



THE UNIVERSITY OF TEXAS  
COLLEGE OF ENGINEERING  
AUSTIN, TEXAS 78712

Department of Mechanical Engineering  
Nuclear Engineering Program  
512-471-5136

February 27, 1985

Mr. Harold Denton  
Director of Nuclear Reactor Regulations  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

c/o Standardization and Special Projects Branch  
Attention: Document Control, Docket #50-602

Dear Sir:

The University of Texas at Austin requests that its application dated November 9, 1984 be amended as follows:

- 1) Maximum licensed operating power of 1100 kilowatts.
- 2) Maximum pulse insertion of 2.2%  $\Delta k/k$ .
- 3) Provision for 9000 curies of  $Co^{60}$  to be used in the reactor pool as gamma irradiator.
- 4) License to receive, possess and use up to 5.8 kilograms of contained uranium-235 in connection with operation of the reactor.

Each of the foregoing requests are supported by the original documentation submitted November 9, 1984.

Request for a maximum operating power level at 1100 kilowatts as per Technical Specification 2.2.2(a) submitted November 1984 is in response to a question regarding the acceptability of a 1000 kilowatt power level and the technical specification.

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Mr. Harold Denton  
February 27, 1985  
Page Two

Request for a pulse insertion reactivity of 2.2%  $\Delta k/k$  as per Technical Specification 3.1.3 is to replace the less applicable peak power value documented in the original notice.

The  $Co^{60}$  irradiator, although a separate irradiation facility, is located in the reactor pool and thus is to be included with the reactor license.

Item 4 is requested to allow use of fuel contained in the present facility (license R-92) inventory, fuel requested from DOE that would be transferred from the Northrup facility (license R-90) and 3 fuel followed control rods purchased from GA Technologies. The acquisition of as many as 59 fuel elements from DOE would support the replacement of several fuel elements with significant burnup. The current fission inventory distribution of facility fuel is:

<u>grams U<sup>235</sup> per element</u>	<u># of elements</u>
30 - 33	21
34 - 36	36
37 - 40	<u>35</u>
Total	92

Elements in the 30 - 33 gram category are near the expected element burnup of 4.5MW-Days. Elements in the 37 - 40 category are representative of fairly new fuel. Elements obtained from Northrup are expected to have an average element inventory of 36 or 37 grams. These elements will provide supplemental fuel to replace elements with substantial burnup. Since 21 elements have substantial burnup and another 36 elements have significant burnup, the additional fuel will provide time replacement of fuel and is expected to provide fuel necessary for a major part of the requested license period. Total element inventory is figured at 3.3 kg for the current inventory (~36 grams/element, 2.3 kg for used fuel to be acquired (assumes 39 grams/element) plus 0.2 kg grams

Mr. Harold Denton  
February 27, 1985  
Page Three

for fuel followed control rods, fission chambers and  
miscellaneous materials.

Sincerely,

*Thomas L. Bauer*

Thomas L. Bauer, Ph.D.  
Assistant Director/Supervisor  
Nuclear Engineering Teaching  
Laboratory

Approved:

*Dale E. Klein*  
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Dale E. Klein

*Gerhard J. Fonken*  
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Gerhard J. Fonken

TLB:bb

cc: Dr. E.F. Gloyna  
Dr. H.G. Rylander  
Dr. H.L. Marcus  
Dr. H.A. Walls

Signed before me this 6th day of March, 1985.

*Patricia T. Skipper*  
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Patricia T. Skipper  
Notary for the State of Texas

*My expiration is 3-30-85*