

### 3.0 LIMITING CONDITIONS FOR OPERATION

#### 3.1 Reactivity Limits

##### Applicability:

This specification applies to the reactivity of the reactor core and to the reactivity worths of control rods and experiments. When the reactor is operated with the heavy water reflector tank in place, the limits will not include the static reactivity worth of the tank.

##### Objective:

To assure that the reactor can be controlled and shutdown at all times and that the safety limits will not be exceeded.

##### Specification:

- (1) The shutdown margin relative to the cold, xenon free critical condition shall be at least .025 delta K/K with all three shim safety rods fully inserted and the regulating rod fully withdrawn and 0.0045 delta K/K with the most reactive shim safety rod and the regulating rod fully withdrawn.
- (2) The overall core excess reactivity including moveable experiments shall not exceed 0.038 delta K/K.
- (3) The total reactivity worth of all experiments shall not exceed 0.012 delta K/K.
- (4) The reactivity worth of each experiment shall be limited as follows:

<u>Experiment</u>	<u>Maximum Reactivity Worth</u>
Moveable	0.0012 delta K/K
Secured	0.012 delta K/K

- (5) The reactor shall be subcritical by at least 0.025 delta K/K during fuel loading changes.
- (6) Shim safety rods shall not be removed from the core for inspection if the shutdown margin is less than 0.01 delta K/K with the most reactive remaining shim safety rod fully withdrawn.
- (7) The reactivity worth of the regulating rod shall not exceed 0.006 delta K/K.