



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

**IAEA CERTIFICATE OF COMPETENT AUTHORITY  
SPECIAL FORM RADIOACTIVE MATERIALS  
CERTIFICATE USA/0523/S-96, REVISION 2**

400 Seventh Street, S.W.  
Washington, D.C. 20590

This certifies that the source described has been demonstrated to meet the regulatory requirements for special form 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> for the transport of radioactive material.

1. Source Identification - J.L. Shepherd & Associates Model No. 7810-484-1.
2. Source Description - The source is a double encapsulation of Type 304 stainless steel, with outer dimensions of diameter 16.4 mm (0.644 in.) and length 170 mm (6.68 in.). The inner capsule is 14.4 mm (0.567 in.) in diameter by 161 mm (6.35 in.) long. End plugs on both capsules are sealed by tungsten inert gas welds. The thickness of the outer wall is 0.76 mm (0.03 in.), and that of the inner wall is 0.51 mm (0.02 in.). All plug thicknesses are 2.54 mm (0.10 in.). Source is to be manufactured in accordance with attached J.L. Shepherd & Associates Drawing Nos. A-0484-3245-1 and A-0484-3245-2.
3. Radioactive Contents - No more than 244 TBq (6600 Ci) of Co-60 in the form of rods measuring 6.35 mm (0.25 in.) in diameter and from 2.0 mm (0.08 in.) to 51 mm (2.0 in.) in length, or pellets measuring approximately 1 mm (0.04 in.) in diameter. Spacers of stainless steel and pellets of Co-59 may be used to fill void spaces.
4. Quality Assurance - 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. Expiration Date - This certificate expires on April 30, 2012.

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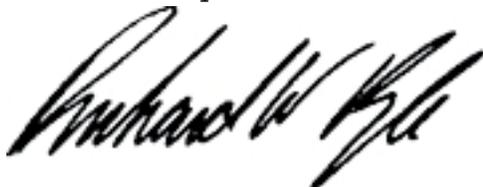
<sup>1</sup> "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency(IAEA), Vienna, Austria.

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

**CERTIFICATE USA/0523/S-96, REVISION 2**

This certificate is issued in accordance with paragraph 804 of the IAEA Regulations and Section 173.476 of Title 49 of the Code of Federal Regulations, in response to the April 16, 2007 petition by J.L. Shepherd, San Fernando, CA, and in consideration of other information on file in this Office.

Certified By:



**May 04 2007**

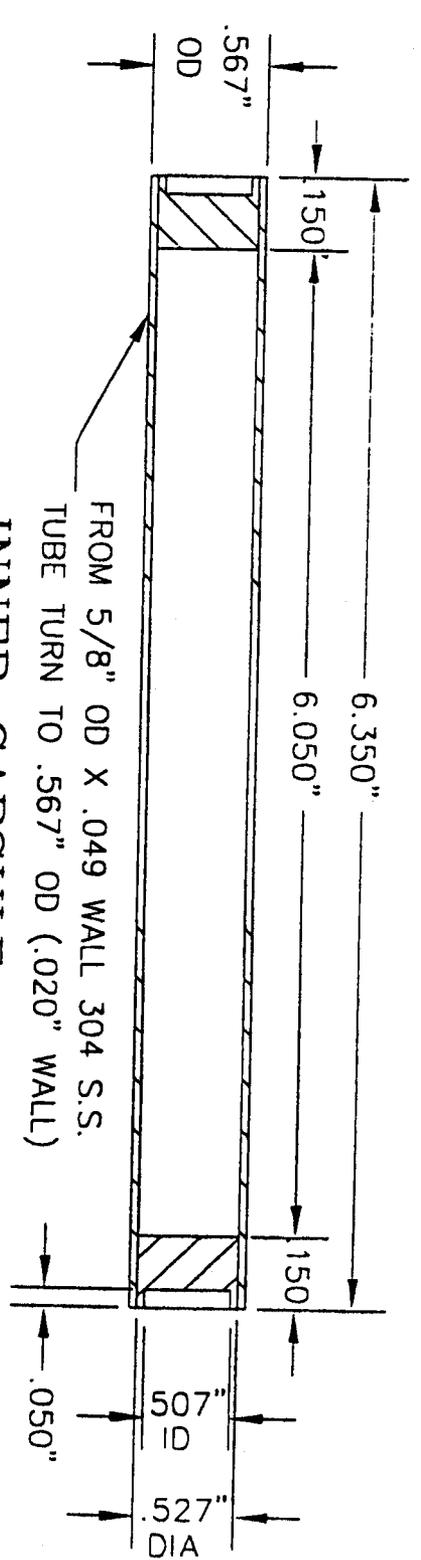
(DATE)

Bob Richard

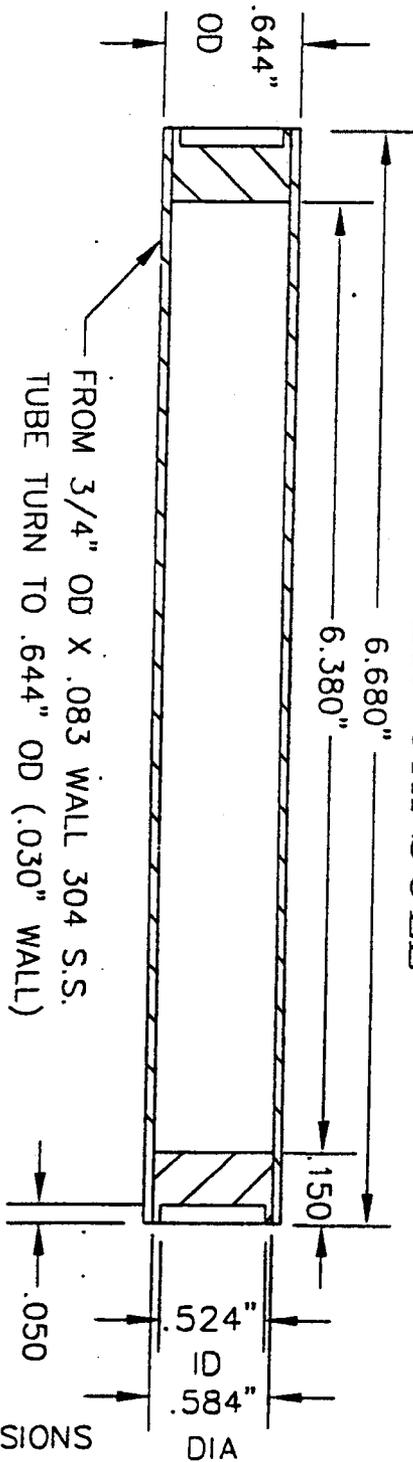
Deputy Associate Administrator for Hazardous Materials Safety

Revision 2 - Issued to extend the expiration date.

### INNER CAPSULE



### OUTER CAPSULE



#### NOTES:

1. HELIARC ALL AROUND BOTH ENDS
2. ENDCAPS - 304 S.S.
3. SOURCES CERTIFIED "SPECIAL FORM"
4. END CAPS HAVE .002 REGISTER
5. BEFORE LOADING, 1 END OF EA. TUBE WELDED & HELIUM LEAK TESTED TO SENSITIVITY OF  $1 \times 10^{-6}$  CC/MIN
6. REMOVEABLE CONTAMINATION (LEAK TEST) AFTER LOADING  $\leq 5 \times 10^{-3}$   $\mu$ CI
7. SCRIBE / ENGRAVE 3/32" HIGH LETTERS:

JLS 7810-484-1 \_\_\_\_\_ Ci Co-60  
 S/N \_\_\_\_\_ DATE \_\_\_\_\_

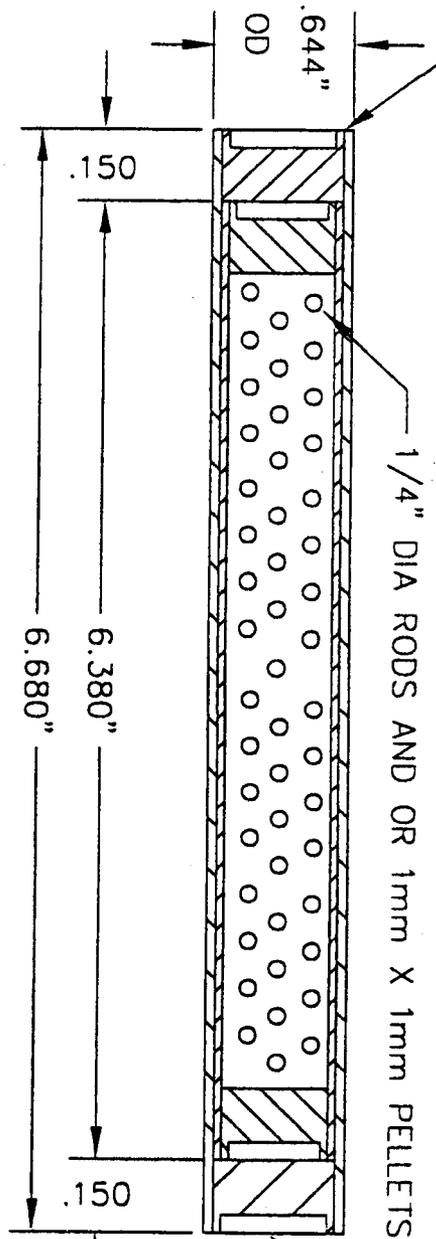
7-22-02 REV. (A) REVISED DIMENSIONS

J. L. SHEPHERD and Associates

DRAWN BY D. TRAN	DATE 09-10-96	APPROVED BY	SCALE NONE
SOURCE CAPSULE FOR MODEL 7810-484-1			A-0484-3245-1

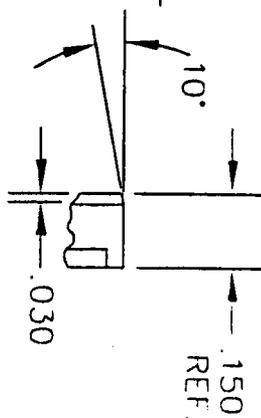
ORIGINAL

HELIIARC ALL AROUND INNER  
& OUTER CAPSULE



CAPSULE ASSEMBLY

END CAP DETAIL INNER  
& OUTER CAPSULE



THIS END - INSERT  
& WELD END CAPS  
AFTER LOADING  
WITH Co-60

NOTES:

1. HELIIARC ALL AROUND BOTH ENDS
2. ENDCAPS - 304 S.S.
3. SOURCES CERTIFIED "SPECIAL FORM"
4. END CAPS HAVE .002 REGISTER
5. BEFORE LOADING, 1 END OF EA. TUBE WELDED & HELIUM LEAK TESTED TO SENSITIVITY OF  $1 \times 10^{-6}$  CC/MIN
6. REMOVEABLE CONTAMINATION (LEAK TEST) AFTER LOADING  $\leq 5 \times 10^{-3}$  MCI
7. SCRIBE / ENGRAVE 3/32" HIGH LETTERS:

JLS 7810-484-1 \_\_\_\_\_ Ci Co-60

S/N \_\_\_\_\_ DATE \_\_\_\_\_

7-22-02 REV. (A) REVISED DIMENSIONS

J. L. SHEPHERD and Associates			
DRAWN BY D. TRAN	DATE 09-10-96	APPROVED BY	SCALE NONE
SOURCE CAPSULE FOR MODEL 7810-484-1			
A-0484-3245-2			

ORIGINAL



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Washington, D.C. 20590

**CERTIFICATE NUMBER:** USA/0523/S-96, Revision 2

**ORIGINAL REGISTRANT(S):**

Ms. Mary Shepherd  
Vice President  
J.L. Shepherd  
1010 Arroyo Ave.  
San Fernando, 91340-1822  
USA