DRAFT

SEE § C 1.b FOR CHANGE

FAILURE OF A RELIEF VALVE TO SEAT PROPERLY OR INADVERTENT ACTUATION OF A SAFETY RELIEF VALVE

A. SYMPTOMS

1. A Safety Relief Valve stuck open may cause any or all of the following to occur:

   a. Suppression Pool water level INCREASES on Recorders 1UR-CM029 and 1UR-CM031 on panel 1PM13J (Recorders 2UR-CM029 and 2UR-CM031 on panel 2PM13J).

   b. Suppression Pool and Suppression Chamber temperatures INCREASE on Recorders 1TR-CM037 and 1TR-CM038 on panel 1PM13J (Recorders 2TR-CM037 and 2TR-CM038 on panel 2PM13J).

   c. Safety/Relief Valve Leak Detector alarm on panel 1H13-P601 (2H13-P601).

   d. Downcomer piping temperature INCREASE on Recorder 1B21-R614 on panel 1H13-P614 (Recorder 2B21-R614 on panel 2H13-P614).

   e. ADS/SRV OPEN alarms on panel 1H13-P601 (2H13-P601).

   f. ADS/SRV OPEN indication light on panel 1H13-P601 (2H13-P601).

   g. Generator load DECREASES with no change in Reactor Power.

   h. DECREASE in steam flow on Recorder 1C34-R607 on panel 1H13-P603 (Recorder 2C34-R607 on panel 2H13-P603).

   i. INCREASE in Suppression Chamber background radiation on Recorder 1RIR-CM023 on panel 1PM13J (Recorder 2RIR-CM023 on panel 2PM13J).

   j. INCREASE in Suppression Chamber humidity.

2. The above symptoms may be accompaned by any or all of the following alarms:

a. SUPPRESSION CHAMBER LEVEL HI on panel 1H13-P601 (2H13-P501).

b. ADS or SAFETY VALVE LEAKING on panel 1H13-P601 (2H13-P601).

c. ADS VALVE FULLY OPEN on panel 1H13-P601 (2H13-P501).

d. SAFETY/RELIEF VALVE FULLY OPEN on panel 1H13-P601 (2H13-P601).

e. DRYWELL AIR HUMIDITY HI on panel 1PM13J (2PM13J).

f. DRYWELL SUP POOL CHAMBER TEMP HI on panel 1PM13J (2PM13J).

g. DRYWELL SUP CHAMBER RADIOACT HI on panel 1PM13J (2PM13J).

B. AUTOMATIC ACTIONS

1. None.

C. IMMEDIATE OPERATOR ACTIONS

1. Attempt to CLOSE the Relief Valve manually by placing the control switch to OPEN, then back to AUTO.

a. If the Relief Valve closes, it should be demonstrated operable by performing LOS-MS-R2, Automatic Depressurization System Flow Verification for Conditions 1, 2, and 3. CONSULT Technical Specification Section 3.5.2. to determine limitations resulting from observing a Relief Valve inoperable.

b. If the Relief Valve remains open after at least four attempts to close it, PROCEED to step C.2

CAUTION

The time interval between the Relief Valve becoming STUCK OPEN and the Reactor being manually SCRAMMED should not exceed 10 minutes.

2. TRANSFER Auxiliary Power to Transformer 142 (242).

3. ADJUST Reactor Water Level as necessary to MINIMIZE the effect of void collapse.

4. SHUTDOWN the Reactor as follows:

   a. REDUCE Recirculation Flow to minimum by closing the Recirculation Flow Control Valves.

   b. SCRAM the Reactor.

   c. PLACE the Reactor Mode Switch to SHUTDOWN.

NOTE

Placing the Reactor Mode Switch to SHUTDOWN will avoid a MSIV closure and loss of the Main Condenser.

5. VERIFY that the Turbine/Generator and OCB's are TRIPPED.

6. VERIFY that Reactor Power has decreased by observing the nuclear instrumentation.

D. SUBSEQUENT OPERATOR ACTIONS

1. INSERT the SRM and IRM detectors to MONITOR Reactor Power.

CAUTION

The time interval between the Relief Valve becoming STUCK OPEN and the commencement of Suppression Pool Cooling should not exceed 15 minutes. Suppression Pool temperature should not exceed 100°F (T.S. 3.6.2.1).

2. INITIATE Suppression Pool Cooling in accordance with LOP-RH-13, Suppression Pool Cooling Operation. MONITOR Suppression Pool temperature. Using one or two loop modes as necessary to maintain Suppression Pool temperature below 100°F.

3. LIMIT the Reactor Cooldown Rate to 100°F/hr (T.S. 3.4.6.1).

4. MAINTAIN vacuum in the Main Condenser with the SJAE, and BYPASS steam to the Condenser to COOL DOWN and DEPRESSURIZE the system.

CAUTION

When using Relief Valves to control Reactor pressure, manually actuate Relief Valves in alphabetical order prior to Reactor pressure reaching 1076 psig, to minimize cycling of the lowest set Relief Valves and maximize Suppression Pool mixing.

5. If a Group 1 Isolation occurs, CONTROL Reactor Pressure with Relief Valves and START the Steam Condensing Mode of RHR in accordance with LOP-RH-09, Steam Condensing Startup and Operation.

   a. If Suppression Pool temperature exceeds 120°F with the MSIV's closed, DEPRESSURIZE the Reactor to less than 200 psig at normal Cooldown Rates (T.S.3.6.2.1).

6. PERFORM the applicable steps of LGP 3-2, Reactor Scram.

7. CONDUCT an inspection of the Pressure Suppression structure if required per Technical Specification 4.6.2.1.

E. DISCUSSION

Stable steam condensation in the Suppression Pool is determined by 2 factors: i) Local water temperature in the vicinity of the downcomer, and ii) mass flow rate of steam in the downcomer pipe. Under the appropriate abnormal conditions unstable steam condensation could occur. This instability would result in a bubbling or chugging process being set up which could induce significant vibratory loads on the containment structures. For the LaSalle Plant this condensation instability region occurs at a localized pool temperature of 150°F and steam mass flow rate of 40 lbm/sec ft^2. Analysis performed for the LSCS-FSAR (Amendment 37) and NRC Question 212.119 indicates that, under the worst operating conditions, the condensation instability region could be avoided if the Reactor is scrammed within 10 minutes, and Suppression Pool Cooling initiated within 15 minutes of the Relief Valve becoming stuck open. Operator actions assumed in this analysis have been incorporated into this procedure.