

ATTACHMENT 1

UNIT 1 REVISED  
TECHNICAL SPECIFICATION  
AND  
BASES PAGES

3/4 9-8

B 3/4 9-2

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## REFUELING OPERATIONS

### SHUTDOWN COOLING AND COOLANT CIRCULATION

#### LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one shutdown cooling loop shall be in operation.\*

APPLICABILITY: MODE 5 at all reactor water levels.

#### ACTION:

- a. With less than one shutdown cooling loop in operation\*, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and, specifically, the charging pumps shall be de-energized and the charging flow paths shall be closed. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours. The shutdown cooling pumps may be de-energized during the time intervals required for local leak rate testing of containment penetration number 41 pursuant to the requirements of Specification 4.6.1.2.d and/or to permit maintenance on valves located in the common shutdown cooling suction line, provided (1) no operations are permitted which could cause dilution of the reactor coolant system boron concentration and, specifically, the charging pumps shall be de-energized and the charging flow paths shall be closed, (2) all CORE ALTERATIONS are suspended, (3) all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere are maintained closed, and (4) the water level above the top of the irradiated fuel is greater than 23 feet.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.9.8.1 A shutdown cooling loop shall be determined to be in operation and circulating reactor coolant at a flow rate of  $\geq 3000$  gpm\*\* at least once per 4 hours.

\* The shutdown cooling 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.

\*\*  $\geq 1500$  gpm when the Reactor Coolant System is drained to a level below the midplane of the hot leg.

## REFUELING OPERATIONS

### BASES

#### 3/4.9.6 REFUELING MACHINE OPERABILITY

The OPERABILITY requirements for the refueling machine ensure that:  
(1) the refueling machine will be used for movement of CEAs and fuel assemblies,  
(2) the refueling machine has sufficient load capacity to lift a CEA or fuel assembly, and (3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

#### 3/4.9.7 CRANE TRAVEL - SPENT FUEL STORAGE BUILDING

The restriction on movement of loads in excess of the nominal weight of a fuel assembly and CEA over other fuel assemblies in the storage pool ensures that in the event this load is dropped (1) the activity release will be limited to that contained in a single fuel assembly, and (2) any possible distortion of fuel in the storage racks will not result in a critical array. This assumption is consistent with the activity release assumed in the accident analyses.

#### 3/4.9.8 COOLANT CIRCULATION

The requirement that at least one shutdown cooling 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 effects of a boron dilution incident and prevent boron stratification.

The requirement to have two shutdown cooling loops OPERABLE when there is less than 23 feet of water above the core ensures that a single failure of the operating shutdown cooling 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 shutdown cooling loop, adequate time is provided to initiate emergency procedures to cool the core.

#### **→ INSERT FROM NEXT PAGE ←** 3/4.9.9 CONTAINMENT PURGE VALVE ISOLATION SYSTEM

The OPERABILITY of this system ensures that the containment purge valves will be automatically isolated upon detection of high radiation levels within the containment. The OPERABILITY of this system is required to restrict the release of radioactive material from the containment atmosphere to the environment.



#### INSERT for EASES 3/4.9.8, "COOLANT CIRCULATION"

In MODE 6, shutdown cooling flow must provide sufficient heat removal to match core decay heat generation rates and maintain the core exit temperature within the MODE limit. Thus, as decay heat production is reduced with time, shutdown cooling flow may be proportionally reduced. Pursuant to NRC Generic Letter 88-17, flow reduction is necessary for operations near the mid-point of the hot leg piping to prevent vortex formation at the shutdown cooling suction nozzle. Prevention of vortex formation reduces the potential for a loss of shutdown cooling due to air binding of the low pressure safety injection (LPSI) pump(s) operating to provide shutdown cooling flow. In accordance with the recommendations of NRC Generic Letter 88-04, "Safety Related Pump Loss," a minimum flowrate requirement of 1500 gpm is administratively imposed. This protects the vendor-recommended minimum continuous duty flowrate of 1340 gpm for the LPSI pumps.

**ATTACHMENT 2**

**UNIT 2 REVISED  
TECHNICAL SPECIFICATION  
AND  
BASES PAGES**

**3/4 9-8**

**B 3/4 9-2**

## REFUELING OPERATIONS

### SHUTDOWN COOLING AND COOLANT CIRCULATION

#### LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one shutdown cooling loop shall be in operation.\*

APPLICABILITY: MODE 6 at all reactor water levels.

#### ACTION:

- a. With less than one shutdown cooling loop in operation\*, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and, specifically, the charging pumps shall be de-energized and the charging flow paths shall be closed. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours. The shutdown cooling pumps may be de-energized during the time intervals required for local leak rate testing of containment penetration number 41 pursuant to the requirements of Specification 4.6.1.2.d and/or to permit maintenance on valves located in the common shutdown cooling suction line, provided (1) no operations are permitted which could cause dilution of the reactor coolant system boron concentration and, specifically, the charging pumps shall be de-energized and the charging flow paths shall be closed, (2) all CORE ALTERATIONS are suspended, (3) all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere are maintained closed, and (4) the water level above the top of the irradiated fuel is greater than 23 feet.

- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.9.8.1 A shutdown cooling loop shall be determined to be in operation and circulating reactor coolant at a flow rate of  $\geq 3000$  gpm\*\* at least once per 4 hours.

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## REFUELING OPERATIONS

### BASES

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The OPERABILITY requirements for the refueling machine ensure that:  
(1) the refueling machine will be used for movement of CEAs and fuel assemblies,  
(2) the refueling machine has sufficient load capacity to lift a CEA or fuel assembly, and (3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

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