

UNIVERSITY OF VIRGINIA
SCHOOL OF ENGINEERING AND APPLIED SCIENCE
CHARLOTTESVILLE, 22901

DEPARTMENT OF NUCLEAR ENGINEERING AND ENGINEERING PHYSICS
REACTOR FACILITY

TELEPHONE: 804-924-7136

May 10, 1983

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555
Attn: Mr. Cecil O. Thomas, Chief
Standardization and Special Projects Branch

RE: Docket No. 50-396
License No. R-123

Dear Mr. Thomas:

An amendment is hereby requested for Facility License R-123, Docket number 50-396 to revise the Technical Specifications for the CAVALIER Reactor.

We request the following changes.

- A. Under Section 3.0 (Limiting Conditions for Operation) we request the removal of item 3.2.B. which states that the reactor shall be sub-critical with any single rod inserted and the other three rods fully withdrawn.

Bases: The CAVALIER Tech Specs. 1.5 and 3.2.A requires a shutdown margin of $>0.4\% \Delta k/k$ with the highest worth rod fully withdrawn and 3.2.G requires a limit of $1.6\% \Delta k/k$ in excess reactivity. We feel these two limitations provide adequate safety for the reactor. The additional limit of being sub-critical with any three rods withdrawn (3.2.B) places an unusually strict limit on the operation of the reactor, especially in the capability of calibrating control rods adequately to determine their overall worth and to have the flexibility of operating with different core configurations. With the present restriction we are able to have only $\sim 0.6\% \Delta k/k$ excess reactivity in order to be sub-critical with three rods withdrawn and are limited to only one core configuration.

- B. Under Section 5.1 (Reactor Fuel) we request a change in the specification of the fuel elements as follows:

Specification:

The fuel elements shall be of the materials testing reactor (MTR) type consisting of plates containing highly enriched uranium

8305230548 830510
PDR ADOCK 05000396
P PDR

A020

Office of Nuclear Reactor Regulation
Page 2
May 5, 1983

alloy fuel, clad with aluminum. There shall be 12 fuel plates containing 165 (+ 3%) grams of U-235 or 18 fuel plates containing 195 (+ 3%) grams of U-235, in the standard fuel elements. There shall be six fuel plates containing 82.5 (+ 3%) grams of U-235, or nine fuel plates containing 98 (+ 3%) grams of U-235, in the control rod fuel elements. Partially loaded fuel elements in which some of the fuel plates do not contain uranium may be used. The mass of U-235 listed above refers to the initial (zero burnup) loading.

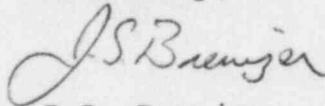
Various core configurations may be used to accommodate experiments, but the loadings shall always be such that the minimum shutdown margin and excess reactivity as specified in Section 3.2 of these specifications are not exceeded.

Bases: The present specifications on fuel elements allows only the twelve plate fuel elements to be used in the CAVALIER. These particular fuel elements are no longer being manufactured. The eighteen plate fuel elements have been run in the UVAR reactor at 2MW for 8 years and would create no safety problems for the CAVALIER.

These changes have been reviewed and approved by the Reactor Safety Committee.

We request that these changes be given prompt consideration since we would like to make these changes within the next two months.

Sincerely,



J.S. Brenizer, Director
UVA Reactor Facility

JSB:vs

cc: J.P. Farrar
T.G. Williamson
Reactor Safety Committee

Signature witnessed 5/19/83

Coral S. Currier
Notary Public

Comm Exp: 1/30/87