

REFUELING OPERATIONS

DECAY TIME AND SPENT FUEL STORAGE

LIMITING CONDITION FOR OPERATION

3.9.3.a The reactor shall be subcritical for at least 100 hours.

APPLICABILITY: During movement of irradiated fuel in the reactor pressure vessel.

ACTION:

With the reactor subcritical for less than 100 hours, suspend all operations involving movement of irradiated fuel in the reactor pressure vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.3.a The reactor shall be determined to have been subcritical for at least 100 hours by verification of the date and time of subcriticality prior to movement of irradiated fuel in the reactor pressure vessel.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT PENETRATIONS

The requirements on containment penetration closure ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE.

Containment penetrations, the personnel airlock doors, and/or the equipment door may be open during movement of irradiated fuel in the containment and during CORE ALTERATIONS provided a minimum of one closure method (manual or automatic valve, blind flange, or equivalent) in each penetration, one door in each airlock, and the equipment door are capable of being closed in the event of a fuel handling accident. This allowance assumes that 23 feet of water is maintained above the fuel seated within the reactor vessel to ensure any offsite dose consequence remains within 10 CFR 100 limits in the event of a fuel handling accident. Equivalent isolation methods must be approved and may include use of a material that can provide a temporary atmospheric pressure ventilation barrier. For closure, the equipment door will be held in place by a minimum of four bolts.