



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

**IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIALS
CERTIFICATE USA/0526/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 7810-0109-R.
2. Source Description - The source is a double encapsulation of Type 304 stainless steel, with outer dimensions of diameter 9.53 mm (0.375 in.) and length 211.3 mm (8.318 in.). The inner capsule is 7.94 mm (0.3125 in.) in diameter by 207.4 mm (8.164 in.) long. End plugs on both capsules are sealed by tungsten inert gas welds. Wall thickness is 0.51 mm (0.020 in.) for both capsules. Base plugs are 1.02 mm (0.040 in.) thick; closure plugs are 1.57 mm (0.62 in.) thick. Source is to be manufactured in accordance with attached J.L. Shepherd & Associates Drawing Nos. A-0109-R and A-0109-R-CS-1.
3. Radioactive Contents - No more than 81.4 TBq (2200 Ci) of Co-60 in the form of 6.35 mm (0.25 in.) diameter nickel-plated metal rods. Stainless steel spacers are used to fill any 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.

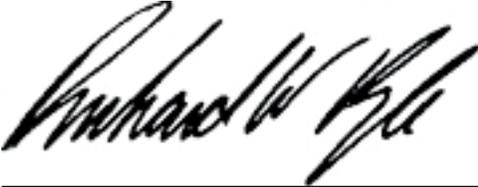
¹ "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency(IAEA), Vienna, Austria.

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

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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:

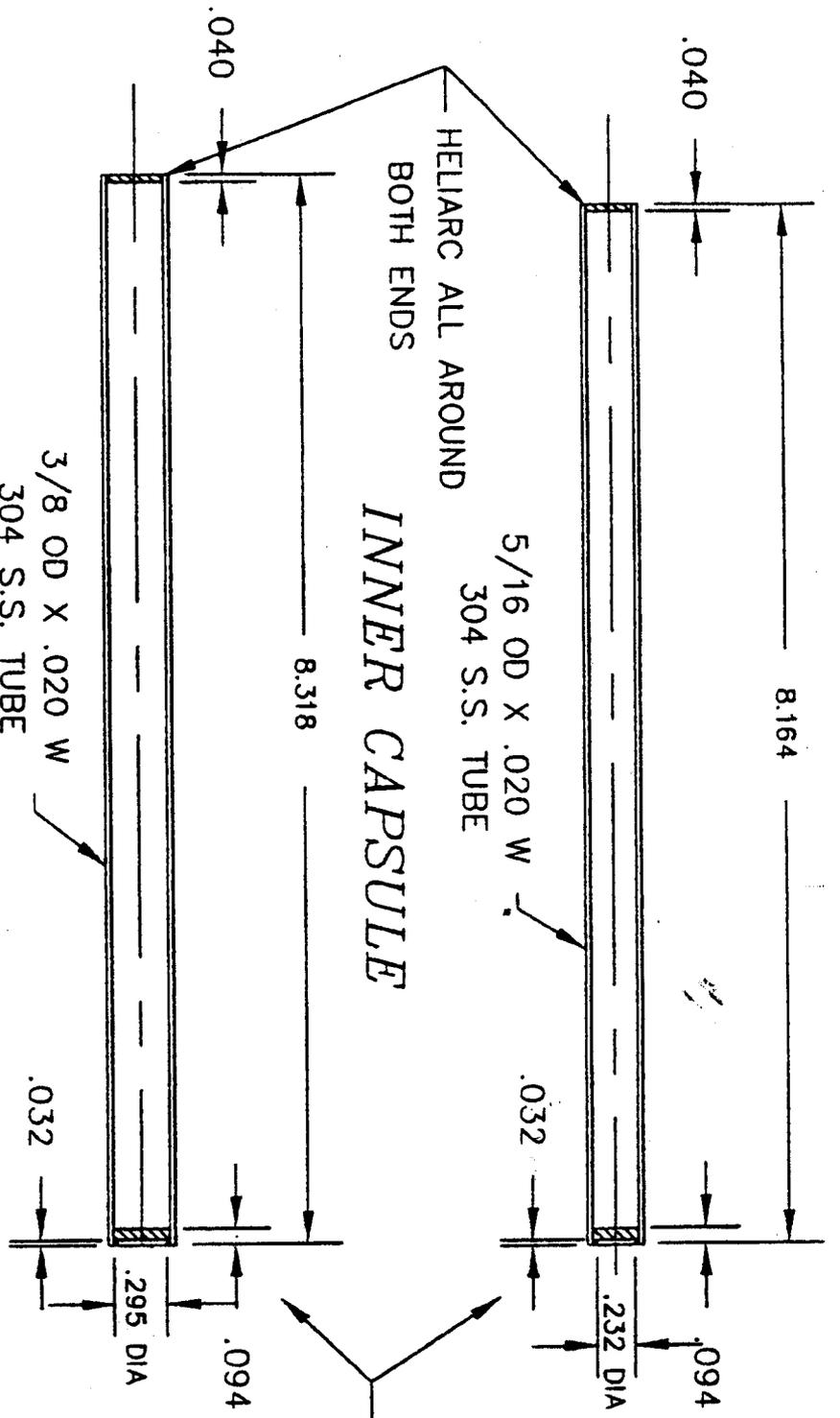


Aug 23 2016

(DATE)

 _____
William Schoonover
Acting Associate Administrator for Hazardous Materials Safety

Revision 4 - Issued to extend the expiration date.



.094 REF
 END CAP DETAIL
 INNER & OUTER CAPSULE
 THIS END - INSERT + WELD END
 CAPS AFTER LOADING W/Co-60

INNER CAPSULE
OUTER CAPSULE

5/16 OD X .020 W
 304 S.S. TUBE

3/8 OD X .020 W
 304 S.S. TUBE

NOTES:

1. END CAPS - 304 SS
2. SOURCES CERTIFIED "SPECIAL FORM"
3. END CAPS HAVE .002 REGISTER
.001 CLEARANCE FIT
4. BEFORE LOADING, 1 END OF EA TUBE
WELDED & HELIUM LEAK TESTED TO SENSITIVITY
OF 1×10^{-6} CC/MIN
5. REMOVEABLE CONTAMINATION (LEAK TEST)
AFTER LOADING $\leq 5 \times 10^{-3}$ μ ci
6. SCRIBE / ENGRAVE 3/32 HIGH LETTERS:

JLS 7810-109R, _____ CI Co-60
 C/M/ DATE _____

J. L. SHEPHERD and Associates			
DRAWN BY J. TRAN	DATE 09-10-96	APPROVED BY 	SCALE NONE
7810-109R SERIES Co-60 SOURCE CAPSULE			
MODEL 109 R		A-0109-R	

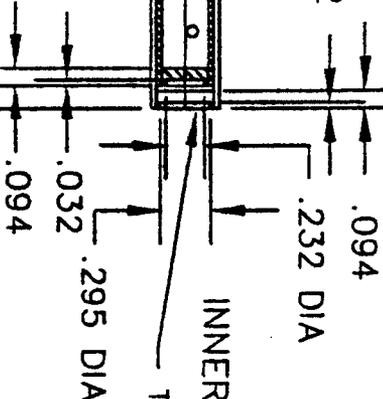
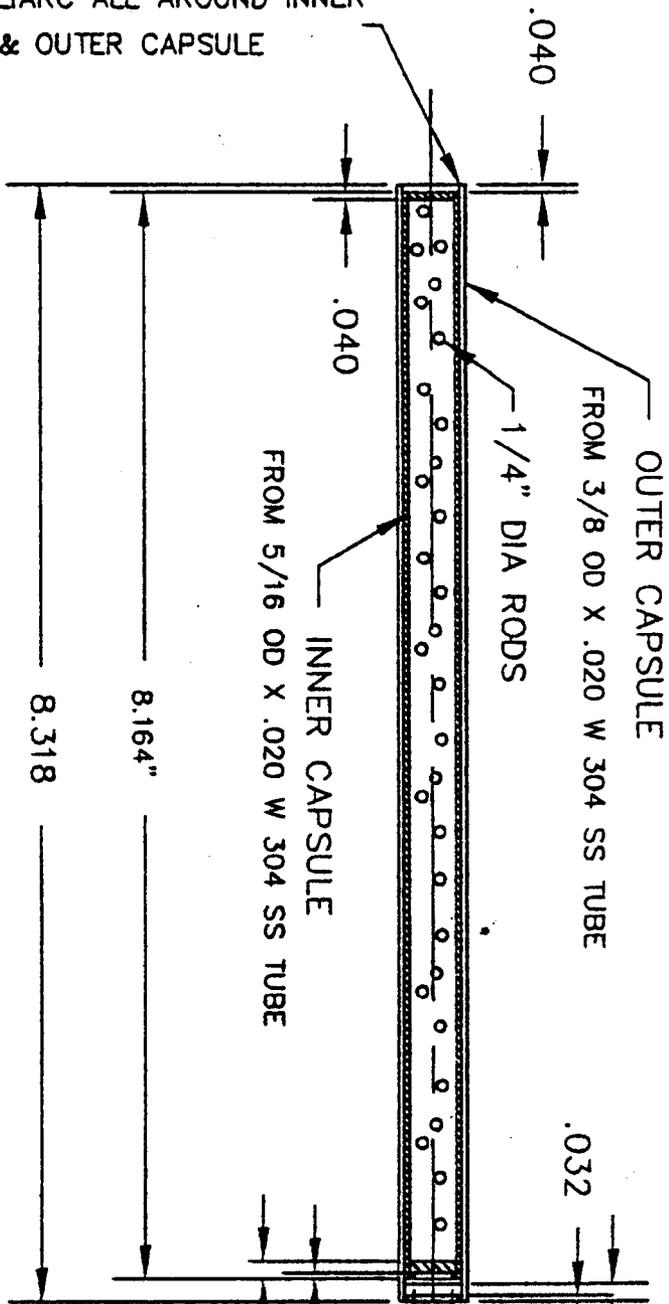
HELIARC ALL AROUND INNER
& OUTER CAPSULE

NOTES:

1. END CAPS - 304 SS
2. SOURCES CERTIFIED "SPECIAL FORM"
3. END CAPS HAVE .002 REGISTER
.001 CLEARANCE FIT
4. BEFORE LOADING, 1 END OF EA TUBE
WELDED & HELIUM LEAK TESTED TO SENSITIVITY
OF 1×10^{-6} CC/MIN
5. REMOVEABLE CONTAMINATION (LEAK TEST)
AFTER LOADING $\leq 5 \times 10^{-3}$ μ CI
6. SCRIBE / ENGRAVE 3/32" HIGH LETTERS:

JLS 7810-109 R. _____ CI Co-60

S/N _____ DATE _____



.094 REF
END CAP DETAIL
INNER & OUTER CAPSULE
THIS END - INSERT
& WELD END CAPS
AFTER LOADING
WITH Co-60

J. L. SHEPHERD and Associates

DRAWN BY D. TRAN	DATE 09-10-96	APPROVED BY <i>[Signature]</i>	SCALE NONE
7810-109R SERIES Co-60 SOURCE CAPSULE			
MODEL 109R		A-0109-R-CS-1	



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Hazardous Materials
Safety Administration**

CERTIFICATE NUMBER: USA/0526/S-96, Revision 4

ORIGINAL REGISTRANT(S):

Ms. Mary Shepherd
Vice President
J.L. Shepherd & Associates
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San Fernando, 91340-1822
USA