



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 4**

East Building, PHH-23
1200 New Jersey Avenue Southeast
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 Agency¹ and the United States of America² 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 regulations¹ 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 August 31, 2021.

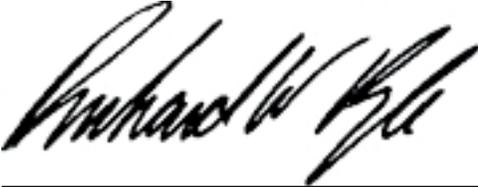
¹ "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

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

CERTIFICATE USA/0523/S-96, REVISION 4

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 August 09, 2016 petition by J.L. Shepherd & Associates, San Fernando, CA, and in consideration of other information on file in this Office.

Certified By:



Aug 22 2016

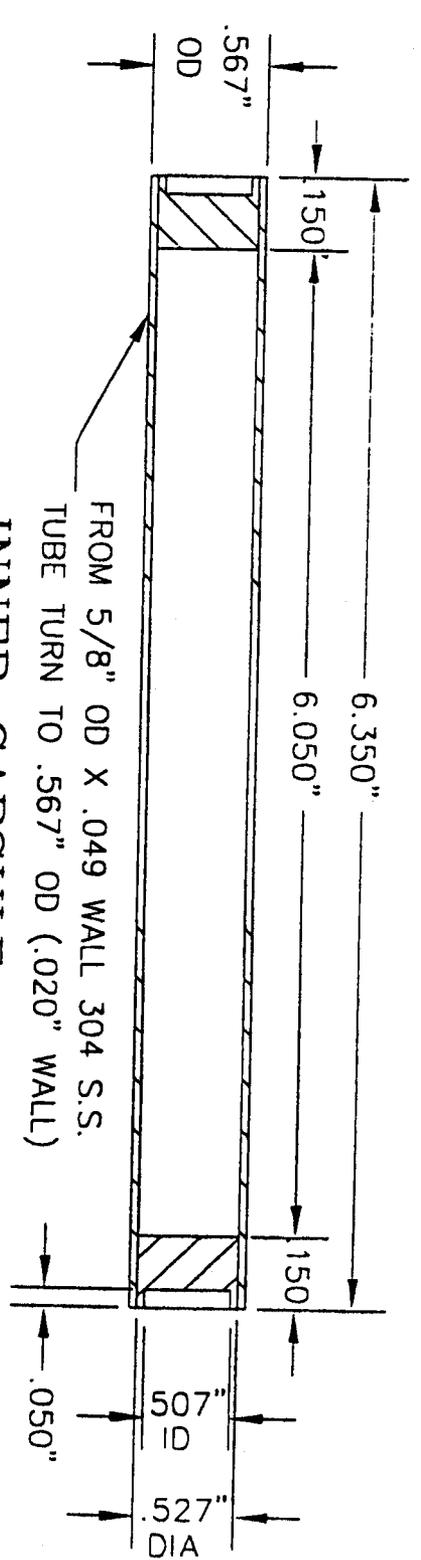
(DATE)

 _____
William Schoonover

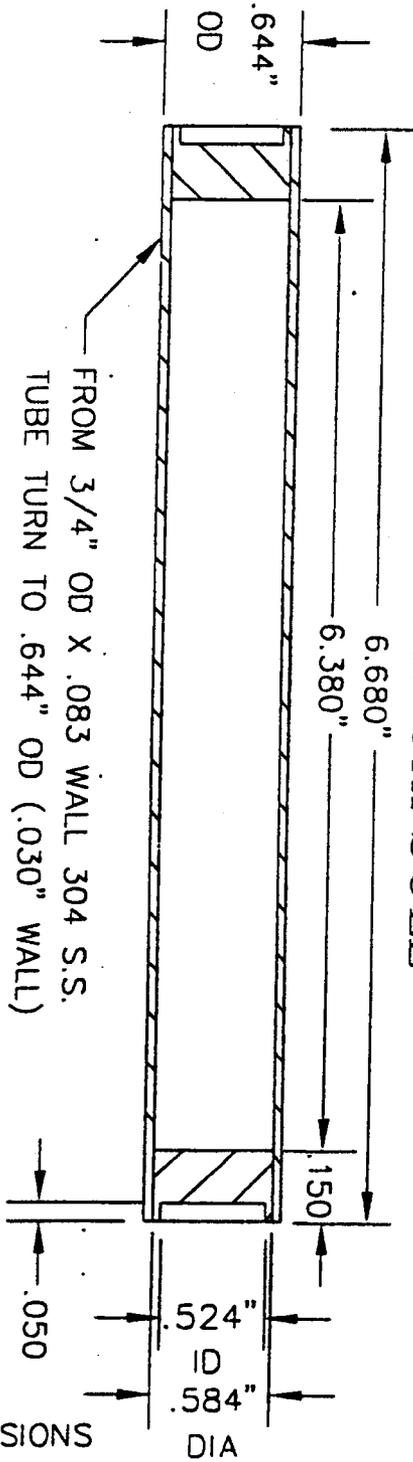
Acting Associate Administrator for Hazardous Materials Safety

Revision 4 - 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 1×10^{-6} CC/MIN
6. REMOVEABLE CONTAMINATION (LEAK TEST) AFTER LOADING $\leq 5 \times 10^{-3}$ μ CI
7. SCRIBE / ENGRAVE 3/32" HIGH LETTERS:

JLS 7810-484-1 _____ CI Co-60
 S/N _____ DATE _____

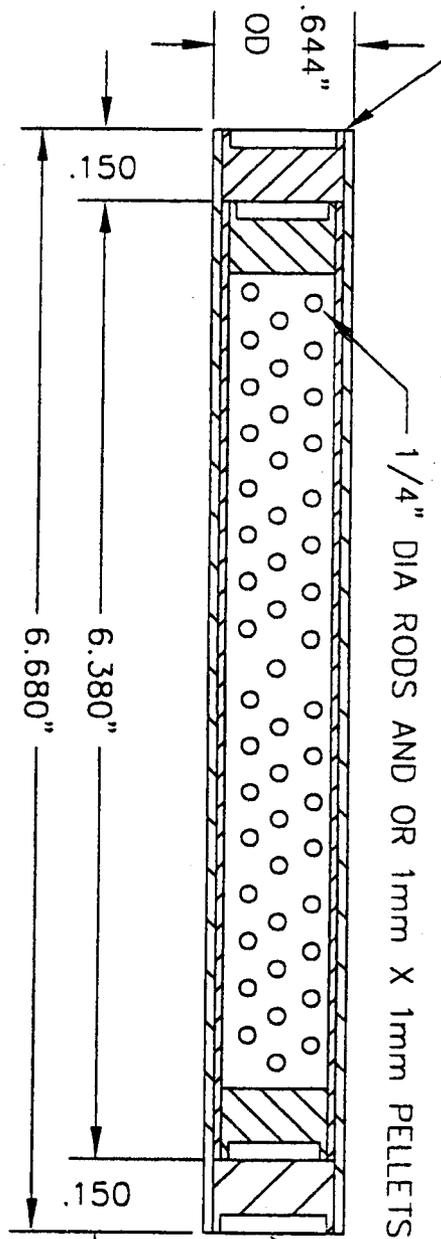
7-22-02 REV. (A) REVISED DIMENSIONS

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

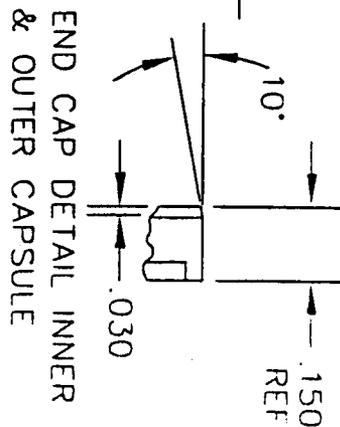
HELIIARC ALL AROUND INNER
& OUTER CAPSULE



1/4" DIA RODS AND OR 1mm X 1mm PELLETS

CAPSULE ASSEMBLY

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



END CAP DETAIL INNER
& OUTER CAPSULE

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 1×10^{-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