

DUANE ARNOLD ENERGY CENTER
Iowa Electric Light and Power Company
Licensee Event Report - Supplemental Data

Docket No. 050-0331

Licensee Event Report Date: 11-24-80

Reportable Occurrence No: 80-055

EVENT DESCRIPTION:

At 1613 hours on November 10, 1980 during a normal plant startup, a main steam relief valve stuck open which resulted in reactor depressurization and an automatic scram (see Licensee Event Report No. 80-054). During the transient, the reactor vessel water level dropped to 7.5 inches below instrument zero. This is below the trip setpoint on reactor vessel water low level (12 inches above instrument zero) which should have resulted in a Group 3 isolation of the containment. Investigation revealed that the Group 3 Isolation Channel "A" side logic had not tripped as it should have. The Group 3 isolation valves include containment purge and vent valves. The Group 3 Isolation Channel "B" side logic had tripped properly and the corresponding valves isolated. The "B" side trip resulted in isolation of all containment purge and vent lines by closure of an isolation valve on each line redundant to the "A" side valve that failed to close.

The reactor was placed in a cold shutdown condition to further investigate the cause of the Group 3, Channel "A" side failure and to replace/repair the main steam relief valve.

CAUSE DESCRIPTION:

The problem was traced to a wiring error apparently made during design change work during the 1980 refueling outage. A wire was terminated at the wrong location on a terminal strip which effectively bypassed the low water level Group 3, Channel "A" logic isolation. The valves in the Group 3 Channel "A" logic isolation would have isolated properly on either of the other Group 3 isolation parameters (high drywell pressure or reactor building ventilation exhaust or refueling floor high/low radiation).

Further investigation revealed that the low water level Group 3 "A" logic isolation wiring problem could not have been identified by the post-installation testing or subsequently by the existing surveillance testing program.

CORRECTIVE ACTION:

The wiring error was corrected and the Group 3 Channel "A" logic isolation verified to operate properly. Further, a special task force was established at 0800 hours on November 12, 1980 to study all of the design change work scheduled/implemented since the beginning of the 1980 refueling outage. The emphasis of the review was placed on the post installation testing program and plant system operability surveillance testing program adequacy. In several instances, the post installation testing was revised and reperformed and testing procedures were revised as deemed necessary to adequately ensure the proper operation of plant electrical systems/components.

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CORRECTIVE ACTION CONTINUED:

Also an administrative Hold was placed on plant restart until the review work was completed and any necessary corrective actions/retest work completed. At 2000 hours on November 14, 1980 the task force review work was complete, all corrective actions had been completed, the administrative Hold was lifted, and the plant was readied for normal start-up.

In order to prevent recurrence of this problem, a detailed review of the design change procedure and post-installation testing requirements adequacy is presently being conducted at DAEC. As an interim corrective measure an Administrative design change implementation stop work order has been issued until a determination has been made that design change reviews, work controls, and retest control mechanisms are adequate.