

Above 10% power, an automatic reactor trip will occur if two reactor coolant pumps are lost during operation. Above 60% power, an automatic reactor trip will occur if any pump is lost. This latter trip will prevent the minimum value of the DNB ratio, DNBR, from going below the safety limit DNBRs during normal operational transients.

A turbine trip causes a direct reactor trip, when operating at or above 35% power, in order to reduce the severity of the ensuing transient. No credit was taken in the accident analyses for operation of this trip. Functional capability at the specified trip setting is required to enhance the overall reliability of the Reactor Protection System.

The steam-feedwater flow mismatch trip does not appear in the specification as this setting is not used in the transient and accident analysis (UFSAR Section 14).

To avoid mechanical interference due to thermal contraction between the fuel and the control rods, an automatic backup to manual tripping of the control rods is provided. Prior to  $T_{cold}$  decreasing below 381°F during RCS cooldown, the Control Rod Protection System will open the reactor trip breakers which unlatches the control rod drive shafts from the CRDMs.

#### References

- (1) UFSAR 14.1.1
- (2) UFSAR 14.1.2
- (3) UFSAR Table 7.4.2
- (4) UFSAR 14.3.1
- (5) UFSAR 14.1.2
- (6) UFSAR 7.2
- (7) UFSAR 3.2.1
- (8) UFSAR 14.1.6
- (9) UFSAR 14.1.9

Table 3.5-2

Reactor Trip Instrumentation Limiting Operating Conditions

| No. | Functional Unit   | 1<br>No. of<br>Channels | 2<br>No. of<br>Channels<br>to<br>Trip | 3<br>Min.<br>Operable<br>Channels | 4<br>Min.<br>Degree<br>of<br>Redun-<br>dancy | 5<br>Operator Action<br>if Conditions of<br>Column 3 or 4<br>Cannot be Met   |
|-----|---|-------------------------|---------------------------------------|-----------------------------------|--|--|
| 15. | DELETED   |                         |                                       |                                   |  |  |
| 16. | Control Rod<br>Protection****                               | 3                       | 2                                     | 2                                 | 1  | During RCS cooldown,<br>manually open reactor<br>trip breakers prior<br>to T <sub>cold</sub> decreasing<br>below 381°F. Maintain<br>reactor trip breakers<br>open during RCS cool-<br>down when T <sub>cold</sub> is less<br>than 381°F. |
| 17. | Turbine Trip ≥ 35% F.P.<br>A. Low Auto Stop Oil<br>Pressure | 3                       | 2                                     | 2                                 | 1  | Maintain reactor<br>power below 35% F.P.   |
| 18. | Reactor Trip Logic  | 2                       | 1                                     | 2#                                | 1#   | Be in hot shutdown<br>within the next six<br>hours.  |