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LIMITING CONDITION FOR OPERATION

3.3 REACTIVITY CONTROL (continued)

G. Scram Discharge Volume (SDV)

LCO 3.3.G

The scram discharge volume drain & vent valves shall be OPERABLE.

APPLICABILITY:

RUN and STARTUP MODES;
REFUEL MODE when the reactor vessel head is fully tensioned.

ACTIONS:

----- NOTE -----
ACTIONS may be applied independently to each vent or drain line.

- A. With one or more SDV vent or drain lines with one valve inoperable, isolate* the associated line within 7 days.
- B. One or more SDV vent or drain lines with both valves inoperable, isolate* the associated line within 8 hours.
- C. Otherwise, be in HOT SHUTDOWN within the next 12 hours.

(*) An isolated line may be unisolated under administrative control to allow draining and venting of the SDV.

SURVEILLANCE REQUIREMENTS

4.3 REACTIVITY CONTROL (continued)

G. Scram Discharge Volume (SDV)

SR 4.3.G.1

Verify scram discharge volume drain and vent valves open at least once per month.

SR 4.3.G.2

Test scram discharge volume drain and vent valves as specified in 4.13. These valves may be closed intermittently for testing under administrative control.

SR 4.3.G.3

During each REFUELING INTERVAL verify the scram discharge volume drain and vent valves.

- a. Close within 30 seconds after receipt of a reactor scram signal.

AND

- b. Open when the scram is reset.

B 3/4.3 REACTIVITY CONTROL

BASES

LCO The OPERABILITY of all SDV vent and drain valves ensures that the SDV vent and drain valves will close during a scram to contain reactor water discharged to the SDV piping. Since the vent and drain lines are provided with two valves in series, the single failure of one valve in the open position will not impair the isolation function of the system. Additionally, the valves are required to open on a scram reset to ensure that a path is available for the SDV piping to drain freely at other times.

APPLICABILITY In the RUN and STARTUP MODES, scram may be required; therefore, the SDV vent and drain valves must be OPERABLE. In the HOT SHUTDOWN and COLD SHUTDOWN MODES, control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate requirements for control rod OPERABILITY during these conditions. CTS 3/4.10, "CORE ALTERATIONS", provides requirements to ensure that core reactivity is within the capability of the control rods and to prevent criticality during refueling conditions.

ACTIONS The ACTIONS are modified by a Note indicating that the ACTIONS may be independently applied for each SDV vent and drain line. This is acceptable, since the ACTIONS for each condition provide appropriate compensatory actions for each inoperable SDV line. Complying with the ACTIONS may allow for continued operation, and subsequent inoperable SDV lines are governed by subsequent ACTION entry.

When a line is isolated, the potential for an inadvertent scram due to high SDV level is increased. During these periods, Footnote * allows for the line to be unisolated under administrative control. This allows any accumulated water in the line to be drained, to preclude a reactor scram on SDV high level. This is acceptable since the administrative controls ensure the valve can be closed quickly, by a dedicated operator, if a scram occurs with the valve open.

A

When one SDV vent or drain valve is inoperable in one or more lines, the associated line must be isolated to contain the reactor coolant during a scram. The 7 day Completion Time is reasonable, given the level of redundancy in the lines and the low probability of a scram occurring while the valve(s) are inoperable and the line is not isolated.
(continued)

B 3/4.3

REACTIVITY CONTROL

BASES

ACTIONS (continued)

The SDV is still isolable since the redundant valve in the affected line is OPERABLE. During these periods, the single failure criterion may not be preserved, and a higher risk exists to allow reactor water out of the primary system during a scram.

B

If both valves in a line are inoperable, the line must be isolated to contain the reactor coolant during a scram. The 8 hour Completion Time to isolate the line is based on the low probability of a scram occurring while the line is not isolated and unlikelihood of significant CRD seal leakage.

C

If any Required Action and associated Completion Time is not met, the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least HOT SHUTDOWN within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach HOT SHUTDOWN from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 4.3.G.1 and SR 4.3.G.2

During normal operation, the SDV vent and drain valves should be in the open position (except when performing SR 4.3.G.2) to allow for drainage of the SDV piping. Verifying that each valve is in the open position (SR 4.3.G.1) ensures that the SDV vent and drain valves will perform their intended functions during normal operation. This SR does not require any testing or valve manipulation; rather, it involves verification that the valves are in the correct position.

The 31 day frequency is based on engineering judgment and is consistent with the procedural controls governing valve operation, which ensure correct valve positions.