

REACTIVITY CONTROL SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

2. If the inoperable control rod(s) is inserted:
 - a) Within one hour disarm the associated directional control valves either:
 - 1) Electrically, or
 - 2) Hydraulically by closing the drive water and exhaust water isolation valves.
 - b) Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
3. The provisions of Specification 3.0.4 are not applicable.
- c. With more than 8 control rods inoperable, be in at least HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The scram discharge volume drain and vent valves shall be demonstrated OPERABLE at least once per 31 days by:*

- a. Verifying each valve to be open.
- b. Cycling each valve at least one complete cycle of full travel.

4.1.3.1.2 All withdrawn control rods not required to have their directional control valves disarmed electrically or hydraulically shall be demonstrated OPERABLE by moving each control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 when above the preset power level of the RWM and
- b. At least once per 24 hours when above the preset power level of the RWM and any control rod is immovable as a result of excessive friction or mechanical interference.

4.1.3.1.3 All withdrawn control rods shall be determined OPERABLE by demonstrating the scram discharge volume drain and vent valves OPERABLE, when the reactor protection system logic is tested per Specification 4.3.1.2, 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 or the scram discharge volume trip is bypassed.

* These valves may be closed intermittently for testing under administrative control.

REACTIVITY CONTROL SYSTEMS

BASES

CONTROL RODS (Continued)

potential effects of the rod ejection accident are limited. The ACTION statements permit variations from the basic requirements but at the same time impose more restrictive criteria for continued operation. A limitation on inoperable rods is set such that the resultant effect on total rod worth and scram shape will be kept to a minimum. The requirements for the various scram time measurements ensure that any indication of systematic problems with rod drives will be investigated on a timely basis.

Damage within the control rod drive mechanism could be a generic problem; therefore, with a control rod immovable because of excessive friction or mechanical interference, operation of the reactor is limited to a time period which is reasonable to determine the cause of the inoperability and at the same time prevent operation with a large number of inoperable control rods.

Control rods that are inoperable for other reasons are permitted to be taken out of service provided that those in the non-fully-inserted position are consistent with the SHUTDOWN MARGIN requirements.

With one or more withdrawn control rods inoperable for reasons other than being stuck, operation may continue provided within one hour, either a) the inoperable withdrawn control rod(s) are fully inserted and disarmed (electrically or hydraulically), or b) the inoperable control rod(s) are separated from other inoperable control rods by at least two control cells in all directions, and the insertion capability of each inoperable control rod is demonstrated by inserting the control rod at least one notch by drive water pressure within the normal operating range. Inserting a control rod ensures the shutdown and scram capabilities are not adversely affected. Adequate separation of inoperable withdrawn control rods (inoperable for reasons other than being immovable or untrippable) is required to ensure consistency with the scram reactivity function assumed in the reload licensing analysis. Inserted inoperable control rods are disarmed to prevent inadvertent withdrawal during subsequent operations. The control rods can be hydraulically disarmed by closing the drive and exhaust water isolation valves, or electrically disarmed by disconnecting power from all four directional control valve solenoids.

Technical Specification 3.1.3.1, ACTION b is generic to the other control rod Technical Specifications 3.1.3.2, 3.1.3.4, 3.1.3.5, 3.1.3.6, and 3.1.3.7, which identify individual types of control rod inoperability. Each of the individual control rod Technical Specifications identifies that the provisions of Technical Specification 3.0.4 are not applicable provided the specification ACTIONS are satisfied, the affected control rod is declared inoperable, and the requirements of Technical Specification 3.1.3.1 are satisfied. Inclusion of an exemption from the requirements of Technical Specification 3.0.4 in Specification 3.1.3.1, ACTION b allows changing from OPERATIONAL CONDITION 2 to OPERATIONAL CONDITION 1 with inoperable control rods and is consistent with the individual control rod operability specifications listed above (Reference 8).

REACTIVITY CONTROL SYSTEMS

BASES

CONTROL RODS (Continued)

The number of control rods permitted to be inoperable could be more than the eight allowed by the specification, but the occurrence of eight inoperable rods could be indicative of a generic problem and the reactor must be shut down for investigation and resolution of the problem.

The control rod system is analyzed to bring the reactor subcritical at a rate fast enough to prevent the MPCR from becoming less than the Safety Limit MCPR of Specification 2.1.2 during the limiting power transient analyzed in Section 14.3 of the FSAR. This analysis shows that the negative reactivity rates resulting from the scram with the average response of all the drives as given in the specifications, provide the required protection and MCPR remains greater than the Safety Limit MCPR of Specification 2.1.2. The occurrence of scram times longer than those specified should be viewed as an indication of a systemic problem with the rod drives and, therefore, the surveillance interval is reduced in order to prevent operation of the reactor for long periods of time with a potentially serious problem.

Control rods with inoperable accumulators are declared inoperable and Specification 3.1.3.1 then applies. This prevents a pattern of inoperable accumulators that would result in less reactivity insertion

ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
NRC DOCKET NOS. 50-325 AND 50-324
OPERATING LICENSE NOS. DPR-71 AND DPR-62
REQUEST FOR LICENSE AMENDMENTS
CONTROL ROD DRIVE ACCUMULATOR OPERABILITY

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 2

REACTIVITY CONTROL SYSTEMS

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