

Remedial Actions (Continued)

2. With no cooling mechanisms operable, suspend all operations involving positive reactivity changes, continuously monitor reactor coolant temperature, and restore one cooling mechanism to operation within 6 hours or notify the NRC (using the Emergency Notification System) within the next hour of plans to restore decay heat removal.
- B. The following conditions must be met for a steam generator to be considered operable for decay heat removal.
1. The reactor coolant system must be closed and pressurized to 100 psi above saturation pressure.
  2. The steam generator must have both the cold and hot leg stop valves fully open.
  3. The steam generator water level must be above the top of the tube bundle.
  4. An inventory of over 100,000 gallons of primary grade feedwater must be available.
  5. A feed pump must be operating or available for operation.
- C. The steam generators shall be demonstrated operable in accordance with specification 4.10 before the reactor coolant system T. Ave. can be increased above 210°F.
- D. The reactor shall not be in a power operation condition which generates steam at a rate in excess of the on-line steam generator relieving capacity in accordance with Figure 3.8-1.
- E. The reactor shall not be maintained in a power operation condition unless the following conditions are met to assure post shutdown heat removal capability.
1. Two motor-driven steam generator emergency feed pumps are operable and set for automatic initiation. ]
  2. An inventory of over 100,000 gallons of primary grade feedwater is available.
  3. The turbine driven auxiliary feed pump is operable. ]

Remedial Action:

1. If either motor driven steam generator emergency feed pump becomes inoperable, the operable feed pump is to be tested once a day and the inoperable pump restored to operable status within seven days. ]

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2. If the turbine driven auxiliary feed pump becomes inoperable, restore the pump to operable status within seven days or provide equivalent feed capacity capable of feeding the steam generators without reliance upon plant normal or emergency power sources.

Basis:

Specification A assures that decay heat removal capability is always available.

A single steam generator is capable of removing core decay heat by natural or forced circulation provided the conditions specified in B are met.

A single cooling mechanism is sufficient to remove decay heat but single failure considerations require that two mechanisms be operable.

Specification C assures the structural integrity of the steam generator tubes which are a fission product barrier.

Specification D assures sufficient relieving capacity during power operation.

Specification E assures sufficient feedwater to maintain an adequate heat sink following a loss of main feedwater. The emergency feed system, including both motor driven pumps, piping, valves, and supply tanks are designed to be safety class, seismic and meet applicable NRC requirements. Each pump is powered from a separate emergency power bus and is capable of supplying the total emergency feedwater flow following a complete loss of main feedwater or any other design basis accident coincident with a loss of all off-site power. An emergency feed pump may be out of service for up to seven days because of the extremely low probability of a design basis accident occurring coincident with a failure of the other emergency feed pump and a complete loss of main feedwater system capability.

The remaining portions of the auxiliary feed system, including the turbine driven auxiliary feed pump, are not designed to NRC requirements applicable to emergency feed systems and not required to meet design basis events. However, the turbine driven auxiliary feed pump is capable of providing the required feedwater flow to the steam generator following even lower probability events such as a failure of all main feedwater and emergency feedwater capability. Such an event may be postulated to occur as a result of a loss of all off-site and on-site emergency power sources. This pump may be out of service for up to seven days because of the extremely low probability of such an event. The remedial action permits the substitution of equivalent alternative auxiliary feedwater capacity provided it is operable without reliance upon plant on-site or off-site emergency power sources.

The outage limits for the emergency and auxiliary feedwater pumps result in an acceptable level of availability of feedwater but they do not represent the minimum acceptable availabilities for the systems. With NRC approval, longer outages would also be acceptable provided additional compensatory actions were taken.

A reactor shutdown from power requires removal of core decay heat. Immediate decay heat removal requirements are normally satisfied by the steam bypass to the condenser. Therefore, core decay heat can be continuously dissipated via the steam bypass to the condenser as long as feedwater to the steam generators is available. Normally, the capability to supply feedwater to the steam generators is provided by operation of the feedwater system.

In the unlikely event of complete loss of electrical power to the station, decay heat removal is by steam discharge to the atmosphere via the main steam safety valves or the atmospheric steam dump valve. Either of the two steam generator emergency feed pumps or the auxiliary feed pump can supply sufficient feedwater for removal of decay heat from the plant. ] ]