Basis: During Startup and Power Operation, the shutdown groups are fully withdrawn and control of the reactor is maintained by the control groups. The insertion limits are set in consideration of maximum specific power, shutdown capability, and the rod ejection accident. The considerations associated with each of these quantities are as follows:

1. The initial design maximum value of specific power is 15 kW/ft. The values of $F^N_{\Delta H}$ and F_Q total associated with this specific power are 1.75 and 3.23, respectively.

   A more restrictive limit on the design maximum value of specific power, $F^N_{\Delta H}$ and F_Q is applied to operation in accordance with the current safety analysis including fuel densification and ECCS performance. At 1347 MWt rated core power, the maximum values of specific power, $F^N_{\Delta H}$ and F_Q are 13.7 Kw/ft., 1.57 and 2.89, respectively. At partial power the $F^N_{\Delta H}$ maximum values (limits) increase according to the following equation, $F^N_{\Delta H}(P) = 1.57\ [1 + 0.2(1-P)]$, where P is the fraction of rated power. The control group insertion limits in conjunction with Specification B prevent exceeding these values, even assuming the most adverse Xe distribution. Revised 11/23/84

2. The minimum shutdown capability required is 1.25% $\Delta\rho$ at BOL, 1.9% $\Delta\rho$ at BOL and defined linearly between these values for intermediate cycle lifetimes. The rod insertion limits ensure that the available shutdown margin is greater than the above values.

3. The worst case ejected rod accident (8) covering HFP-BOL, HZP-BOL, HFP-EOL and HZP-EOL shall satisfy the following accident safety criteria:

   a) Average fuel pellet enthalpy at the hot spot below 225 cal/gm for nonirradiated fuel and 200 cal/gm for irradiated fuel.

   b) Fuel melting is limited to less than the innermost 10% of the fuel pellet at the hot spot.

Low power physics tests are conducted approximately one to four times during the core cycle at or below 10% power. During such tests, rod configurations different from those specified in Figure 3.5.2.1 may be employed.

It is understood that other rod configurations may be used during physics tests. Such configurations are permissible based on the low probability of occurrence of steam line break or rod ejection during such rod configurations.

Operation of the reactor during cycle stretch out is conservative relative to the safety considerations of the control rod insertion limits, since the positioning of the rods during stretch out results in an increasing net available shutdown.

Compliance with Specification 3 prevents unfavorable axial power distributions due to operation for long intervals at deep control rod insertions.

Safety Evaluation for San Onofre Nuclear
Generating Station Unit 1 Proposed Change to Basis
of Technical Specification 3.5.2 (TACS 56067)

Introduction

Southern California Edison Company proposed a change to the basis of Technical Specification 3.5.2 "Control Group Insertion Limits". Due to an extended shutdown during Cycle 8, the safety parameters for the remainder of Cycle 8 were reevaluated. This reevaluation showed that the core design and safety limits of the present technical specification will be satisfied but the proposed change should be made to the Bases of Specification 3.5.2. The proposed change will increase the maximum value of $F^N_{\Delta H}$ from 1.55 to 1.57 and will also allow for an increase in $F^N_{\Delta H}$ as power decreases.

Evaluation

Partial Power Multipliers

The increase in $F^N_{\Delta H}$ as a function of power is given by:

$$F^N_{\Delta H} = F^L_{\Delta H} (1 + 0.2 (1-P))$$

where $F^N_{\Delta H}$ = measured radial peaking factor with appropriate uncertainties.

$F^L_{\Delta H}$ = peaking factor limit at 100% Rated Power

P = fractional core power level at less than 100% Rated Power or,

= 1.0 at greater than or equal to 100% Rated Power.