

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE--PNO-V-87-47A Date: 06/24/87

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information presented is as initially received without verification or evaluation and is basically all that is known by Region V staff on this date.

FACILITY: Southern California Edison Company
San Onofre Unit 3
DOCKET NO. 50-362

Licensee Emergency Classification
☐ Notification of Unusual Event
☐ Alert
☐ Site Area Emergency
☐ General Emergency
☒ Not Applicable

SUBJECT: REACTOR TRIP AND SAFETY INJECTION -- UPDATE

The licensee has completed the post-trip review process for the reactor trip and safety injection which occurred on June 21, 1987. The following is an update on the various issues identified by this event:

- * Operator response -- Based upon a brief precursor alarm nine minutes before the trip, the operators had discussed actions to be taken should Phase B of the non-IE Uninterruptible Power Supply (UPS) be lost. They anticipated a loss of control to the feedwater control valve for steam generator No. 88 and took manual control of that and one main feed pump shortly after the loss of power and set the controls for control valve full open and pump at full speed. However, the loss of Phase B also removed power to the feedwater control system (Foxboro Spec-200 computer), which by design causes the control valves to close and feedwater pumps to decrease to idle. The operator was therefore not able to manually control level in SG 88 and a low level trip resulted. Following the trip the operator proceeded through the post-trip procedure, inadvertently leaving the control valve and feedwater pump controller in manual (contrary to station policy, but not an apparent procedure conflict). The operator checked steam generator levels 2 to 3 minutes after the trip, as directed by the post-trip procedure, and observed SG 88 level to be offscale high. It was then observed that Phase B UPS power had returned, and the valve and pump controls in manual (assisted by auxiliary feedwater pumps) had caused SG 88 to overfill. The feedwater flow was promptly terminated. As followup to this, the licensee has briefed all Unit 2 and 3 operating shifts on the event and will issue a memorandum on placing controls in manual. This will also be incorporated into the six-week operator training program.
- * Loss of pressurizer level -- The licensee notes that the pressurizers in C.E. plants are comparatively smaller than those in other types. This event is bounded by the FSAR review of the Excessive Steam Flow Transient, as presented in Figures 15.1-5 and 15.1-6 of the FSAR. That analysis was based a Tave decrease of 80 F compared to the Tave decrease of 85 F observed during the June 21 event.

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- * Loss of power to UPS Phase B -- As previously noted, the licensee identified a loose lug to be the cause of the temporary loss of power. Other lugs were checked and found to be tight. Similar power supplies have been checked previously as part of the licensee's ongoing trip reduction program, and no similar connectors have been found to be loose. The licensee's conclusion is that the loose lug was never tightened during construction.
- * Overfilling of SG 88 -- The licensee's calculations indicate that water level reached the steam line nozzle (located in the top of the steam generator) but probably did not overflow into the steam line. Licensee personnel have also done a detailed walkdown of the steam lines to the turbine stop valves and condenser. Pipe supports and spring can positions were checked and no anomalies were found. It is concluded that if water did overflow into the steam line, the amount was minimal and caused no adverse effects.
- * Snubbers on high pressure safety injection (HPSI) line -- Four small (250-lb) snubbers were found by the licensee's inspection to have permanently locked up as the result of a minor pressure transient. These have been replaced. The licensee's experience has shown these snubbers to be easily damaged. An ongoing snubber reduction program has determined that these four snubbers are not necessary and licensee plans call for their removal. The minor pressure transient resulted from sluggish operation which has been observed in the stop-check valves at the discharge of each HPSI pump. These sometimes do not close smoothly -- they close after some small reverse flow and pressure differential have accumulated, causing a minor pressure transient in the system. This anomaly occurs not on HPSI system actuation but when the HPSI pumps are being stopped. The licensee has conducted a walk-down of the system and found no other problems. The stop-check valves in the HPSI pump discharge lines are scheduled for replacement during a future refueling outage.
- * HPSI cold leg flow indicator -- The licensee's post-trip review determined that the HPSI flow indicator in one of four cold leg injection lines did not indicate flow during the safety injection actuation following the trip. Investigation by the licensee has determined that a zero shift in the flow transmitter apparently occurred. The transmitter is being replaced and will be verified operable before plant startup. The cause of the failure has not been determined pending further inspection of the transmitter being removed. The remaining three transmitters are considered operable based upon good correlation of their indications during the event.
- * Other -- The post-trip review has confirmed proper operation of the high SG-level reactor trip, low-level cutoff of pressurizer heaters and proper operation of other safety functions.

The licensee anticipates plant restart later today following installation and checkout of the new HPSI flow transmitter. The resident inspector has been involved in the resolution of the issues discussed above and will be following the resolution of the flow transmitter problem before plant restart.

This information is current as of 8:00 a.m. (PDT) on June 24, 1987.

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