

29 July 2010



US Nuclear Regulatory Commission
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Rockville, MD 20852

Department of Mechanical
and Nuclear Engineering
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Manhattan, KS 66506-5205
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Re: License R-88, Docket 50-188

To Whom it May Concern:

This letter is a request for an upgrade to the allowed ^{235}U inventory at the Kansas State University TRIGA Mk-II nuclear reactor facility. This document supersedes a letter sent on 23 June 2010 which was not signed with an oath or affirmation.

Background Information

According to the facility license renewal paragraph 2.C.2., the University is licensed "to receive, possess, and use up to 4.20 kilograms of contained uranium-235 at enrichments less than 20% in connection with operation of the reactor and up to 90 grams of uranium-235 at any enrichment for fission chambers and reactor experiments." As of 31 March 2010, the facility possessed 3.98 kilograms of uranium-235 for use in connection with the operation of the reactor. We plan on receiving six new fuel elements with higher fuel loading than our current elements (12% uranium by weight versus 8.5% uranium by weight). These fuel elements will be used to increase the maximum power of the reactor from the current maximum steady-state power of about 500 kW to be closer to the license limit of 1250 kW, pending further analysis and approval to revisions to the Technical Specifications and Safety Analysis Report.

Request for License Amendment

We expect each new element to contain 52.0 grams of ^{235}U , bringing our total inventory to 4.29 kilograms. This value may fluctuate depending on the as-built specifications of the fuel. In order to accommodate the new fuel elements with a small amount of margin for uncertainty in as-built loading, we request that our license be amended to allow an inventory of 4.40 kilograms of contained ^{235}U at enrichments less than 20% in connection with reactor operations.

Additional Work to be Performed

The increase in the licensed ^{235}U inventory is only one of several work items that must be performed prior to installing higher-load fuel in the core. Work is currently underway to verify that the increased fuel load does not cause the power peaking in any element to exceed the value considered in the SAR accident analysis, or to invalidate the SAR in any other way. Some changes will be required to the SAR and Technical Specifications, as neither reference specifies the use of 12%-loaded fuel in the KSU reactor. This work will be completed, and changes to the TS and SAR approved, prior to the installation of higher-load fuel in the core.

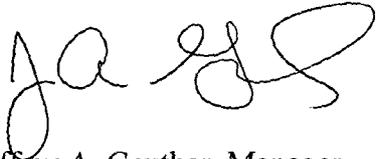
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MRR

Reactor Safeguards Committee Action

The proposed license amendment has been approved by the Reactor Safeguards Committee.

I verify under penalty of perjury that the foregoing is true and correct.

Sincerely,

A handwritten signature in black ink, appearing to read 'JA Geuther', with a large, stylized flourish at the end.

Jeffrey A. Geuther, Manager
KSU Nuclear Reactor Facility
(785)532-6657
112 Ward Hall, Manhattan, KS 66506

cc: USNRC Region IV Office