

## 4.8 EMERGENCY FEEDWATER PUMP

### Applicability

Applies to the periodic testing of the turbine and electric motor driven emergency feedwater pumps.

### Objective

To verify that the emergency feedwater pump and associated valves are operable.

### Specification

- 4.8.1 Each EFW train shall be demonstrated operable:
- a) By verifying on a STAGGERED TEST BASIS:
    - 1) at least once per 31 days or upon achieving hot shutdown following a plant heatup and prior to criticality, that the turbine-driven pump starts, operates for a minimum of 5 minutes, and develops a discharge pressure of  $\geq 1560$  psig through the automatically isolable recirculation flow path.
    - 2) at least once per 31 days by verifying that the motor driven EFW pump starts, operates for a minimum of 5 minutes and develops a discharge pressure of  $\geq 1400$  psig on minimum recirculation flow-path.
  - b) at least once per 31 days on a STAGGERED TEST BASIS by verifying that each valve (manual, power operated or automatic) in each EFW flowpath that is not locked, sealed, or otherwise secured in position, is in its correct position.
  - c) prior to exceeding 280F Reactor Coolant temperature and after any EFW system alignment alterations by verifying that each manual valve in each EFW flowpath which, if mis-positioned may degrade EFW operation, is locked in its correct position.
  - d) at least once per 92 days on a STAGGERED TEST BASIS by cycling each motor-operated valve in each flowpath through at least one complete cycle.
  - e) at least once per 18 months by functionally testing each EFW train and:
    - 1) Verifying that each automatic valve in each flowpath actuates automatically to its correct position on receipt of an actuation signal.

- 2) Verifying that the automatic steam supply valves associated with the steam turbine driven EFW pump actuate to their correct positions upon receipt of an actuation signal.
- 3) Verifying that the motor-driven EFW pump starts automatically upon receipt of an actuation signal.
- 4) Verifying that feedwater is delivered to each steam generator using the electric motor-driven EFW pump.
- 5) Verifying that the EFW system can be operated manually by over-riding ICS actuation signals to the EFW valves.

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#### Bases

The monthly testing frequency will be sufficient to verify that both emergency feedwater pumps are operable. Verification of correct operation will be made both from the control room instrumentation and direct visual observation of the pumps. The cycling of the emergency valves assures valve operability when called upon to function.

The functional test, performed once every 18 months, will verify that the flow path to the steam generators is open and that water reaches the steam generators from the emergency feedwater system. The test is done during shutdown to avoid thermal cycle to the emergency feedwater nozzles on the steam generator due to the lower temperature of the emergency feedwater.

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The automatic actuation circuitry testing and calibration will be performed per Surveillance Specification 4.1, and will be sufficient to assure that this circuitry will perform its intended function when called upon.