SUMMARY OF TECHNICAL SPECIFICATION CHANGES

SECTION	PAGES	CONTENT/REASON
2.1 Safety Limit	5	Delete reference to "intergrated power"
3.2 Reactor Parameters	18	Reworded to reflect change in temperature coefficient.
5.1 Reactor Control and Safety	24	Replace "item 3" with "item 4".
	25	In spec 2 change to "item 6". In spec 3 change to "item 3"
	26	Bases reworded to use of annual & semi-annual and correct item numbers.
	27	use "semi-annual" vice "six months"
5.2 Reactor Parameters	28	Remove references to void coefficients
5.2.1.A	28	Change surveillance interval to annual as in previous license
5.2.1.B	29	Remove reference to void coefficient
		Change surveillance interval to "Two Years" as in previous license
Bases		Change reference to "item 3" to "item 2"

1.21 Unsecured Experiment - any experiment that is not a secured experiment.

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 Safety Limits

Applicability

This specification applies to the reactor power level limitation.

Objective

The purpose of this specification is to establish the upper safety limit on power level for the reactor.

Specifications

1. Although the license maximum operating power is 10 kilowatts (thermal), the safety limit established is 20 kilowatts (thermal).

Bases

The negative value of the temperature coefficient of reactivity is specified to assure that an adequate inherent negative reactivity effect takes place when the reactor temperature increases above 80°F. At lower temperatures, where the coefficient together with the slow rate at which controlled temperature increases may be effected provide assurance that positive reactivity insertion due to controlled temperature increases will be small enough and slow enough as to be safely controllable. Uncontrolled heatups will quickly raise the moderator temperature to the range where the coefficient is negative while providing only a negligible positive reactivity effect.

The moderator-shield water quality is specified to assure adequate corrosion control in a room temperature, open air, aluminum-water system. This corrosion is a long-term reaction. Based on years of experience, a two-month period for averaging has proven adequate to avoid quality degradation which would result in appreciable corrosion.

To minimize the possibility of exposing facility personnel or the public to radioactive materials, no experiments will be performed with materials that could result in a violent chemical reaction and/or produce airborne radioactivity.

5.0 SURVEILLANCE REQUIREMENTS

5.1 Reactor Control and Safety

Applicability

These specifications apply to the surveillance of the safety and control apparatus and instrumentation of the facility.

Objective

The purpose of these specifications is to assure that the safety and control equipment is operable and meets the criteria established in the design bases.

Specifications

1. The total control rod drop time and magnet release time shall be measured semiannually to verify that the requirement of specification 3.1, item 4, is met.

2. The moderator-shield water dump time shall be measured semiannually to verfiy that the requirement of specification 3.1, item 6, is met.

3. The maximum control rod and moderator-shield water reactivity insertion rates shall be validated annually to verify that the requirements of specification 3.1, item 3, are met.

4. The following shall be performed each day prior to initial reactor operation, except when continuous reactor operations are scheduled, then they shall be performed once each day.

   A. A visual inspection of reactor components.

   B. An operability check or test of safety system channels.

   C. An operability check of the interlock system.

   D. An operability check of the radiation monitors and alarm setpoints.

5. The safety system channels shall be calibrated semiannually.

6. Fuel elements shall be visually inspected anually for signs of degradation and other physical changes.

Bases

Past performance of control rods and control rod drives, and the moderator-shield water fill-and-dump valve system have demonstrated that testing semi-annually is adequate to assure compliance with specification 3.1, items 4 and 6, and validation annually assures compliance with item 3 of specfication 3.1.

Visual inspection of the reactor components, including the control rods, prior to operation is to assure that the components have not been damaged and that the core is in the proper condition. Since redundancy of all safety channels is provided, random failures should not jeopardize the ability of the overall system to perform its required functions. The interlock system for the reactor is designed so that its failure places the system in a safe or non-operating condition. However, to assure that failures in the safety channels and interlock system are detected as soon as possible, frequent surveillance is desirable and thus specified. The frequent checks of the area radiation monitors and their alarm points assures the availability of the system to perform its required functions.

Past experience has indicated that, in conjunction with the daily check, calibration of the safety channels at semi annual intervals assures that proper accuracy is maintained.

Past experience with inspection of fuel elements has confirmed their continued integrity. Annual inspections will continue to confirm the absence of indications of physical changes.

Surveillance testing intervals shall also contain maximum intervals as set out below to provide operational flexibility and not to reduce frequency. Established frequencies shall be maintained over the long term.

a. Five years (intervals not to exceed six years)
b. Two years (intervals not to exceed two and one-half years)
c. Annual (intervals not to exceed 15 months)
d. Semiannual (intervals not to exceed seven and one-half months)
e. Quarterly (intervals not to exceed four months)
f. Monthly (intervals not to exceed six weeks)
g. Weekly (intervals not to exceed ten days)
h. Daily (must be done during the calendar day)

5.2 Reactor Parameters

Applicability

These specifications apply to the verification of control rod reactivity worths, temperature coefficients of reactivity, and reactor power level, which are pertinent to the reactor control and transient analysis and to water quality.

Objective

The purpose of these specifications is to assure that the analytical bases are and remain valid and that the reactor is safely operated.

Specifications

1. The following parameters shall be determined during the initial physics measurements of each new reactor core configuration or composition and validated periodically with the stated frequency:

   A. Individual control rod reactivity worths (annually).