4.5 RELOAD ANALYSES

A Reload Safety Evaluation (RSE)/Safety Assessment (SA) is performed for each cycle using methodology described in Reference 1. Based on this methodology, those events analyzed and reported in the Salem UFSAR, as well as limits given in the Technical Specification or Core Operating Limits Report (COLR) that could potentially be affected by the fuel reload are addressed. These UFSAR analyses and limits contain assumptions which involve parameters whose values are core design dependent. Hence, those parameters sensitive to reload core designs are considered, i.e., core criticality, power distributions, shutdown margin, etc. In addition, changes in fuel assembly design (mechanical, nuclear, and thermal-hydraulic) that could potentially affect the events analyzed are also addressed. The RSE/SA results are used as input into the 10CFR50.59 process to determine if an Unresolved Safety Question (USQ) exists or a Technical Specification needs to be modified for a specific reload cycle.

As part of the Reload Safety Evaluation process, the values for the parameters defined in the COLR are determined. The COLR contains specific parameter values which were previously contained in the Technical Specifications: Beginning and End of Cycle Moderator Temperature Coefficients, Moderator Temperature Surveillance Limit, Control Rod Insertion Limits, Axial Flux Difference Range, Heat Flux Hot Channel Factor ($F_Q(z)$), Nuclear Enthalpy Rise Hot Channel Factor ($F_{\Delta H}$), and Boron Concentration.

The Nuclear Design Report (NDR), Curvebook (CB), and Plant Operations Package (POP) are cycle-specific documents which contain the best estimate predictions of the reload's nuclear characteristics. Typical nuclear characteristics consist of boron concentrations, reactivity coefficients, boron and control rod worths. Typical fuel assembly design information consists of assembly enrichments, fuel pellet and rod characteristics, and burnable absorber types. NDR, CB, and POP data is used to support plant operation and to compare measured and predicted plant data.

Typical Salem Unit 1 cycle's loading pattern and burnable absorber configuration are given as Figures 4.5-1 and 4.5-2, respectively. Typical Salem Unit 2 cycle's loading pattern and burnable absorber configuration are given as Figures 4.5-3 and 4.5-4, respectively.

The cycle specific RSE/SA, COLR, and NDR/CB/POP for Salem Units 1 and 2 can be found in the appropriate site specific document control system.

4.5.1 References for Section 4.5

1. Davidson, S. L., (Ed.), et. al., "Westinghouse Reload Safety Evaluation Methodology," WCAP-9273-NP-A, July 1985.