

REACTIVITY CONTROL SYSTEMS

CONTROL ROD OPERABILITY

SURVEILLANCE REQUIREMENTS (Continued)

4.1.3.1.2 When above the low power setpoint of the RPCS, all withdrawn control rods not required to have their directional control valves disarmed electrically or hydraulically shall be demonstrated OPERABLE by moving each control rod at least one notch:

- a. At least once per 7 days and
- b. At least once per 24 hours when any control rod is immovable as a result of excessive friction or mechanical interference.

4.1.3.1.3 All control rods shall be demonstrated OPERABLE by performance of Surveillance Requirements ~~4.1.3.2, 4.1.3.3, 4.1.3.4 and 4.1.3.5.~~

4.1.3.2.1, 4.1.3.2.2

4.1.3.1.4 The scram discharge volume shall be determined OPERABLE by demonstrating the scram discharge volume drain and vent valves are OPERABLE at least once per 18 months, by verifying that the drain and vent valves:

- a. Close within 30 seconds after receipt of a signal for control rods to scram and
- b. Open when the scram signal is reset.

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CONTROL ROD MAXIMUM SCRAM INSERTION TIMES

LIMITING CONDITION FOR OPERATION

3.1.3.2 The maximum scram insertion time of each control rod from the fully withdrawn position, based on deenergization of the scram pilot valve solenoids as time zero, shall not exceed the following limits:

| Reactor Vessel Dome Pressure (psig)* | Maximum Insertion Times to Notch Position (Seconds) | | |
|---|--|------|------|
| | 43 | 29 | 13 |
| 950 | 0.31 | 0.81 | 1.44 |
| 1050 | 0.32 | 0.86 | 1.57 |

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

- a. With the maximum scram insertion time of one or more control rods exceeding the maximum scram insertion time limits of Specification 3.1.3.2 as determined by Surveillance Requirement ~~4.1.3.2.a or b~~, operation may continue provided that:

1. For all "slow" control rods, i.e., those which exceed the limits of Specification 3.1.3.2, the individual scram insertion times do not exceed the following limits:

| Reactor Vessel Dome Pressure (psig)* | Maximum Insertion Times to Notch Position (Seconds) | | |
|---|--|------|------|
| | 43 | 29 | 13 |
| 950 | 0.38 | 1.09 | 2.09 |
| 1050 | 0.39 | 1.14 | 2.22 |

2. For "fast" control rods, i.e., those which satisfy the limits of Specification 3.1.3.2, the average scram insertion times do not exceed the following limits:

| Reactor Vessel Dome Pressure (psig)* | Maximum Average Insertion Times to Notch Position (Seconds) | | |
|---|--|------|------|
| | 43 | 29 | 13 |
| 950 | 0.30 | 0.78 | 1.40 |
| 1050 | 0.31 | 0.84 | 1.53 |

*For intermediate reactor vessel dome pressure, the scram time criteria are determined by linear interpolation at each notch position.

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CONTROL ROD MAXIMUM SCRAM INSERTION TIMES

LIMITING CONDITION FOR OPERATION (Continued)

3.1.3.2 ACTION (Continued):

3. The sum of "fast" control rods with individual scram insertion times in excess of the limits of ACTION a.2 and of "slow" control rods does not exceed 5.
4. No "slow" control rod, "fast" control rod with individual scram insertion time in excess of the limits of ACTION a.2, or otherwise inoperable control rod occupy adjacent locations in any direction, including the diagonal, to another such control rod.

Otherwise, be in at least HOT SHUTDOWN within 12 hours.

- b. With a "slow" control rod(s) not satisfying ACTION a.1, above:

1. Declare the "slow" control rod(s) inoperable and
2. Perform the Surveillance Requirements of Specification 4.1.3.2.2 at least once per 60 days when operation is continued with three or more "slow" control rods declared inoperable.

Otherwise, be in at least HOT SHUTDOWN within 12 hours.

- c. With the maximum scram insertion time of one or more control rods exceeding the maximum scram insertion time limits of Specification 3.1.3.2 as determined by Specification 4.1.3.2.2, operation may continue provided that:

1. "Slow" control rods, i.e., those which exceed the limits of Specification 3.1.3.2, do not make up more than 20% of the 10% sample of control rods tested.
2. Each of these "slow" control rods satisfies the limits of ACTION a.1.
3. The eight adjacent control rods surrounding each "slow" control rod are:
 - a) Demonstrated through measurement within 12 hours to satisfy the maximum scram insertion time limits of Specification 3.1.3.2 and
 - b) OPERABLE.
4. The total number of "slow" control rods as determined by Specification 4.1.3.2.2, when added to the sum of ACTION a.3 as determined by Specification 4.1.3.2.1.a and 4.1.3.2.2, does not exceed 5.

Otherwise, be in at least HOT SHUTDOWN within 12 hours.

- d. The provisions of Specification 3.0.4 are not applicable.

No Changes. Provided for Continuity Only.

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CONTROL ROD MAXIMUM SCRAM INSERTION TIMES

SURVEILLANCE REQUIREMENTS

4.1.3.2.1 The maximum scram insertion time of the control rods shall be demonstrated through measurement with reactor coolant pressure greater than or equal to 950 psig and, during single control rod scram time tests, the control rod drive pumps isolated from the accumulators:

- a. For all control rods prior to THERMAL POWER exceeding 40% of RATED THERMAL POWER following CORE ALTERATIONS or after a reactor shutdown that is greater than 120 days,
- b. For at least 10% of the control rods, on a rotating basis, at least once per 120 days of POWER OPERATION.

4.1.3.2.2 The maximum scram insertion time for specifically affected individual control rods following maintenance on or modification to the control rod or control rod drive system which could affect the scram insertion time of those specific control rods shall be demonstrated through measurement with reactor coolant pressure greater than or equal to 950 psig. Alternatively, those specific control rods may be determined OPERABLE with reactor coolant pressure less than 950 psig by demonstrating an acceptable scram insertion time to notch position 13. The scram time acceptance criteria for this alternate test shall be determined by linear interpolation between 0.95 seconds at a reactor coolant pressure of 0 psig and 1.40 seconds at 950 psig. If this alternate test is utilized, the individual scram time shall also be measured with reactor coolant pressure greater than or equal to 950 psig prior to exceeding 40% of RATED THERMAL POWER. For each of the above single control rod scram time tests, the control rod drive pumps shall be isolated from the accumulators.

*The provisions of Specification 4.0.4 are not applicable for entry into OPERATIONAL CONDITION 2 provided this surveillance requirement is completed prior to entry into OPERATIONAL CONDITION 1.

SPECIAL TEST EXCEPTIONS

3/4.10.2 ROD PATTERN CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION

3.10.2 The sequence constraints imposed on control rod groups by the rod pattern control system (RPCS) per Specification 3.1.4.2 may be suspended by means of the individual rod position bypass switches for the following tests:

- a. Shutdown margin demonstrations, Specification 4.1.1
- b. Control rod scram, Specification ~~4.1.3.2~~ 4.1.3.2.1 and 4.1.3.2.2
- c. Control rod friction measurements.
- d. Startup Test Program with the THERMAL POWER less than 20% of RATED THERMAL POWER.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With the requirements of the above specification not satisfied, verify that the RPCS is OPERABLE per Specification 3.1.4.2.

SURVEILLANCE REQUIREMENTS

4.10.2 When the sequence constraints imposed on control rod groups by the RPCS are bypassed, verify:

- a. With 8 hours prior to bypassing any sequence constraint and at least once per 12 hours while any sequence constraint is bypassed, that movement of the control rods from 75% ROD DENSITY to the RPCS low power setpoint is limited to the established control rod sequence for the specified test, and
- b. Conformance with this specification and test procedures by a second licensed operator or other technically qualified member of the unit technical staff.