

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 Two independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3*.

ACTION:

- a. With one Auxiliary Feedwater System inoperable, restore the inoperable system to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. Insert A

SURVEILLANCE REQUIREMENTS

4.7.1.2.1 Each Auxiliary Feedwater System shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by:
 1. Verifying that each steam turbine driven pump develops a differential pressure of ≥ 1070 psid on recirculation flow when the secondary steam supply pressure is greater than 800 psia, as measured on PI SP 12B for pump 1-1 and PI SP 12A for pump 1-2.
 2. Verifying that each valve (power operated or automatic) in the flow path is in its correct position.
 3. Verifying that all manual valves in the auxiliary feedwater pump suction and discharge lines that affect the system's capacity to deliver water to the steam generator are locked in their proper position.
- b. At least once per 18 months by:
 1. Verifying that each automatic valve in the flow path actuates to its correct position on an auxiliary feedwater actuation test signal prior to entering MODE 3.
 - *2. Verifying that each pump starts automatically upon receipt of an auxiliary feedwater actuation test signal prior to entering MODE 2.
 3. Verifying that there is a flow path between each auxiliary feedwater pump and each steam generator by pumping water from the Condensate Storage Tank to the steam generator.

* Provision of section 3.0.4 is not applicable for entry into MODE 3.

Insert A

- b. With any Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks inoperable, restore the inoperable interlocks to OPERABLE status within 7 days or be in HOT SHUTDOWN within the next 12 hours.

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SURVEILLANCE REQUIREMENTS (Continued)

The flow path to the steam generator shall be verified prior to entering MODE 3 by either steam generator level change or Auxiliary Feedwater Safety Grade Flow Indication. Verification of the Auxiliary Feedwater System's flow capacity is not required.

- c. The Auxiliary Feed Pump Turbine Steam Generator Level Control System shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months.
- d. The Auxiliary Feed Pump Suction Pressure Interlocks, ~~and Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks~~ shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months.
- e. After any modification or repair to the Auxiliary Feedwater System that could affect the system's capability to deliver water to the steam generator, the affected flow path shall be demonstrated available as follows:
 1. If the modification or repair is downstream of the test flow line, the auxiliary feed pump shall pump water from the Condensate Storage Tank to the steam generator; and the flow path availability will be verified by steam generator level change or Auxiliary Feedwater Safety Grade Flow Indication.
 2. If the modification or repair is upstream of the test flow line, the auxiliary feed pump shall pump water through the Auxiliary Feedwater System to the test flow line; and the flow path availability will be verified by flow indication in the test flow line. (see note below)

This Surveillance Testing shall be performed prior to entering MODE 3 if the modification is made in MODES 4, 5 or 6. Verification of the Auxiliary Feedwater System's flow capacity is not required.

Note: When conducting tests of the Auxiliary Feedwater System in MODES 1, 2, and 3 which require local manual realignment of valves that make the system inoperable, a dedicated individual shall be stationed at the valves (in communication with the control room) able to restore the valves to normal system OPERABLE status.

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SURVEILLANCE REQUIREMENTS (Continued)

- f. Following each extended cold shutdown (> 30 days in MODE 5), by:
1. Verifying that there is a flow path between each auxiliary feedwater pump and each steam generator by pumping Condensate Storage Tank water to the steam generator. The flow path to the steam generator shall be verified by either steam generator level change or Auxiliary Feedwater Safety Grade Flow Indication.

Verification of the Auxiliary Feedwater System's flow capacity is not required.

4.7.1.2.2 The Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks shall be demonstrated OPERABLE when the steam line pressure is greater than 275 psig, by performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months. The CHANNEL FUNCTIONAL TEST shall be performed within 24 hours after exceeding 275 psig during each plant startup, if the test has not been performed within the last 31 days.

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BASES

The OPERABILITY of the Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks is required only for high energy line break concerns and does not affect Auxiliary Feedwater System OPERABILITY.

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEMS

The OPERABILITY of the Auxiliary Feedwater Systems ensures that the Reactor Coolant System can be cooled down to less than 280°F from normal operating conditions in the event of a total loss of offsite power.

Each steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 600 gpm at a pressure of 1050 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 280°F where the Decay Heat Removal System may be placed in operation.

Following any modifications or repairs to the Auxiliary Feedwater System piping from the Condensate Storage Tank through auxiliary feed pumps to the steam generators that could affect the system's capability to deliver water to the steam generators, following extended cold shutdown, a flow path verification test shall be performed. This test may be conducted in MODES 4, 5 or 6 using auxiliary steam to drive the auxiliary feed pumps turbine to demonstrate that the flow path exists from the Condensate Storage Tank to the steam generators via auxiliary feed pumps.

3/4.7.1.3 CONDENSATE STORAGE FACILITIES

The OPERABILITY of the Condensate Storage Tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 13 hours with steam discharge to atmosphere and to cooldown the Reactor Coolant System to less than 280°F in the event of a total loss of offsite power or of the main feedwater system. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the safety analyses.

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the