

April 8, 2008

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

Attn: Document Control Desk

Subject: Submittal of Proposed Revised Wording for Revision 47 of the Certificate of Compliance (CoC) No. 9225 for the NAC-LWT Cask to Incorporate LEU TRIGA Cluster Rods as Authorized Contents

Docket No. 71-9225 TAC No. L24175

Reference:

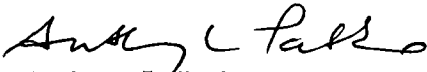
1. Safety Analysis Report (SAR) for the NAC Legal Weight Truck Cask, Revision 38, NAC International, November 2007
2. Model No. NAC-LWT Package, U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CoC) No. 9225, Revision 46
3. Submittal of a Request for an Amendment of Certificate of Compliance (CoC) No. 9225 for the NAC-LWT Cask to Incorporate TRIGA LEU Cluster Rods as Authorized Contents, NAC International, January 17, 2008
4. Submittal of a Supplement to an Amendment Request for Certificate of Compliance (CoC) No. 9225 for the NAC-LWT Cask to Incorporate TRIGA LEU Cluster Rods as Authorized Contents, NAC International, February 27, 2008

NAC International (NAC) herewith submits proposed revised wording (attached) for Revision 47 of the Certificate of Compliance No. 9225 for the Model NAC-LWT cask.

The proposed revised wording incorporates LEU TRIGA cluster rods as authorized content for the NAC-LWT cask as requested in References 3 and 4. In addition, minor editorial changes are proposed for clarity and consistency.

If you have any comments or questions, please contact me on my direct line at 678-328-1274.

Sincerely,



Anthony L. Patko  
Director, Licensing  
Engineering

Enclosure: Proposed Changes for Revision 47 of Certificate of Compliance No 9225 for the NAC-LWT Cask

**Proposed Changes for Revision 47 of**  
**Certificate of Compliance No. 9225**  
**for the NAC-LWT Cask**

**Proposed Changes for Revision 47 of Certificate of Compliance No. 9225**  
**for the NAC-LWT Cask (changes are highlighted)**

Page No.	Description of Change
1-26	CoC heading – 1.b.: Revision Number <del>47</del> . Remove previous revision bars throughout.
2 of 26	5.(a)(3) Drawings (i) LWT 315-40-02, Rev. <del>22</del> (Sheets 1-2)      Body Assembly LWT 315-40-03, Rev. 22 (Sheets 1- <del>7</del> )*      Transport Cask Body (ii) LWT 315-40-079, Rev. <del>5</del> Transport Cask Assembly, 120 TRIGA Fuel Elements or 480 Cluster Rods
3 of 26	5.(a)(3)(ii) Drawings (continued) LWT 315-40-084, Rev. <del>4</del> LWT Transport Cask Assy 140 TRIGA Elements LWT 315-40-085, Rev. 0      Axial Fuel and Cell Block Spacers, MTR, and TRIGA Fuel Baskets <del>(delete: , NAC-LWT cask SAR)</del> LWT 315-40-096, Rev. <del>3</del> Fuel <del>Cluster</del> Rod Insert, TRIGA Fuel
4 of 26	<del>Move 5.(b)(1)(i) PWR fuel assemblies (continued) to next page</del>
5 of 26	<del>Move 5.(b)(1) Type and form of material (continued)</del> <del>(iii) Deleted to next page</del>
6 of 26	(iv) MTR fuel elements composed of U-Al, U <sub>3</sub> O <sub>8</sub> -Al, or U <sub>3</sub> Si <del>4</del> -Al positioned within the MTR fuel basket ... application.

**Proposed Changes for Revision 47 of Certificate of Compliance No. 9225**  
**for the NAC-LWT Cask (changes are highlighted) (cont'd)**

Page No.	Description of Change																																										
12 of 26	<p>5.(b)(1) Type and form of material (continued)</p> <p>(vii) TRIGA <u>HEU</u> fuel cluster rods with a maximum average burnup of 600,000 MWd/MTU (80% <sup>235</sup>U) and a minimum cooling time of <u>90</u> days, and <u>TRIGA LEU fuel cluster rods with a maximum average burnup of 140,000 MWd/MTU (80% <sup>235</sup>U) and a minimum cooling time of 90 days</u> meeting the following specifications prior to irradiation:</p> <table><tr><th></th><th colspan="2"><u>TRIGA Fuel Cluster Rods</u></th></tr><tr><th></th><th><u>HEU</u></th><th><u>LEU</u></th></tr><tr><td>Fuel Form</td><td colspan="2"><u>Clad U-ZrH rod</u></td></tr><tr><td>Maximum Rod Weight, lbs</td><td colspan="2"><u>1.5</u></td></tr><tr><td>Maximum Rod Length, in</td><td colspan="2"><u>31</u></td></tr><tr><td>Rod Cladding</td><td colspan="2"><u>Incoloy 800</u></td></tr><tr><td>Minimum Clad Thickness, in</td><td colspan="2"><u>0.015</u></td></tr><tr><td>Maximum Active Fuel Length, in</td><td colspan="2"><u>22.5</u></td></tr><tr><td>Maximum Fuel Pellet Diameter, in</td><td colspan="2"><u>0.53</u></td></tr><tr><td>Maximum U Content/Rod, grams</td><td><u>48.6</u></td><td><u>289.5</u></td></tr><tr><td>Maximum <sup>235</sup>U Mass, grams</td><td><u>46.5</u></td><td><u>55</u></td></tr><tr><td>Maximum <sup>235</sup>U Enrichment, weight percent</td><td><u>95</u></td><td><u>20</u></td></tr><tr><td>Maximum Zirconium Mass, grams</td><td><u>457</u></td><td><u>357</u></td></tr><tr><td>Hydrogen to Zirconium Ratio, max.</td><td colspan="2"><u>1.7</u></td></tr></table>		<u>TRIGA Fuel Cluster Rods</u>			<u>HEU</u>	<u>LEU</u>	Fuel Form	<u>Clad U-ZrH rod</u>		Maximum Rod Weight, lbs	<u>1.5</u>		Maximum Rod Length, in	<u>31</u>		Rod Cladding	<u>Incoloy 800</u>		Minimum Clad Thickness, in	<u>0.015</u>		Maximum Active Fuel Length, in	<u>22.5</u>		Maximum Fuel Pellet Diameter, in	<u>0.53</u>		Maximum U Content/Rod, grams	<u>48.6</u>	<u>289.5</u>	Maximum <sup>235</sup> U Mass, grams	<u>46.5</u>	<u>55</u>	Maximum <sup>235</sup> U Enrichment, weight percent	<u>95</u>	<u>20</u>	Maximum Zirconium Mass, grams	<u>457</u>	<u>357</u>	Hydrogen to Zirconium Ratio, max.	<u>1.7</u>	
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13 of 26	<p>5.(b)(1) Type and form of material (continued)</p> <p>(x) DIDO fuel elements composed of U-Al, U<sub>3</sub>O<sub>8</sub>-Al, or U<sub>3</sub>Si<sub>2</sub>-Al positioned within the DIDO fuel basket ... below:</p>																																										
18 of 26	<p>5.(b)(2) Maximum quantity of material per package (continued)</p> <p>(vii)(a) For TRIGA fuel elements as described in Item 5.(b)(1)(vi)(a):</p> <p><u>Delete item (3)</u>, renumber and change remainder of section as follows:</p> <p><u>(3)</u> Damaged TRIGA fuel elements or fuel debris (up to <u>a total of</u> two equivalent elements) <u>shall</u> be transported in a <u>sealed damaged</u> fuel can.</p> <p><u>(4)</u> The sealed cans are to be in accordance with NAC International Drawing Nos. 315-40-086, Rev. 1; 315-40-087, Rev. 5; and 315-40-088, Rev. 2.</p>																																										

**Proposed Changes for Revision 47 of Certificate of Compliance No. 9225**  
**for the NAC-LWT Cask (changes are highlighted) (cont'd)**

Page No.	Description of Change
19 of 26	<p>5.(b)(2) Maximum quantity of material per package (continued)</p> <p>(vii)(a) For TRIGA fuel elements as described in Item 5.(b)(1)(vi)(a): (continued)</p> <p><del>Delete old item numbers (6) and (7)</del>, renumber and change remainder of section as follows:</p> <p><b>(5)</b> Mixed intact and damaged fuel contents and fuel debris are authorized. Base and top fuel basket modules may contain intact <del>fuel elements or sealed cans containing damaged fuel and fuel debris</del>. Intermediate fuel basket modules may contain only intact TRIGA fuel elements.</p> <p>(vii)(b) For TRIGA fuel elements as described in Item 5.(b)(1)(vi)(b):</p> <p>(1) Up to 120 intact fuel elements in the nonpoisoned TRIGA fuel basket (four fuel elements per basket cell).</p> <p>(2) TRIGA fuel elements <del>or sealed cans</del> may not be loaded in the center cell of the nonpoisoned basket.</p> <p>(3) Maximum decay heat not to exceed 7.5 watts per TRIGA fuel element (or equivalent for damaged fuel) and 900 watts per package.</p> <p><del>Delete item (4)</del>, renumber and change remainder of section as follows:</p> <p><b>(4)</b> Damaged TRIGA fuel elements or fuel debris (up to two equivalent elements) <del>shall</del> be transported in a <del>sealed damaged</del> fuel can.</p> <p><b>(5)</b> The sealed cans are to be in accordance with NAC International Drawing Nos. 315-40-086, Rev. 1; 315-40-087, Rev. 5; and 315-40-088, Rev. 2.</p> <p><del>Delete old item numbers (7) and (8)</del>, renumber and change remainder of section as follows:</p> <p><b>(6)</b> Mixed intact and damaged fuel contents and fuel debris are authorized. Base and top fuel basket modules may contain intact <del>fuel elements or sealed cans containing damaged fuel or fuel debris</del>. Intermediate fuel basket modules may contain only intact TRIGA fuel elements.</p>
20 of 26	<p>5.(b)(2) Maximum quantity of material per package (continued)</p> <p><del>Delete (vii)(c) and (vii)(d)</del></p> <p>(viii) For TRIGA fuel cluster rods as described in Item 5.(b)(1)(vii):</p> <p>(a) Up to 480 intact rods in the non-poisoned TRIGA fuel basket <del>set</del>, and up to 560 intact rods in the poisoned TRIGA fuel basket <del>set</del>. TRIGA fuel cluster rods must be positioned within the fuel rod inserts as shown on NAC International Drawing No. 315-40-096, Rev. <del>3</del>.</p> <p>(b) <del>Damaged TRIGA cluster rods or cluster rod debris (up to six equivalent rods) shall be transported in a sealed damaged fuel can.</del></p> <p><b>(c)</b> <del>The sealed cans are to be in accordance with NAC International Drawing Nos. 315-40-086, Rev. 1; 315-40-087, Rev. 5; and 315-40-088, Rev. 2.</del></p> <p><b>(d)</b> Mixed intact and <del>damaged</del> fuel contents <del>and fuel debris</del> are authorized. Base and top fuel basket modules may contain intact fuel rods or sealed canisters. Intermediate fuel basket modules may contain only intact fuel rods.</p>

**Proposed Changes for Revision 47 of Certificate of Compliance No. 9225**  
**for the NAC-LWT Cask (changes are highlighted) (cont'd)**

Page No.	Description of Change
23 of 26	<p>5.(c) Criticality Safety Index</p> <p>(4) For DIDO fuel assemblies and TRIGA fuel element payloads in a nonpoisoned basket, or TRIGA fuel element payloads with sealed cans loaded with up to two equivalent TRIGA elements in a nonpoisoned basket: 12.5</p> <p><b>Move 5.(b)(2) Maximum quantity of material per package (continued) to next page</b></p>
24 of 26	<p><b>Delete (6) in its entirety</b></p> <p>6. Known or suspected damaged fuel assemblies (rods) or elements, and fuel with cladding defects greater than pin holes and hairline cracks are not authorized, except as described in Items 5.(b)(2)(iv)(d); 5.(b)(2)(vi); 5.(b)(2)(vii)(a)(3); 5.(b)(2)(vii)(b)(4); 5.(b)(2)(viii)(b); 5.(b)(2)(ix); 5.(b)(2)(x); and 5.(b)(2)(xiv).</p> <p><b>Delete "individual PWR rods" so item 12 reads as follows:</b></p> <p>12. A personnel barrier must be used when shipping PWR or BWR assemblies. Shipments of MTR, DIDO fuel assemblies, TRIGA fuel elements, TRIGA fuel cluster rods, high burnup PWR or BWR rods, TPBAR contents, PULSTAR fuel elements, spiral fuel assemblies, MOATA plate bundles, or irradiated hardware must use the ISO container or a personnel barrier.</p>
25 of 26	<p><b>Add new item 16</b> and renumber following items:</p> <p><b>16.</b> For the shipment of damaged TRIGA fuel elements, cluster rods and/or fuel debris loaded in sealed damaged fuel cans, a NAC-LWT cask with a leaktight containment boundary shall be used.</p> <p><b>17.</b> Transport by air is not authorized.</p> <p><b>18.</b> The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.</p> <p><b>19.</b> Revision 46 of this certificate may be used until April 25, 2009.</p> <p><b>20.</b> Expiration Date: February 28, 2010.</p>
26 of 26	<p><b>Add:</b></p> <p><b>Supplements dated: January 17, 2008; February 27, 2008; April 8, 2008; and April 11, 2008.</b></p>