

2. Single Unit Operation - The turbine driven auxiliary feedwater pump may be out-of-service for up to 72 hours. If the turbine driven auxiliary feedwater pump cannot be restored to service within that 72 hour time period, the reactor shall be in hot shutdown within the next 12 hours. Either one of the two motor driven auxiliary feedwater pumps may be out-of-service for up to 7 days. If the motor driven auxiliary feedwater pump cannot be restored to service within that 7 day period the operating unit shall be in hot shutdown within the next 12 hours.

D. The main steam stop valves (MS-2017 and MS-2018) and the non-return check valves (MS-2017A and MS-2018A) shall be operable. If one main steam stop valve or non-return check valve is inoperable but open, power operation may continue provided the inoperable valve is restored to operable status within 4 hours, otherwise the reactor shall be placed in a hot shutdown condition within the following 6 hours. With one or more main steam stop valves or non-return check valves inoperable, subsequent operation in the hot shutdown condition may proceed provided the inoperable valve or valves are maintained closed. An inoperable main steam stop valve may however, be opened in the hot shutdown condition for the performance of testing to confirm operability.

Basis

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 feedwater in the steam generator is converted to steam by heat absorption. Normally, the capability to return feedwater flow to the steam generators is provided by operation of the turbine cycle feedwater system.

The eight main steam safety valves have a total combined rated capability of 6,664,000 lbs/hr. The total full power steam flow is 6,620,000 lbs/hr, therefore eight (8) main steam safety valves will be able to relieve the total full-power steam flow if necessary.

In the unlikely event of complete loss of electrical power to the station, decay heat removal would continue to be assured for each unit by the availability of either the steam-driven auxiliary feedwater pump or one of the two motor-driven auxiliary steam generator feedwater pumps, and steam discharge to the atmosphere

15.4.7 MAIN STEAM SYSTEM STOP VALVES

Applicability

Applies to periodic testing and surveillance of the main steam stop valves (MS-2017 and MS-2018) and the non-return check valves (MS-2017A and MS-2018A).

Objective

To verify the ability of the main steam stop valves to close upon signal and to verify that the non-return check valves are operable.

Specification

A. Main Steam Stop Valves

The main steam stop valves shall be tested under low flow conditions of 5% steam flow or less following plant reactor shutdowns for major fuel reloading. The test shall be performed during the plant startup prior to admitting steam to the turbine. Closure time of five seconds or less shall be verified. The five seconds shall be measured from the time of signal initiation until the valve disc is brought to a halt by the dashpot indicates closed.

B. Non-Return Check Valves

The non-return check valves shall be tested for operability during shutdown for major fuel reloadings.

Basis

The main steam stop valves serve to limit an excessive reactor coolant system cooldown rate and resultant reactivity insertion following a main steam break incident. Their ability to close upon signal should be verified at each scheduled refueling shutdown. A closure time of five seconds was selected as being consistent with the expected response time for instrumentation as detailed in the steam line break incident analysis. The test procedure need not require steam to be flowing in the pipe. ~~Static conditions are acceptable. The presence of flowing steam or a pressure difference will seat the valve tight.~~

The purpose of the non-return check valves is to prevent the blowdown of both

steam generators in the event of a main steam line piping break upstream of the main steam stop valves. The non-return check valves are swinging disc check valves which are opened by normal steam flow. During no-flow conditions the non-return check valves are shut. The position of the non-return check valves, and thus the ability of the valves to close and perform their safety function, can be verified locally when no steam flow conditions are established.

References

FSAR - Section 10.4

FSAR - Section 14.2.5