

INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4 At least one Turbine Overspeed Protection System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

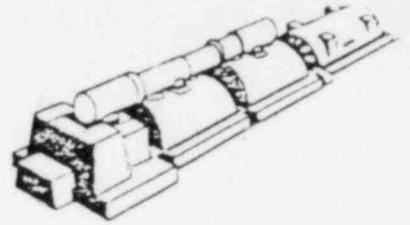
- a. With one stop valve or one control valve per high pressure turbine steam line inoperable and/or with one intermediate stop valve or one intercept valve per low pressure turbine steam line inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close at least one valve in the affected steam line(s) or isolate the turbine from the steam supply within the next 6 hours.
- b. With the above required Turbine Overspeed Protection System otherwise inoperable, within 6 hours isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1 The provisions of Specification 4.0.4 are not applicable.

4.3.4.2 The above required Turbine Overspeed Protection System shall be demonstrated OPERABLE:

- a. At least once per 7 days while in MODE 1 and while in MODE 2 with the turbine operating, by cycling each of the following valves through at least one complete cycle from the running position:
 - 1) Four high pressure turbine stop valves,
 - ~~2) Four high pressure turbine control valves,~~
 - 2) Six low pressure turbine intermediate stop valves, and
 - 3) Six low pressure turbine intercept valves.
- b. At least once per 31 days while in MODE 1 and while in MODE 2 with the turbine operating, by direct observation of the movement of each of the above valves through one complete cycle from the running position, *and the four high pressure turbine control valves,*
- c. At least once per 18 months by performance of a CHANNEL CALIBRATION on the Turbine Overspeed Protection Systems, and
- d. At least once per 40 months by disassembling at least one of each of the above valves, and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.
(including the four high pressure turbine control valves)



MAY 22, 1984

Periodic Turbine Steam Valve Test - Nuclear Units

GE recommendations for periodic nuclear turbine steam valve tests as contained in the Turbine Instruction Book call for daily test of the main stop, intermediate stop, and intercept valves and weekly test of the control valves.

These recommendations are similar to the test frequencies that have been in practice since the late 40's and early 50's on fossil-fueled turbines.

The operating experience accumulated on in-service nuclear units during the past 24 years has shown considerably lower valve failure rates than those values upon which the recommendations were based. These reduced failure rates are due to many design improvements to the nuclear turbine valves and controls that have been incorporated through Technical Information Letters (TIL's) and Engineering Change Notices (ECN's).

In the "Memo Report - Hypothetical Turbine Missiles - Probability of Occurrence," dated March 14, 1973, the probability of runaway failure and wheel burst of a GE nuclear turbine was given, based on the nuclear experience up to that time. Included in the probability calculations were the recommended valve test intervals; i.e., daily for main stop and intermediate stop & intercept valves, weekly for control valves. The Nuclear Wheel Information Letter No. 2, dated November 8, 1982, gave comparative values for the increased over-speed probabilities due to increasing test intervals.

Based on past in-service experience with nuclear turbine steam valves, turbine steam inlet valve reliability and testing intervals are no longer the major contributing factors in determining hypothetical turbine missiles. The overall probability of a hypothetical missile is therefore increased only a negligible amount by increasing the test interval of the valves. Increasing test intervals will correspondingly decrease the probability of a system upset during such testing and should therefore increase the nuclear plant availability. Of course any problems detected during any testing should be brought to the attention of your local A&ES service engineer. The service engineer may call on the LST-G Dept. if further assistance is necessary.

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Effective with this Technical Information Letter, the recommended valve test intervals for nuclear turbines are:

Main Stop Valves	Weekly
Intermediate Stop Valves	Weekly
Intercept Valves	Weekly
Control Valves	Monthly

Recommended test intervals for other control components remain unchanged.

Utilities should revise their Instruction Books to the new test intervals based on this TIL. Revised Instruction Book Articles will not be sent from General Electric Co.

Because of the higher temperature and resulting increased oxidation build-up on the stems and bushings of fossil-fueled turbines, the valve test interval recommendations remain unchanged; i.e., daily test of the main stop, combined intercept and reheat stop valves, and weekly test of the control valves.

If your Technical Specification or other documentation upon which your NRC operating license is based contains any obligation or commitment to test on a specific schedule, it is suggested that you take appropriate steps to modify that document if you wish to change your test intervals to these new recommendations.