601-55 was adjusted on May 5, 1973, and the solenoid on A0-1-1601-21 was replaced on December 4, 1971. Because neither of these valves was inoperable during reactor power operation, and the valves would have performed their design isolation function if the situation presented itself, this occurrence did not create an unresolved safety question as given in the FSAR.

Cause and Corrective Actions

These valves are operated very infrequently, and this lack of exercise is postulated to have caused these valves to close in a time period greater than specifications. The subject valves were last demonstrated to be operable prior to performing the pre-operational primary containment leak rate test on December 24, 1970. At this time, it is felt, that these valves were probably not timed properly at their initial installation. If there is observed to be a drift in the closing time for these valves in the future, further corrective action will be taken to provide for the additional exercising of these valves and observation of their closing time.

Cumulative Experience

This occurrence was the first time that a primary containment isolation valve other than an MSIV was timed to close in a period outside of specification limits.

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Cumulative experience is not evident, since Quad-Cities Unit 2 has not yet completed its first operating cycle, and similar test data on these valves has not been accumulated. The similar valves on Unit 2 will be timed on the first opportunity, to determine if this problem exists there.

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