

5. During the period when one diesel is inoperable, the core spray equipment connected to the OPERABLE diesel shall be OPERABLE.
6. If Specifications 3.4.A.3, 3.4.A.4, and 3.4.A.5 are not met, the reactor shall be PLACED IN the COLD SHUTDOWN CONDITION. If the core spray system becomes inoperable, the reactor shall be PLACED IN the COLD SHUTDOWN CONDITION and no work shall be performed on the reactor or its connected systems which could result in lowering the reactor water level to less than 4'8" above the TOP OF the ACTIVE FUEL.
7. If necessary to accomplish maintenance or modifications to the core spray systems, their power supplies or water supplies, reduced system availability is permitted when the reactor is: (a) maintained in the COLD SHUTDOWN CONDITION or (b) in the REFUEL MODE with the reactor coolant system maintained at less than 212°F and vented, and (c) no work is performed on the reactor vessel and connected systems that could result in lowering the reactor water level to less than 4'8" above the TOP OF the ACTIVE FUEL. Reduced Core Spray System Availability is minimally defined as follows:
  - a. At least one core spray pump, and system components necessary to deliver rated core spray to the reactor vessel, must remain OPERABLE to the extent that the pump and any necessary valves can be started or operated from the control room or from local control stations.
  - b. The fire protection system is OPERABLE, and
  - c. These systems are verified to be OPERABLE as described in Specification 3.4.A.7.a above on a weekly basis.
8. If necessary to accomplish maintenance or modifications to the core spray systems, their power supplies or water supplies, reduced system availability is permitted when the reactor is in the REFUEL MODE with the reactor coolant system maintained at less than 212°F or in the STARTUP MODE for the purposes of low power physics testing. Reduced core spray system availability is defined as follows:
  - a. At least one core spray pump in each loop, and system components necessary to deliver rated core spray to the reactor vessel, must remain OPERABLE to the extent that the pump and any necessary valves in each loop can be started or operated from the control room or from local control stations.
  - b. The fire protection system is OPERABLE and,
  - c. Each core spray pump and all components in 3.4.A.8a are verified to be OPERABLE every 72 hours.

Specification 3.4.A.4 allows continued operation with one component inoperable for a limited period of time. Each core spray loop contains redundant active components based upon Reference 1 or 5, as appropriate. Therefore, with the loss of one of these components, the system as a whole (both loops) can tolerate an additional single failure of one of its active components and still perform the intended function and meet 10 CFR 50.46 criteria. If a redundant active component fails, a fifteen day period is allowed for repairs, based on 1 out of 4 components being required. 3.4.A.4.b insures that the 1 out of 4 requirement is maintained.

Specification 3.4.A.5 ensures that if one diesel is out of service for repair, the core spray components fed by the other diesel must be OPERABLE. Since each diesel will provide power to components for both core spray loops, the required flow specified in the bases for Specification 3.1.A.1 will be met.

When the reactor is in the shutdown or refueling mode and the reactor coolant system is less than 212°F and vented and no work is being performed that could result in lowering the water level to less than 4'8" above the core, the likelihood of a leak or rupture leading to uncovering of the core is very low. The only source of energy that must be removed is decay heat and one day after shutdown this heat generation rate is conservatively calculated to be not more than 0.6% of rated power. Sufficient core spray flow to cool the core can be supplied by one core spray pump or one of the two fire protection system pumps under these conditions. When it is necessary to perform repairs on the core spray system components, power supplies or water sources, Specification 3.4.A.7 permits reduced cooling system capability to that which could provide sufficient core spray flow from two independent sources. Manual initiation of these systems is adequate since it can be easily accomplished within 15 minutes during which time the temperature rise in the reactor will not reach 2200°F.

In order to allow for certain primary system maintenance, which will include control rod drive repair, LPRM removal/installation, reactor leak test, etc., (all performed according to approved procedure), Specification 3.4.A.8 requires the availability of an additional core spray pump in an independent loop, while this maintenance is being performed the likelihood of the core being uncovered is still considered to be very low, however, the requirement of a second core spray pump capable of full rated flow and the 72 hour OPERABILITY verification of both core spray pumps is specified.

Specification 3.4.A.10 allows the core spray system to be inoperable in the cold shutdown or refuel modes if the reactor cavity is flooded and the spent fuel pool gates are removed and a source of water supply to the reactor vessel is available. Water would then be available to keep the core flooded.

The relief valves of the automatic depressurization system enable the core spray system to provide protection against the small break in the event the feedwater system is not active.