

# REACTOR COOLANT SYSTEM

## COOLANT LOOPS AND COOLANT CIRCULATION

### AND POWER OPERATION

#### MINIMUM OPERATING CONDITION FOR OPERATION

Both reactor coolant loops and both reactor coolant pumps in each loop must be in operation.

AVAILABILITY: MODES 1 and 2\*.

With one reactor coolant pump not in operation, STARTUP and POWER OPERATION may be initiated and may proceed provided THERMAL POWER is restricted to less than ( )% of RATED THERMAL POWER and within 4 hours the setpoints for the following trips have been reduced to the values specified in Specification 2.2.1 for operation with three reactor coolant pumps operating:

1. (Nuclear Overpower).
2. (Nuclear Overpower based on RCS flow and AXIAL POWER IMBALANCE).
3. (Nuclear Overpower based on pump monitors).

WN

11 be

#### PERFORMANCE REQUIREMENTS

ing

The above required reactor coolant loops shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

The Reactor Protective Instrumentation channels specified in the applicable statement above shall be verified to have had their trip setpoints changed to the values specified in Specification 2.2.1 for the applicable number of reactor coolant pumps operating either:

Within 4 hours after switching to a different pump combination if the switch is made while operating, or

Prior to reactor criticality if the switch is made while shutdown.

Final Test Exception 3.10.4.

8007180486

## REFUELING OPERATIONS

### BASES

---

---

#### 3/4.9.8 DECAY HEAT REMOVAL AND COOLANT CIRCULATION

The requirement that at least one DHR loop be in operation ensures that (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and (2) sufficient coolant circulation is maintained through the reactor core to minimize the effect of a boron dilution incident and prevent boron stratification.

The requirement to have two DHR loops OPERABLE when there is less than 23 feet of water above the core ensures that a single failure of the operating DHR loop will not result in a complete loss of decay heat removal capability. With the reactor vessel head removed and 23 feet of water above the core, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating DHR loop, adequate time is provided to initiate emergency procedures to cool the core.

## REFUELING OPERATIONS

### 3/4.9.8 DECAY HEAT REMOVAL AND COOLANT RECIRCULATION

#### ALL WATER LEVELS

#### LIMITING CONDITION FOR OPERATION

---

3.9.8.1 At least one decay heat removal (DHR) loop shall be in operation.

APPLICABILITY: MODE 6.

#### ACTION:

- a. With less than one DHR loop in operation, except as provided in b below, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.
- b. The DHR loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel (hot) legs.
- c. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.9.8.1 At least one DHR loop shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to (2800) gpm at least once per 4 hours.

DEFINITION OF BABCOCK & WILCOX PWR

OPERATIONAL MODES

<u>OPERATIONAL MODE</u>	<u>REACTIVITY CONDITION, <math>K_{eff}</math></u>	<u>% OF RATED THERMAL POWER*</u>	<u>AVERAGE COOLANT TEMPERATURE</u>
1. POWER OPERATION	$\geq 0.99$	$> 5\%$	$\geq (305)^{\circ}\text{F}$
2. STARTUP	$\geq 0.99$	$\leq 5\%$	$\geq (305)^{\circ}\text{F}$
3. HOT STANDBY	$< 0.99$	0	$\geq (305)^{\circ}\text{F}$
4. HOT SHUTDOWN	$< 0.99$	0	$(305)^{\circ}\text{F} > T_{avg} > 200^{\circ}\text{F}$
5. COLD SHUTDOWN	$< 0.99$	0	$\leq 200^{\circ}\text{F}$
6. REFUELING**	$\leq 0.95$	0	$\leq 140^{\circ}\text{F}$

\* Excluding decay heat.

\*\*Reactor vessel head unbolted or removed and fuel in the vessel.