

ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
NRC DOCKET NOS. 50-325 AND 50-324
OPERATING LICENSE NOS. DPR-71 AND DPR-62
SUPPLEMENT TO REQUEST FOR LICENSE AMENDMENTS
REVISION OF SUPPRESSION CHAMBER POOL WATER VOLUME

TYPED TECHNICAL SPECIFICATION PAGE - UNIT 1

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CONTAINMENT SYSTEMS

BASES

3/4.6.2 · DEPRESSURIZATION AND COOLING SYSTEMS

The specifications of this section ensure that the primary containment pressure will not exceed the calculated pressure of 49 psig during primary system blowdown from full operating pressure.

The pressure suppression pool 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 blowdown from 1045 psig. Since all of the gases in the drywell are purged into the pressure suppression chamber air space during a loss of coolant accident, the pressure of the liquid must not exceed 62 psig, the suppression chamber maximum pressure. The design volume of the 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.

Using the minimum or maximum water volumes given in the specification, containment pressure during the design basis accident is approximately 49 psig, which is below the design pressure of 62 psig. Maximum water level of -27 inches (equivalent to a volume of 89,750 ft³) results in a downcomer submergence of 3'4" and the minimum level of -31 inches (equivalent to a volume of 86,450 ft³) results in a submergence approximately four inches less. The Monticello tests were run with a submerged length of three feet and with complete condensation. Thus, with respect to the downcomer submergence, this specification is adequate. The maximum temperature at the end of the blowdown tested during the Humboldt Bay and Bodega Bay tests was 170°F, and this is conservatively taken to be the limit for complete condensation of the reactor coolant, although condensation would occur for temperatures above 170°F.

When it is necessary to make the suppression chamber inoperable, this shall only be done as provided in Specification 3.5.3.3.

Under full power operation conditions, blowdown from an initial suppression chamber water temperature of 90°F results in a water temperature of approximately 135°F immediately following blowdown, which is below the temperature 170°F used for complete condensation. At this temperature and atmospheric pressure, the available NPSH exceeds that required by both the RHR and core spray pumps; thus, there is no dependency on containment overpressure during the accident injection phase. If both RHR loops are used for containment cooling, there is no dependency on containment overpressure for post-LOCA operations.

ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
NRC DOCKET NOS. 50-325 AND 50-324
OPERATING LICENSE NOS. DPR-71 AND DPR-62
SUPPLEMENT TO REQUEST FOR LICENSE AMENDMENTS
REVISION OF SUPPRESSION CHAMBER POOL WATER VOLUME

TYPED TECHNICAL SPECIFICATION PAGE - UNIT 2

CONTAINMENT SYSTEMS

BASES

3/4.6.2 · DEPRESSURIZATION AND COOLING SYSTEMS

The specifications of this section ensure that the primary containment pressure will not exceed the calculated pressure of 49 psig during primary system blowdown from full operating pressure.

The pressure suppression pool 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 blowdown from 104°F psig. Since all of the gases in the drywell are purged into the pressure suppression chamber air space during a loss of coolant accident, the pressure of the liquid must not exceed 62 psig, the suppression chamber maximum pressure. The design volume of the 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.

Using the minimum or maximum water volumes given in the specification, containment pressure during the design basis accident is approximately 49 psig, which is below the design pressure of 62 psig. Maximum water level of -27 inches (equivalent to a volume of 89,750 ft³) results in a downcomer submergence of 3'4" and the minimum level of -31 inches (equivalent to a volume of 86,450 ft³) results in a submergence approximately four inches less. The Monticello tests were run with a submerged length of three feet and with complete condensation. Thus, with respect to the downcomer submergence, this specification is adequate. The maximum temperature at the end of the blowdown tested during the Humboldt Bay and Bodega Bay tests was 170°F, and this is conservatively taken to be the limit for complete condensation of the reactor coolant, although condensation would occur for temperatures above 170°F.

When it is necessary to make the suppression chamber inoperable, this shall only be done as provided in Specification 3.5.3.3.

Under full power operation conditions, blowdown from an initial suppression chamber water temperature of 90°F results in a water temperature of approximately 135°F immediately following blowdown, which is below the temperature 170°F used for complete condensation. At this temperature and atmospheric pressure, the available NPSH exceeds that required by both the RHR and core spray pumps; thus, there is no dependency on containment overpressure during the accident injection phase. If both RHR loops are used for containment cooling, there is no dependency on containment overpressure for post-LOCA operations.