

DOCKET NO. 50-213

ATTACHMENT 1

HADDAM NECK PLANT

PROPOSED REVISIONS TO TECHNICAL SPECIFICATIONS

8009030646

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3.8 TURBINE CYCLE

Applicability: Applies to the operating status of turbine cycle components for removal of reactor core decay heat.

Objective: To specify conditions of the turbine cycle equipment necessary to insure the capability to remove decay heat from the reactor core.

- Specification:
- A. The reactor shall not be critical (except for determination of "just critical" rod position and low power physics tests at or below 10 percent of full power) unless the following conditions are met:
1. A minimum turbine cycle steam relieving capability of 7,000,000 lb/hour up to and including 1473 MWt and at power levels in excess of 1473 MWt a minimum turbine cycle steam relieving capability of 9,504,000 lbs-per-hour shall be available.
 2.
 - a. Two steam-driven auxiliary feedwater pumps operable or;
 - b. With one auxiliary feedwater pump inoperable, restore the inoperable auxiliary feedwater pump to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
 3.
 - a. The demineralized water storage tank (DWST) shall be OPERABLE with a minimum contained volume of 50,000 gallons of water and the primary water storage tank (PWST) shall be OPERABLE with a minimum contained volume of 80,000 gallons of water or;
 - b. With the DWST inoperable, restore the DWST to OPERABLE status within 4 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours or;
 - c. With the PWST inoperable, within 4 hours:
 1. Restore the PWST to OPERABLE status, or

2. Provide an equivalent supply from an alternate source, or;
 3. Be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
 4. System piping and valves directly associated with the above components operable.
- B. 1. The auxiliary feedwater actuation system instrumentation shall be operable as shown in Table 3.8-1 except that one steam generator wide range level channel at a time may be removed from service for surveillance testing as required.
2. The auxiliary feedwater actuation system contacts and relays from the main steam generator feed pump breakers shall be operable whenever the auxiliary feedwater system is in automatic.

Basis:

A reactor trip from power requires subsequent removal of core decay heat. Immediate decay heat removal requirements are normally satisfied by the steam bypass to the condensers. Thereafter, 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.

In the event the main feedwater system should fail, the auxiliary feedwater system is automatically initiated upon coincidence of any 2 out of 4 steam generator low level signals or the coincidence of both electric driven main feed pump circuit breakers being open if in the automatic mode. Feedwater to the steam generators is maintained by the auxiliary feedwater system, consisting of a steam driven, auxiliary steam generator feedwater pump.

In addition, the auxiliary feedwater system can be initiated manually. In this case, feedwater is available from the demineralized water storage tank by gravity feed to the auxiliary feedwater pump. The specified 50,000 gallons of water in the demineralized water storage tank is adequate for decay heat removal for a period of at least two hours. Within this period, decay heat removal demands are reduced to approximately 150 gpm. Makeup water is available during this period from the primary water storage tank which contains a minimum volume of 80,000 gallons. The primary water transfer pumps can transfer 200 gpm from the primary water tank to the demineralized water tank. An alternate supply can be provided from the 100,000 gallon capacity Recycled Primary Water Storage Tank.

A steam relieving capability of 7,000,000 lbs-per-hour is required at power levels up to and including 1473 MWt to maintain the pressure in turbine cycle components within ASME code allowable values in the event of a full load rejection at 1473 MWt, without a reactor trip or other control action and without feedwater flow to the steam generators. Similarly, at 1825 MWt, a steam relieving capacity of 9,504,000 lbs-per-hour is required to maintain the pressure in turbine cycle components within code values in the event of a full load rejection at 1825 MWt.

References:

- (1) FDSA Section 8.1
- (2) FDSA Section 8.3

TABLE 3.8-1
 AUTOMATIC AUXILIARY FEEDWATER SYSTEM
 ACTUATION INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO ACTUATE SYS.	MINIMUM CHANNELS	APPLICABLE MODE	ACTION REQUIRED
a) Manual	2	1	1	1,2,3,4	1
b) Automatic steam generator wide range level 4 loops	4	2/4	4	1, > 10%*	2
c) Automatic steam generator wide range level 3 loops	3	2/3	3	1, > 10%*	2
d) Automatic main steam generator feed pump breakers	2	2/2	2	1, > 10%	1

- Action Statement:
1. Maintain Mode 3 or 4
 2. Place inoperable channel in trip condition when declared inoperable.

* For surveillance testing purposes, system will be placed in "manual" function.

4.8 AUXILIARY STEAM GENERATOR FEEDWATER SYSTEM

Applicability: Applies to periodic testing requirements of the steam-driven auxiliary steam generator feedwater system.

Objective: To verify the operability of the auxiliary steam generator feedwater system and its ability to respond properly when required.

- Specification:
1. The auxiliary feedwater system shall be demonstrated OPERABLE at least once per 31 days by:
 - a. Verifying that each steam turbine driven pump develops a discharge pressure of greater than or equal to 800 psig at a steam supply pressure of 300 psig.
 - b. Verifying that each auxiliary feed pump will start when the auto initiation test switch is put in the test position.
 - c. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
 2. The DWST and PWST shall be demonstrated OPERABLE at least once per 12 hours by verifying the contained water volume is within its limits.
 3. At refueling intervals, the capability of each pump to attain rated flow of 450 gpm shall be verified.

Basis: The monthly testing program will verify the operability of the auxiliary steam generator feedwater system. The refueling interval test will verify the capability of the turbine drive and pump to attain rated flow. A flow rate of 450 gpm is sufficient to prevent the steam generators from boiling dry during a period of coincident loss of offsite power and maximum decay heat removal requirements.

Proper functioning of the steam admission valve and subsequent pump start will demonstrate the integrity of the system. Verification of correct operation will be made both from instrumentation within the main control room and direct visual observation of the pump.

Reference: (1) FDSA - Section 8.3