

### 13.9 Refueling Operations

Detailed refueling procedures will be used to ensure a safe and orderly refueling. The procedures will specify or make reference to other system operation documents that specify periodic shutdown margin checks, detailed channeling and fuel handling techniques, and other precautionary steps to assure that the facility license and technical specifications are not violated.

BFN has chosen to comply with the criticality requirements specified in 10 CFR 50.68(b). Appropriate restrictions are provided in plant procedures which prohibit the handling at any one time of more fuel assemblies than have been determined to be safely subcritical under the most adverse moderation conditions feasible by unborated water.

When fuel is being inserted, removed, or rearranged in the core or when control rods are being installed, removed, or manipulated, licensed operators will be in the control room and on the refueling floor supervising the operations. Technical personnel will provide guidance where necessary and will verify that all fuel has the proper orientation and is in the correct location.

An essential part of plant nuclear materials control and of refueling outage requirements is to have complete knowledge of the identity, location, composition, and condition of all fuel and other core components.

The location of each control rod in the core will be recorded by serial number. Each fuel assembly is identified by a serial number on the handle. A permanent file of NRC material transfer reports will be maintained onsite. Documentation for each fuel assembly will have assembly type, unit and batch number, serial number, date received, as-built uranium weight, as-built U-235 weight, net weight, and other applicable data. The fuel transfer forms and documentation are lifetime records.

In addition, there are records for the reactor and the spent fuel storage pool. All instructions for removing, rearranging, or adding fuel to the core are performed from detailed procedures. An independent check will be made after the core is fully loaded to ascertain that all fuel assemblies have been loaded correctly.

During the reactor refuelings the fuel of highest burnup in general will be removed from the core, some fuel will be rearranged, and new fuel will be loaded into the core. The loading patterns for all refuelings are selected to provide an optimum power distribution to satisfy plant safety and economic considerations.

Other refueling operations will include the replacement of control rods and in-core monitors, channeling operations, fuel sipping when necessary, and the inspection of selected portions of the reactor vessel and primary system.

BFN-19

Refueling operations will be similar for all three units.