

Attachment

Proposed Changes to T.S. Pages

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## REACTOR COOLANT SYSTEM

### OPERATIONAL LEAKAGE

#### LIMITING CONDITION FOR OPERATION

- 3.4.7.2 Reactor Coolant System leakage shall be limited to:
- a. No PRESSURE BOUNDARY LEAKAGE,
  - b. 1 GPM UNIDENTIFIED LEAKAGE,
  - c. 1 GPM total primary-to-secondary leakage through all steam generators and 500 gallons per day through any one steam generator,
  - d. 10 GPM IDENTIFIED LEAKAGE from the Reactor Coolant System, and
  - e. 31 GPM CONTROLLED LEAKAGE at a Reactor Coolant System pressure of  $2235 \pm 20$  psig.
  - f. The maximum allowable leakage of any Reactor Coolant System Pressure Isolation Valve shall be as specified in Table 3.4-1 at a pressure of  $2235 \pm 20$  psig.

APPLICABILITY: MODES 1, 2, 3 and 4

#### ACTION:

- a. With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With any Reactor Coolant System leakage greater than any one of the above limits, excluding PRESSURE BOUNDARY LEAKAGE, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With any Reactor Coolant System Pressure Isolation Valve leakage greater than the limit specified in Table 3.4-1, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least two closed manual or deactivated automatic valves, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

- 4.4.7.2.1 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by;
- a. Monitoring the containment atmosphere particulate radioactivity monitor at least once per 12 hours.
  - b. Monitoring the containment air cooler condensate level system or containment atmosphere gaseous radioactivity monitor at least once per 12 hours.

## REACTOR COOLANT SYSTEM

### SURVEILLANCE REQUIREMENTS (Continued)

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- c. Measurement of the CONTROLLED LEAKAGE from the reactor coolant pump seals at least once per 31 days when the Reactor Coolant System pressure is  $2235 \pm 20$  psig with the modulating valve fully open. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.
- d. Performance of a REACTOR COOLANT SYSTEM water inventory balance at least once per 72 hours.
- e. Monitoring the reactor head flange leakoff system at least once per 24 hours.

4.4.7.2.2 Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be demonstrated OPERABLE pursuant to Specification 4.0.5 except that in lieu of any leakage testing required by Specification 4.0.5, each valve should be demonstrated OPERABLE by verifying leakage to be within the allowable leakage criteria of 0.5 gpm per inch of nominal valve size with an upper limit of 5 gpm, and the measured leak rate for any given test cannot reduce the difference between the results of the previous test and 5 gpm by more than 50%:

#

- a. Every refueling outage during startup.
- b. Prior to returning the valve to service following maintenance, repair or replacement work on the valve affecting the seating capability of the valve.
- c. Following valve activation due to automatic or manual action or flow through the valve for valves identified in Table 3.4-1 by an asterisk.
- d. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

# To satisfy ALARA requirements, leakage may be measured indirectly (as from performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.

TABLE 3.4-1

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

<u>VALVE NUMBER</u>	<u>DESCRIPTION</u>	<u>MAXIMUM ALLOWABLE LEAKAGE**</u>
Q1E11V001A	12" GATE	5.000 GPM
Q1E11V001B	12" GATE	5.000 GPM
Q1E11V016A	12" GATE	5.000 GPM
Q1E11V016B	12" GATE	5.000 GPM
Q1E11V021A	6" CHECK	3.000 GPM
Q1E11V021B	6" CHECK	3.000 GPM
Q1E11V021C	6" CHECK	3.000 GPM
* Q1E21V032A	12" CHECK	5.000 GPM
* Q1E21V032B	12" CHECK	5.000 GPM
* Q1E21V032C	12" CHECK	5.000 GPM
* Q1E21V037A	12" CHECK	5.000 GPM
* Q1E21V037B	12" CHECK	5.000 GPM
* Q1E21V037C	12" CHECK	5.000 GPM
Q1E11V042A	10" CHECK	5.000 GPM
Q1E11V042B	10" CHECK	5.000 GPM
* Q1E21V076A	6" CHECK	3.000 GPM
* Q1E21V076B	6" CHECK	3.000 GPM
* Q1E21V077A	6" CHECK	3.000 GPM
* Q1E21V077B	6" CHECK	3.000 GPM
Q1E21V077C	6" CHECK	3.000 GPM

\* Indicates the requirements of Section 4.4.7.2.2  
Item (c) are applicable

\*\* The measured leak rate for any given test cannot reduce the  
difference between the results of the previous test and 5 gpm by more  
than 50%.



## REACTOR COOLANT SYSTEM

### BASES

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#### 3/4.4.7 REACTOR COOLANT SYSTEM LEAKAGE

##### 3/4.4.7.1 LEAKAGE DETECTION SYSTEMS

The RCS leakage detection systems required by this specification are provided to monitor and detect leakage from the Reactor Coolant Pressure Boundary. These detection systems are consistent with the recommendations of Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973.

##### 3/4.4.7.2 OPERATIONAL LEAKAGE

Industry experience has shown that while a limited amount of leakage is expected from the RCS, the unidentified portion of this leakage can be reduced to a threshold value of less than 1 GPM. This threshold value is sufficiently low to ensure early detection of additional leakage.

The 10 GPM IDENTIFIED LEAKAGE limitation provides allowance for a limited amount of leakage from known sources whose presence will not interfere with the detection of UNIDENTIFIED LEAKAGE by the leakage detection systems.

The CONTROLLED LEAKAGE limitation restricts operation when the total flow supplied to the reactor coolant pump seals exceeds 31 GPM with the modulating valve in the supply line fully open at a nominal RCS pressure of 2235 psig. This limitation ensures that in the event of a LOCA, the safety injection flow will not be less than assumed in the accident analyses.

The surveillance requirements for RCS Pressure Isolation Valves provide added assurance of valve integrity, thereby reducing the probability of gross valve failure and consequent intersystem LOCA. Leakage from the RCS Pressure Isolation valves is IDENTIFIED LEAKAGE and will be considered a portion of the allowed limit.

The total steam generator tube leakage limit of 1 GPM for all steam generators ensures that the dosage contribution from the tube leakage will be limited to a small fraction of Part 100 limits in the event of either a steam generator tube rupture or steam line break. The 1 GPM limit is consistent with the assumptions used in the analysis of these accidents. The 500 gpd leakage limit per steam generator ensures that steam generator tube integrity is maintained in the event of a main steam line rupture or under LOCA conditions.

PRESSURE BOUNDARY LEAKAGE of any magnitude is unacceptable since it may be indicative of an impending gross failure of the pressure boundary. Therefore, the presence of any PRESSURE BOUNDARY LEAKAGE requires the unit to be promptly placed in COLD SHUTDOWN.

## REACTOR COOLANT SYSTEM

### OPERATIONAL LEAKAGE

#### LIMITING CONDITION FOR OPERATION

- 3.4.7.2 Reactor Coolant System leakage shall be limited to:
- No PRESSURE BOUNDARY LEAKAGE,
  - 1 GPM UNIDENTIFIED LEAKAGE,
  - 1 GPM total primary-to-secondary leakage through all steam generators and 500 gallons per day through any one steam generator,
  - 10 GPM IDENTIFIED LEAKAGE from the Reactor Coolant System, and
  - 31 GPM CONTROLLED LEAKAGE at a Reactor Coolant System pressure of  $2235 \pm 20$  psig.
  - The maximum allowable leakage of any Reactor Coolant System Pressure Isolation Valve shall be as specified in Table 3.4-1 at a pressure of  $2235 \pm 20$  psig.

APPLICABILITY: MODES 1, 2, 3 and 4

#### ACTION:

- With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.
- With any Reactor Coolant System leakage greater than any one of the above limits, excluding PRESSURE BOUNDARY LEAKAGE, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- With any Reactor Coolant System Pressure Isolation Valve leakage greater than the limit specified in Table 3.4-1, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least two closed manual or deactivated automatic valves, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

- 4.4.7.2.1 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by;
- Monitoring the containment atmosphere particulate radioactivity monitor at least once per 12 hours.
  - Monitoring the containment air cooler condensate level system or containment atmosphere gaseous radioactivity monitor at least once per 12 hours.

## REACTOR COOLANT SYSTEM

### SURVEILLANCE REQUIREMENTS (Continued)

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- c. Measurement of the CONTROLLED LEAKAGE from the reactor coolant pump seals at least once per 31 days when the Reactor Coolant System pressure is  $2235 \pm 20$  psig with the modulating valve fully open. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.
- d. Performance of a REACTOR COOLANT SYSTEM water inventory balance at least once per 72 hours.
- e. Monitoring the reactor head flange leakoff system at least once per 24 hours.

4.4.7.2.2 Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be demonstrated OPERABLE pursuant to Specification 4.0.5 except that in lieu of any leakage testing required by Specification 4.0.5, each valve should be demonstrated OPERABLE by verifying leakage to be within the allowable leakage criteria of 0.5 gpm per inch of nominal valve size with an upper limit of 5 gpm, and the measured leak rate for any given test cannot reduce the difference between the results of the previous test and 5 gpm by more than 50%:

#

- a. Every refueling outage during startup.
- b. Prior to returning the valve to service following maintenance, repair or replacement work on the valve affecting the seating capability of the valve.
- c. Following valve activation due to automatic or manual action or flow through the valve for valves identified in Table 3.4-1 by an asterisk.
- d. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

# To satisfy ALARA requirements, leakage may be measured indirectly (as from performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.



TABLE 3.4-1

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

<u>VALVE NUMBER</u>	<u>DESCRIPTION</u>	<u>MAXIMUM ALLOWABLE LEAKAGE**</u>
Q2E11V001A	12" GATE	5.000 GPM
Q2E11V001B	12" GATE	5.000 GPM
Q2E11V016A	12" GATE	5.000 GPM
Q2E11V016B	12" GATE	5.000 GPM
Q2E11V021A	6" CHECK	3.000 GPM
Q2E11V021B	6" CHECK	3.000 GPM
Q2E11V021C	6" CHECK	3.000 GPM
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* Q2E21V032C	12" CHECK	5.000 GPM
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* Q2E21V037B	12" CHECK	5.000 GPM
* Q2E21V037C	12" CHECK	5.000 GPM
Q2E11V042A	10" CHECK	5.000 GPM
Q2E11V042B	10" CHECK	5.000 GPM
* Q2E21V076A	6" CHECK	3.000 GPM
* Q2E21V076B	6" CHECK	3.000 GPM
* Q2E21V077A	6" CHECK	3.000 GPM
* Q2E21V077B	6" CHECK	3.000 GPM
Q2E21V077C	6" CHECK	3.000 GPM

\* Indicates the requirements of Section 4.4.7.2.2  
Item (c) are applicable.

\*\* The measured leak rate for any given test cannot reduce the  
difference between the results of the previous test and 5 gpm by more  
than 50%.