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3.0 LIMITING CONDITIONS FOR OPERATION

E. Reactivity Anomalies

At a specific steady state base condition of the reactor actual control rod inventory will be periodically compared to a normalized computed prediction of the inventory. If the difference exceeds one per cent, delta k, reactor power operation shall not be permitted until the cause has been evaluated and appropriate corrective action has been completed.

4.0 SURVEILLANCE REQUIREMENTS

E. Reactivity Anomalies

During the startup test program and at each startup following refueling outages, the actual rod inventory shall be compared to a normalized computed prediction of the inventory. These comparisons will be used as base data for reactivity monitoring during subsequent power operation throughout the fuel cycle. At specific power operating conditions, the actual rod configuration will be compared to the configuration expected based upon appropriately corrected past data. This comparison will be made at least every equivalent full power month.

3.0 LIMITING CONDITONS FOR OPERATION

F. Scram Discharge Volume

1. During reactor operation, the scram discharge volume vent and drain valves shall be operable, except as specified below.
2. If any scram discharge volume vent or drain valve is made or found inoperable, the integrity of the scram discharge volume shall be maintained by either:
 - a. Verifying daily, for a period not to exceed 7 days, the operability of the redundant valve(s), or
 - b. Maintaining the inoperable valve(s), or the associated redundant valve(s), in the closed position. Periodically the inoperable and the redundant valve(s) may both be in the open position to allow draining the scram discharge volume.

If a or b above cannot be met, at least all but one operable control rods (not including rods removed per specification 3.10.E or inoperable rods allowed by 3.3.A.2) shall be fully inserted within ten hours.

G. Required Action

If Specifications 3.3.A through D above are not met, an orderly shutdown shall be initiated and have reactor in the cold shutdown condition within 24 hours.

3.3/4.3

4.0 SURVEILLANCE REQUIREMENTS

F. Scram Discharge Volume

The scram discharge volume vent and drain valves shall be cycled quarterly.

Once per operating cycle verify the scram discharge volume vent and drain valves close within 30 seconds after receipt of a reactor scram signal and open when the scram is reset.

83A
REV

Bases Continued 3.3 and 4.3:

Deviations beyond this magnitude would not be expected and would require thorough evaluations. One per cent reactivity limit is considered safe since an insertion of this reactivity into the core would not lead to transients exceeding design conditions of the reactor systems.

As was noted above reactivity anomalies can be found by comparison of the actual control rod inventory to the predicted inventory at a selected base condition. For example, the predicted control rod inventory at 100% power at a specified point in time can be compared to the actual control rod inventory at 100% power and at the specified time to determine if a reactivity anomaly exists. The Monticello Plant has been designed to increase or decrease power level as the system load demand changes. For this type of plant an equilibrium condition of the variables important to making a control rod inventory prediction, specifically the reactivity effects of the xenon, is rarely achieved. The uncertainties of calculating the control rod inventory with non-equilibrium xenon conditions can result in errors which can be misconstrued as reactivity anomalies. Therefore, this specification calls for performing of rod inventory comparisons at a time when xenon will not be a source of error.

- F. The safety function of the scram discharge volume vent and drain valves is to limit the loss of reactor coolant leaked past the CRD seals while the scram valves are open. To accomplish this, the vent and drain valves must either be in the closed position or close in a timely manner upon scram initiation. The closure time of 30 seconds is based on a letter dated July 25, 1980 to J G Keppler (Region III) from D E Gilberts (NSP) concerning IE Bulletin No. 80-14. Redundant isolation valves have been provided for each vent and drain line. Closure of one of the valves in each line would be sufficient to maintain the integrity of the scram discharge volume.
- G. Whenever a specification (or specifications) can not be met for a particular mode of operation, the reactor would be placed in a mode for which the specification (or specifications) are not required. This requires immediate initiation of a reactor shutdown upon discovery that specifications 3.3A through 3.3D are not met.