ENCLOSURE 3

PLANT HATCH - UNITS 1, 2
NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
REQUEST TO REVISE TECHNICAL SPECIFICATIONS:
SUPPRESSION POOL TEMPERATURE MONITORING

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3.7. CONTAINMENT SYSTEMS

Applicability

The Limiting Conditions for Operation associated with containment systems apply to the operating status of the primary and secondary containment systems.

Objective

The objective of the Limiting Conditions for Operation is to assure the integrity of the primary and secondary containment systems.

Specifications

A. Primary Containment

1. Pressure Suppression Chamber

At any time that irradiated fuel is in the reactor vessel, and the nuclear system is pressurized above atmospheric pressure or work is being done which has the potential to drain the vessel, the pressure suppression chamber water level and average water temperature shall be maintained within the following limits except while performing low-power physics tests at atmospheric pressure at power levels not to exceed 5 Mwt.

a. Minimum water level - 12 feet, 2 inches.

b. Maximum water level - 12 feet, 6 inches.

c. During normal power operation, the average suppression chamber water temperature shall be maintained ≤ 100°F. If this temperature limit is exceeded, pool cooling shall be initiated immediately.

If the average water temperature cannot be restored to ≤ 100°F within 24 hours, the reactor shall be shut down using normal shutdown procedures.

4.7. CONTAINMENT SYSTEMS

Applicability

The Surveillance Requirements associated with containment systems apply to the primary and secondary containment integrity.

Objective

The objective of the Surveillance Requirements is to verify the integrity of the primary and secondary containment.

Specifications

A. Primary Containment

1. Pressure Suppression Chamber

a. The pressure suppression chamber water level, average water temperature and air temperature shall be measured and recorded daily. The average suppression chamber water temperature shall be determined using a weighted average of the suppression pool temperature sensors, as described in Bases paragraph 3.7.A.1.

b. The interior painted surfaces above the level 1 foot below the normal water line of the pressure suppression chamber shall be visually inspected once per operating cycle. In addition, the external surfaces of the pressure suppression chamber shall be visually inspected on a routine basis for evidence of corrosion or leakage.

c. Whenever there is indication that a significant amount of heat is being added to the pressure suppression pool, the pool temperature shall be continually monitored and also observed and logged every 5 minutes until the heat addition is terminated.

d. During relief valve operation or testing of RCIC, HPCI, or other testing which adds heat to the suppression pool, the maximum average water temperature shall not exceed 105°F. In connection with such testing, the average pool temperature must be reduced within 24 hours to ≤ 100°F.

e. The reactor shall be scrammed from any operating condition when the average suppression pool temperature reaches 110°F. Operation shall not be resumed until the pool temperature is reduced to below the normal power operation limit specified in c. above.

f. During reactor isolation conditions the reactor pressure vessel shall be depressurized to < 200 psig at normal cooldown rates if the average pool temperature reaches 120°F.

d. Whenever there is indication that there was relief valve operation with the average temperature of the suppression pool exceeding 160°F and the reactor primary coolant system pressure greater than 200 psig, an external visual examination of the pressure suppression chamber shall be conducted before resuming power operation.

3.7 CONTAINMENT SYSTEMS

A. Primary Containment

The integrity of the primary containment and operation of the emergency core cooling systems in combination, limit the off-site doses to values less than those suggested in 10 CFR 100 in the event of a break in the primary system piping. Thus, containment integrity is specified whenever the potential for violation of the primary reactor system integrity exists. Concern about such a violation exists whenever the reactor is critical and above atmospheric pressure. An exception is made to this requirement during initial core loading and while the initial startup test program is being conducted. There will be no pressure on the system at this time, which greatly reduces the changes of a pipe break. The reactor may be taken critical during this period; however, restrictive operating procedures will be in effect to minimize the probability of an accident occurring. Procedures for rod withdrawal and patterns programmed into the Rod Worth Minimizer and Rod Sequence Control System would limit control rod worth to less than 1.25% Δk. A drop of such a rod does not result in any fuel damage. In addition in the unlikely event that an excursion did occur, the secondary containment (reactor building) and standby gas treatment system, which shall be operational during this time, offers a sufficient barrier to keep off-site doses well below 10 CFR 100 limits.

1. Pressure Suppression Chamber

The pressure suppression chamber water provides the heat sink for the reactor primary system energy release following a postulated rupture of the system. The pressure suppression chamber water volume must absorb the associated decay and structural sensible heat released during primary system blowdowns.

Since all of the non-condensable gases in the drywell are purged into the pressure suppression chamber air space during a loss-of-coolant accident, the pressure resulting from isothermal compressure plus the vapor pressure of the liquid must not exceed 62 psig, the maximum pressure. The design volume of the pressure suppression chamber (water and air) was obtained by considering that the total volume of reactor coolant to be condensed is discharged to the suppression chamber and that the drywell volume is purged to the suppression chamber. Reference FSAR Section 5.2.3.

Using the minimum or maximum water levels given in the specification, containment pressure during the design basis accident is less than 59 psig which is below the maximum pressure of 62 psig. The minimum water level of 12 ft 2 in. corresponds to a water volume of 87,300 ft^3 and a downcomer submergence of 3 ft 8-1/2 in. The maximum water level of 12 ft 6 in. corresponds to a water volume of 90,380 ft^3. The corresponding downcomer submergence is 4 ft 1/2 in. Since the majority of the Bodega tests (Reference 1) were run with a submergence of 4 ft and with complete condensation, this specification is adequate with respect to downcomer submergence.

3.7.A.1. Pressure Suppression Chamber (Continued)

Experimental data indicate that excessive steam condensing loads can be avoided if the peak temperature of the pressure suppression pool is maintained below 160°F during any period of relief valve operation with sonic conditions at the discharge exit. Specifications have been placed on the envelope of reactor operating conditions so that the reactor can be depressurized in a timely manner to avoid the regime of potentially high pressure suppression chamber loadings.

In addition to the limits on temperature of the suppression chamber pool water, operating procedures define that action to be taken in the event a relief valve inadvertently opens or sticks open. As a minimum this action shall include: (1) use of all available means to close the valve, (2) initiate suppression pool water cooling heat exchangers, (3) initiate reactor shutdown, and (4) if other relief valves are used to depressurize the reactor, their discharge shall be separated from that of the stuck-open relief valve to assure mixing and uniformity of energy insertion to the pool.

Because of the large volume and thermal capacity of the suppression pool, the volume and temperature normally changes very slowly and monitoring these parameters daily is sufficient to establish any temperature trends. By requiring the suppression pool temperature to be continually monitored and frequently logged during periods of significant heat addition, the temperature trends will be closely followed so that appropriate action can be taken. The requirement for an external visual examination following any event where potentially high loadings could occur provides assurance that no significant damage was encountered. Particular attention should be focused on structural discontinuities in the vicinity of the relief valve discharge since these are expected to be the points of highest stress.

The average (or bulk) suppression pool temperature limits specified in paragraphs 3.7.A.1 and 4.7.A.1 are normally monitored using a weighted average of 15 temperature sensors. Four sensors, T48-N009A through N009D, are located in the lower half of the suppression pool and 11 sensors, T48-N301 through N311, are located in the upper half of the suppression pool. The 4 lower sensors are averaged and the 11 upper sensors are averaged. The bulk suppression pool temperature is the average of the upper and lower average temperature. Should one or more of these sensors be determined inoperable when the suppression chamber is required, a preplanned alternate method of determining average temperature may be used. One alternate method is to average the operable sensors, as long as at least one upper temperature element in each quadrant of the suppression pool is operable. In this case, the operable N009 elements would be combined to yield an average lower pool temperature and the operable N300 elements would provide an average upper pool temperature. If each quadrant does not have at least one operable N300 element, a second alternate method is to take the average of operable T48-N009A through N009D instruments and add 5°F. (The 5°F adder is not necessary during normal operation if at least one RHR pump is operating in the suppression pool cooling mode and neither HPCI, RCIC, or SRVs are in operation.)

CONTAINMENT SYSTEMS

3/4 6.2 DEPRESSURIZATION SYSTEMS

SUPPRESSION CHAMBER

LIMITING CONDITION FOR OPERATION

3.6.2.1 The suppression chamber shall be OPERABLE with the pool water:

a. Volume between 87,300 ft^3, and 90,550 ft^3, equivalent to a level between 12 ft 2 in. and 12 ft 6 in., and a

b. Maximum average temperature of 100°F during OPERATIONAL CONDITION 1 or 2, except that the maximum average temperature may be permitted to increase to:

   1. 105°F during testing which adds heat to the suppression chamber during OPERATIONAL CONDITION 1 or 2,

   2. 120°F with the main steam line isolation valves closed following a scram from OPERATIONAL CONDITION 1 or 2.

c. Level instrumentation channels alarms adjusted to actuate at:

   1. High water level of ≤ 12 ft 6 in.

   2. Low water level of ≥ 12 ft 2 in.

APPLICABILITY: CONDITIONS 1, 2 and 3.

ACTION:

a. With the suppression chamber water volume outside the above limits, restore the volume to within the limits within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION 1 or 2 with the average suppression chamber water temperature > 100°F, except as permitted above, initiate suppression pool cooling and restore the temperature to ≤ 100°F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c. In OPERATIONAL CONDITION 1 or 2 with the average suppression chamber water temperature > 105°F during testing which adds heat to the suppression chamber, stop all testing, initiate suppression pool cooling, and restore the temperature to ≤ 100°F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

d. In OPERATIONAL CONDITION 1 or 2 with THERMAL POWER > 1 percent of RATED THERMAL POWER and the average suppression chamber water temperature > 110°F, place the reactor mode switch in the Shutdown position.

e. With the average suppression chamber water temperature > 120°F and the main steam isolation valves closed following a scram from OPERATIONAL CONDITION 1 or 2, depressurize the reactor pressure vessel to < 200 psig at normal cooldown rates.

f. With one suppression chamber water level instrumentation channel inoperable, restore the inoperable channel to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

g. With both suppression chamber water level instrumentation channels inoperable, restore at least one inoperable channel to OPERABLE status within 6 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 The suppression chamber shall be demonstrated OPERABLE:

a. By verifying the suppression chamber water volume to be between 12 ft 2 in. and 12 ft 6 in. at least once per 24 hours

b. At least once per 24 hours in OPERATIONAL CONDITION 1 or 2 by verifying the average* suppression chamber water temperature to be ≤ 100°F.

c. At least once per 5 minutes in OPERATIONAL CONDITION 1 or 2 during testing which adds heat to the suppression chamber, by verifying the average* suppression chamber water temperature ≤ 105°F.

d. At least once per 60 minutes when THERMAL POWER > 1 percent of RATED THERMAL POWER and average* suppression chamber water temperature > 100°F, by verifying average* suppression chamber water temperature < 110°F.

*The average suppression chamber water temperature shall be determined using a weighted average of the suppression pool temperature sensors, as described in BASES subsection 3/4.6.2.

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per 30 minutes following a scram from OPERATIONAL CONDITION 1 or 2 with the main steam line isolation valves closed, and average* suppression chamber water temperature > 100°F, by verifying average* suppression chamber water temperature < 120°F.

f. By an external visual examination of the suppression chamber after there has been indication of safety/relief valve operation with the average* suppression chamber water temperature ≥ 160°F and reactor coolant system pressure > 200 psig.

g. At least once per 18 months by a visual inspection of the accessible interior and exterior of the suppression chamber.

h. By verifying two suppression chamber water level instrumentation channels (2T48-R607A,B) OPERABLE by performance of a:

   1. CHANNEL CHECK at least once per 24 hours,

   2. CHANNEL FUNCTIONAL TEST at least once per 31 days, and

   3. CHANNEL CALIBRATION at least once per 6 months.

*The average suppression water temperature shall be determined using a weighted average of the suppression pool temperature sensors, as described in BASES subsection 3/4.6.2.

DEPRESSURIZATION SYSTEMS (Continued)

Experimental data indicates that excessive steam condensing loads can be avoided if the peak temperature of the suppression pool is maintained below 160°F during any period of relief valve operation with sonic conditions at the discharge exit. Specifications have been placed on the envelope of reactor operating conditions so that the reactor can be depressurized in a timely manner to avoid the regime of potentially high suppression chamber loadings.

Because of the large volume and thermal capacity of the suppression pool, the volume and temperature normally changes very slowly and monitoring these parameters daily is sufficient to establish any temperature trends. By requiring the suppression pool temperature to be frequently logged during periods of significant heat addition, the temperature trends will be closely followed so that appropriate action can be taken. The requirement for an external visual examination following any event where potentially high loadings could occur provides assurance that no significant damage was encountered. Particular attention should be focused on structural discontinuities in the vicinity of the relief valve discharge since these are expected to be the points of highest stress.

In addition to the limits on temperature of the suppression chamber pool water, operating procedures define the action to be taken in the event a safety/relief valve inadvertently opens or sticks open. As a minimum, this action shall include: (1) use of all available means to close the valve, (2) initiate suppression pool water cooling, (3) initiate reactor shutdown, and (4) if other safety/relief valves are used to depressurize the reactor, their discharge shall be separated from that of the stuck-open safety/relief valve to assure mixing and uniformity of energy insertion to the pool.

The average (or bulk) suppression pool temperature limits specified in paragraphs 3.6.2.1 and 4.6.2.1 are normally monitored using a weighted average of 15 temperature sensors. Four sensors, 2T48-N009A through N009D, are located in the lower half of the suppression pool and 11 sensors, 2T48-N301 through N311, are located in the upper half of the suppression pool. The 4 lower sensors are averaged and the 11 upper sensors are averaged. The bulk suppression pool temperature is the average of the upper and lower average temperature. Should one or more of these sensors be determined inoperable while in Conditions 1, 2, or 3, a preplanned alternate method of determining average temperature may be used. One alternate method is to average the operable sensors, as long as at least one upper temperature element in each quadrant of the suppression pool is operable. In this case, the operable N009 elements would be combined to yield an average lower pool temperature and the operable N300 elements would provide an average upper pool temperature. If each quadrant does not have at least one operable N300 element, a second alternate method is to take the average of operable 2T48-N009A through N009D instruments and add 5°F. (The 5°F adder is not necessary during normal operation if at least one RHR pump is operating in the suppression pool cooling mode and neither HPCI, RCIC, or SRVs are in operation.)

3/4.6.3 PRIMARY CONTAINMENT ISOLATION VALVES

The OPERABILITY of the primary containment isolation valves ensures that the primary containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the primary containment atmosphere or pressurization of the containment. Primary containment isolation within the time limits specified ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA. Only one closed valve in each penetration line is required to maintain the integrity of the containment.