

May 11, 2010

U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Attention: Document Control Desk

Subject: Request for Authorization to Use a TRIGA Element Positioning Device in the TRIGA Basket in the Model No. NAC-LWT Package, U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CoC) No. 9225, when Shipping General Atomic TRIGA Fuel

Docket 71-9225 TAC Number: L24417

- References:
1. USNRC CoC No. 9225, Revision 55, Model No. NAC-LWT Package, Dated March 23, 2010
 2. NAC-LWT Safety Analysis Report (SAR), Revision 40, and Approved Supplements, NAC International, January 2010
 3. Request for Amendment to Revise the Model No. NAC-LWT Package U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CoC) No. 9225 to Include the General Atomic TRIGA Fuel as Authorized Content, NAC International, February 9, 2010
 4. Supplements to Request for Amendment to Revise the Model No. NAC-LWT Package U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CoC) No. 9225 to Include the General Atomic TRIGA Fuel as Authorized Content, NAC International, February 23 and March 3, 2010

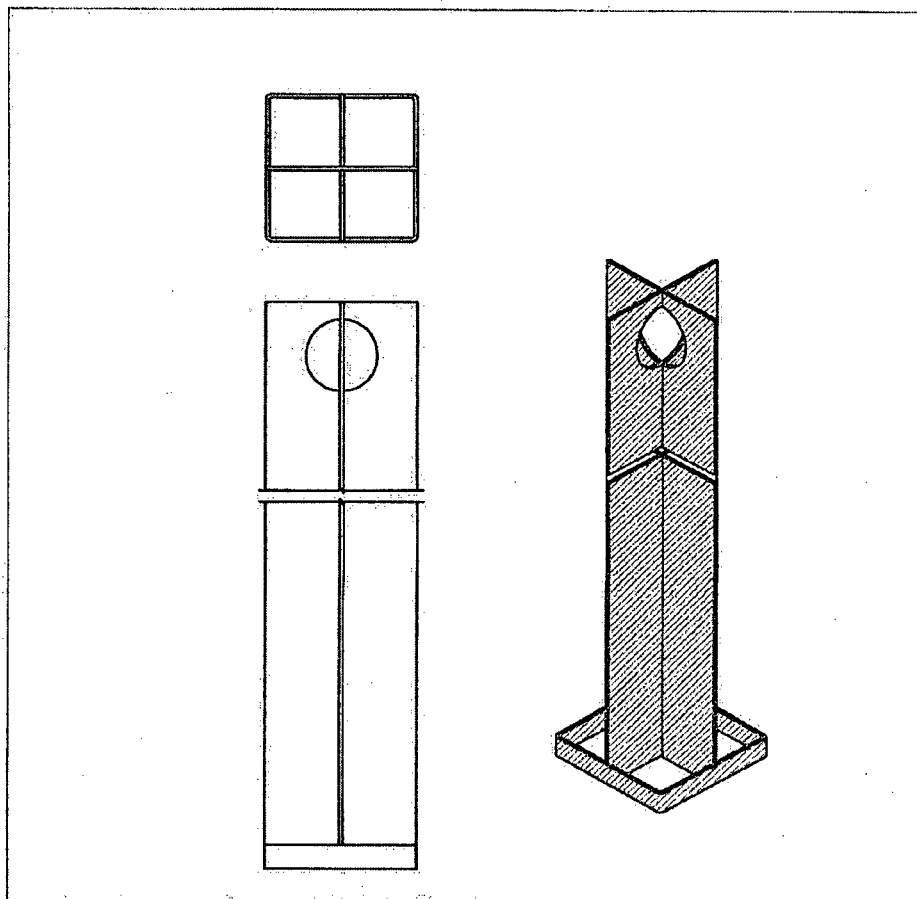
NAC International (NAC) hereby requests a letter authorization to permit the optional use of a TRIGA fuel element positioning device (fuel cell divider) in the fuel cells of TRIGA baskets when shipping General Atomic (GA) TRIGA fuel elements in the NAC-LWT cask. The divider is dunnage that will remain in the fuel cell during transport. The letter authorization for the optional use of these cell dividers is requested to cover 12 months from the date of the authorization to support the upcoming GA TRIGA shipping campaign.

The need has been identified for the use of an axial positioning device in the TRIGA fuel basket to facilitate loading and positioning of some of the TRIGA and dummy fuel elements within a fuel cell for the GA TRIGA shipments. NAC has developed a conceptual design for a 304 stainless steel axial cell divider that fits inside the fuel cell of

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the TRIGA baskets. The height of the fuel cell divider is approximately 26 inches with the maximum height not to exceed the basket cell height.

The following is a graphical depiction of the TRIGA basket fuel cell divider.



A fuel cell divider may be placed into the basket opening during loading and may remain in the basket during transport. This divider will ensure the ability to load 4 rods per basket fuel cell opening.

To evaluate the effect of the fuel cell divider, NAC re-evaluated the maximum reactivity case with a cell divider model inserted. Results of this analysis are shown on the next page and confirm the assumption that the addition of the fuel cell divider will reduce

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system reactivity. Analysis presented in the NAC-LWT Safety Analysis Report demonstrated that the system is under-moderated with maximum reactivity achieved by maximum fuel rod separation within the basket cell. The effect of the fuel cell divider is large for the wet basket case where moderator displacement significantly affects the thermalization of the fission neutrons. The effect is smaller but still noticeable in the dry case where higher energy neutrons still interact with the steel plate.

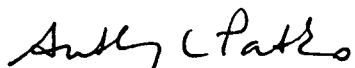
Fissile Material Case: 71wt% Enriched - 138 g ²³⁵U

Configuration					
Cell Divider	Interior Moderator	k _{eff}	σ	k _s	Δk _s /σ
No	0.9982 g/cm ³	0.93159	0.00066	0.94971	--
Yes	0.9982 g/cm ³	0.88305	0.00065	0.90115	-52.4
No	0 g/cm ³	0.83021	0.00065	0.84831	--
Yes	0 g/cm ³	0.82183	0.00061	0.83985	-9.5

All loading limitations of Reference 1 applicable to the approved GA TRIGA fuel contents remain in effect. The use of the fuel cell divider has no negative impact on any of the structural, thermal, containment, or shielding analyses presented in Reference 2 as supplemented.

If you have any comments or questions, please contact me on my direct line at 678-328-1274. Any requested additional information will be provided promptly.

Sincerely,



Anthony L. Patko
 Director, Licensing
 Engineering