



U.S. Department  
of Transportation  
**Pipeline and  
Hazardous Materials  
Safety Administration**

**COMPETENT AUTHORITY CERTIFICATION  
FOR A TYPE FISSILE  
RADIOACTIVE MATERIALS PACKAGE DESIGN  
CERTIFICATE USA/9037/AF-85, REVISION 14**

East Building, PHH-23  
1200 New Jersey Avenue Southeast  
Washington, D.C. 20590

This certifies that the radioactive material package design described has been certified by the Competent Authority of the United States as meeting the regulatory requirements for a Type AF packaging for fissile radioactive material as prescribed in the regulations of the International Atomic Energy Agency<sup>1</sup> and the United States of America<sup>2</sup>.

1. Package Identification - Model No. TRIGA-II.
2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9037, Revision 14 (attached).
3. Criticality - The minimum criticality safety index is 0.4. The maximum number of packages per conveyance is determined in accordance with Table X of the IAEA regulations cited in this certificate.
4. General Conditions -
  - a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation. The user shall prepare the package for shipment in accordance with the documentation and applicable regulations.
  - b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.
  - c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.

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<sup>1</sup> "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

<sup>2</sup> Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

**CERTIFICATE USA/9037/AF-85, REVISION 14**

- d. Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations<sup>1</sup> shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the applicable requirements of Subpart H of 10 CFR 71.
5. Marking and Labeling - The package shall bear the marking USA/9037/AF-85 in addition to other required markings and labeling.
6. Expiration Date - This certificate expires on December 31, 2015.

This certificate is issued in accordance with paragraph 817 of the IAEA Regulations and Section 173.471 and 173.472 of Title 49 of the Code of Federal Regulations, in response to the December 21, 2010 petition by General Atomics, San Diego, CA, and in consideration of other information on file in this Office.

Certified By:



**Jan 03 2011**

(DATE)

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Dr. Magdy El-Sibaie  
Associate Administrator for Hazardous Materials Safety

Revision 14 - Issued to endorse U. S. Nuclear Regulatory Commission Certificate of Compliance No. 9037, Revision 14, and to extend the expiration date.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

a. CERTIFICATE NUMBER 9037	b. REVISION NUMBER 14	c. DOCKET NUMBER 71-9037	d. PACKAGE IDENTIFICATION NUMBER USA/9037/AF	PAGE 1	PAGES OF 3
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2. PREAMBLE

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

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| a. ISSUED TO ( <i>Name and Address</i> )<br>General Atomics<br>P.O. Box 85608<br>San Diego, CA 92186-5608 | b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION<br>General Atomics application dated October 4, 1995,<br>as supplemented. |
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4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

- (1) Model No.: TRIGA-II
- (2) Description

TRIGA fuel element shipping container. The outer packaging is a steel drum, approximately 22.5 inches in diameter by 57.5 inches high. The inner vessel is a 5-inch Schedule 40 carbon steel pipe. Dimensions of the inner vessel are approximately 50 inches in height with a 1/4-inch thick wall and a 5-inch inside diameter. The top of the inner vessel is a threaded pipe cap and the bottom is a welded 1/4-inch thick flat disc. The inner vessel is centered and supported within the outer packaging by eight, 3/8-inch diameter braced, support spacer rods. The void between the inner vessel and the outer packaging is filled with vermiculite tamped to a minimum density of 4.5 lbs/ft<sup>3</sup>. Maximum gross weight including contents is approximately 330 pounds.

(3) Drawing

The packaging is constructed in accordance with General Atomic Company Drawing No. TOS396C161, Rev. F.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

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5. (b) Contents

(1) Type and form of material

Special function TRIGA fuel elements containing uranium-zirconium-hydride or erbium-uranium-zirconium-hydride whose fuel portion has nominal compositions (except erbium content) as described in Table A.1-1 of the October 4, 1995, application, and clad with stainless steel, aluminum or incoloy. Uranium enriched to a maximum 93.5 w/o in the U-235 isotope. The H to Zr atomic ratio within the fuel meat must not exceed 1.65.

(2) Maximum quantity of material per package

U-235 content not to exceed 1.39 kg, contained in a maximum of 7 1.5-inch diameter fuel elements, or a maximum of 25 0.5-inch diameter fuel elements, whose fuel portion has nominal compositions (except erbium content) as described in Table A.1-2 (Rev. 1) of the October 4, 1995, application. For enrichments greater than 5 weight percent U-235, uranium content not to exceed an A<sub>2</sub> quantity.

(c) Criticality Safety Index 0.4

6. In addition to the requirements of Subpart G of 10 CFR Part 71:

(a) The package shall be prepared for shipment and operated in accordance with the Operating Procedures of Chapter 8 of the application.

(b) The packaging must meet the Acceptance Tests and Maintenance Program of Chapter 9 of the application.

7. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

8. Expiration date: December 31, 2015.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

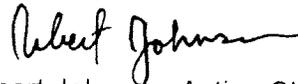
1	a. CERTIFICATE NUMBER 9037	b. REVISION NUMBER 14	c. DOCKET NUMBER 71-9037	d. PACKAGE IDENTIFICATION NUMBER USA/9037/AF	PAGE 3	PAGES OF 3
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REFERENCES

General Atomic Company application dated October 4, 1995.

Supplements dated: December 5, 1995, October 16, 2000, November 16, 2005, and November 22, 2010. |

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



Robert Johnson, Acting Chief  
Licensing Branch  
Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety  
and Safeguards

Date: 12/14/10



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION REPORT  
Docket No. 71-9037  
Model No. TRIGA-II Package  
Certificate of Compliance No. 9037  
Revision No. 14

**SUMMARY**

By application dated November 22, 2010, General Atomics requested renewal of Certificate of Compliance No. 9037, for the Model No. TRIGA-II package. General Atomics did not request any changes to the package design or authorized contents. The certificate has been renewed for a five year term.

**EVALUATION**

By application dated November 22, 2010, General Atomics requested renewal of Certificate of Compliance No. 9037, for the Model No. TRIGA-II package. General Atomics did not request any changes to the package design or authorized contents. The staff reviewed the documents referenced in the certificate and determined that the documentation was available and complete. The staff also reviewed the operating and maintenance procedures for the package and found them to be adequate.

**CONCLUSION**

The certificate has been renewed for a five year term that expires on December 31, 2015. This change does not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9037, Revision No. 14 on

12/14/10



U.S. Department  
of Transportation

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1200 New Jersey Avenue SE  
Washington, D.C. 20590

**Pipeline and  
Hazardous Materials  
Safety Administration**

**CERTIFICATE NUMBER:** USA/9037/AF-85, Revision 14

**ORIGINAL REGISTRANT(S):**

Mr. Keith Asmussen  
Director of Licensing  
General Atomics  
3550 General Atomics Court  
San Diego, 92121-1122  
USA

**REGISTERED USER(S):**

Mr. Mark Campbell  
Edlow International Company  
3901 Castle Hayne Rd.  
M/C K01  
Wilmington, 28402  
USA

Mr. Blake Williams  
Director, Spent Fuel Services  
Edlow International Company  
460 Silverberry Lane  
Sugar Hill, 32518  
USA

Ms. Franchone Oshinowo  
Vice President of Operations  
Edlow International Company  
1666 Connecticut Ave, N.W.  
Suite 201  
Washington, 20009  
USA

Ms. Marilena Conde  
Vice President, Marketing and Administration  
Edlow International Company  
1666 Connecticut Ave, N.W  
Suite 201  
Washington, 20009  
USA

Mr. Darren Condrey  
Transport Logistics International  
Transport Logistics International  
8161 Maple Lawn Blvd  
Suite 450  
Fulton, 20759  
USA

Mr. Mark Lambert  
Transport Logistics International  
Transport Logistics International  
8161 Maple Lawn Blvd.  
Suite 450  
Fulton, 20759  
USA

Ralf Witten  
Areva - TN Inc  
Abteilung ANF-LP  
Advanced Nuclear Fuels GmbH  
Postfach 1485  
Lingen, Niedersachsen 49784  
Germany

Mr. Jim Davis  
Areva - TN Inc  
2101 Horn Rapids Road  
Richland, WA 99352

Mr. Robert Link  
Areva - TN Inc  
2101 Horn Rapids Road  
Richland, 99352  
USA

Charlie Sanders  
Nuclear Criticality Safety & Shipping Containers  
Areva - TN Inc  
1724 Mount Athos Road  
P.O. Box 11646  
Lynchburg, VA 24506-1646

Mr. Eric Miller  
Areva - TN Inc  
P.O. Box 11646  
Lynchburg, VA 24506-1646

Ms. Catherine Anne  
Director of Transport Operations  
Areva - TN Inc  
7135 Minstrel Way  
Suite 300  
Columbia, 21045  
USA

Mr. Don Shaw  
Licensing Manager  
Areva - TN Inc  
7135 Minstrel Way  
Suite 300  
Columbia, MD 21045