

Jersey Central Power & Light Company

MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 539-6111

September 30, 1971

Dr. Peter A. Morris, Director
Division of Reactor Licensing
United States Atomic Energy Commission
Washington D.C. 20545

Dear Dr. Morris:

Subject: Oyster Creek Station
Docket No. 50-219
Failure of Isolation Condenser Line Break Protection

The purpose of this letter is to report to you the failure of Isolation Condenser NZ01B to isolate during surveillance testing of its line break sensors on September 3, 1971.

Each isolation condenser is provided with redundant condensate and steam line break d/p sensors, any one of which will initiate condenser isolation upon a sustained five-second d/p signal corresponding to 300% flow. While performing the test to check the isolation condenser logic circuitry, steam line break sensor 1B05-B1 was tripped; but the time delay feature of relay 6K8A failed to function. This prevented a closing signal from being applied to the condenser valves following the prescribed five-second delay.

Following the replacement of relay 6K8A with one of a different manufacturer and during the subsequent checkout of the isolation circuit, the time delay feature of relay 6K8B was also found to be inoperable. Thus, had the isolation condenser been called for and a line break occurred, no automatic isolation would have taken place.

Removal of the failed relays from their mounting brackets and subsequent disassembly of the units, required to pinpoint the cause of failure, was not done due to the physical location of the relays being such that several other relays would have had to been disconnected and temporarily moved out of the way. This, coupled with the uncomfortable work position required, would have increased the time required to return the condenser to service.

Several reasons for the failures were previously postulated when problems were experienced with similar relays in the circuitry for Isolation Condenser NZ01A, all of which were the result of what appeared to be excessive heat generated by a resistor in series with the coil.

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Prior surveillance testing had revealed problems associated with the type of relay installed in the isolation condenser logic circuits, and a decision had already been reached to replace the relays with those of a different manufacturer. Since these relays were now on hand, both of the failed units were replaced and a successful test of the isolation logic circuit was completed.

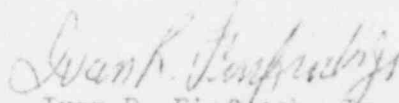
Had Isolation Condenser H231B been initiated either automatically or manually and a rupture subsequently occurred, the condenser valves would not have closed automatically. This accident has been analyzed in Amendment 38 to the FDSAR for break sizes up to and including complete severance of the ten-inch line. Results of that analysis indicates that clad perforations will not occur and that the radiological dose to the thyroid, assuming all of the reactor coolant is released directly to the environment without filters due to blowout of the Reactor Building panels, is significantly less than the guidelines set forth in 10 CFR Part 100.

The pipe rupture condition would not have been annunciated but the Control Room Operator would have been provided with reactor pressure and level indications as well as area temperature conditions in the vicinity of the isolation condensers and radiation dose rates in that area. Manual isolation of the condensers could have been accomplished; and if the valves had been shut within sixty seconds of the time the rupture occurred, the loss of coolant from the circumferential rupture would have been less than that for a main steam line break.

All of the time delay relays initially installed in the isolation condenser circuitry have been replaced with those of a different manufacturer. The testing frequency of the isolation circuitry has been increased from quarterly to monthly until sufficient confidence is gained on the new relays to warrant a change back to the former frequency.

We are enclosing twenty-five copies of this report.

Very truly yours,



Ivan R. Finflock, Jr.
Manager, Nuclear Generating Stations

IRF/pk

Enclosures

cc: Mr. J. P. O'Reilly, Regional Director
Division of Compliance, Region 1