



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration

East Building, PHH-23  
1200 New Jersey Ave, SE  
Washington, D.C. 20590

**COMPETENT AUTHORITY CERTIFICATION FOR A  
TYPE B(U)  
RADIOACTIVE MATERIALS PACKAGE DESIGN  
CERTIFICATE USA/9157/B(U)-96, REVISION 12**

The Competent Authority of the United States certifies that the radioactive material package design described in this certificate satisfies the regulatory requirements for a Type B(U) package 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. IR-100.
2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9157, Revision 17 (attached).
3. 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 Engineering and Research, (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, 2012 Edition, No. SSR-6" 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/9157/B(U)-96, REVISION 12**

- d. Records of Management System activities required by Paragraph 306 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.
4. Marking and Labeling - The package shall bear the marking USA/9157/B(U)-96 in addition to other required markings and labeling.
5. Expiration Date - This certificate expires on October 31, 2024.

This certificate is issued in accordance with paragraph(s) 810 of the IAEA Regulations and Section 173.471 of Title 49 of the Code of Federal Regulations, in response to the October 8, 2019 petition by Industrial Nuclear Company, Inc., San Leandro, CA, and in consideration of other information on file in this Office.

Certified By:



William Schoonover  
Associate Administrator for Hazardous  
Materials Safety

October 31, 2019  
(DATE)

Revision 12 - Issued to revalidate U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9157, Revision 17.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER 9157	b. REVISION NUMBER 17	c. DOCKET NUMBER 71-9157	d. PACKAGE IDENTIFICATION NUMBER USA/9157/B(U)-96	PAGE 1	PAGE 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>Industrial Nuclear Company<br>14320 Wicks Blvd.<br>San Leandro, CA 94577 | b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION<br>Industrial Nuclear Company application, Revision<br>No. 4, dated June 2015, 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.: IR-100
- (2) Description

The Model No. IR-100 package is approximately 8.87 inches long, 4.5 inches wide, and 8.5 inches high. The radioactive material contents consist of Iridium-192 or Selenium-75 in source assemblies that meet the requirements for special form material. The source assemblies are positioned within a zircalloy or titanium "S" tube within the IR-100. The "S" tube is surrounded by a shield assembly made of depleted uranium. The uranium shield assembly is encased in a stainless steel housing. The space between the uranium shield assembly and the stainless steel casing is filled with a rigid polyurethane foam. The maximum weight of the IR-100 exposure device is 53 pounds and the maximum shield weight is 38 pounds.

(3) Drawings

The packaging is constructed in accordance with Industrial Nuclear Company Drawing Nos.: IR 100-1A, Rev. 5 and IR 100-1B, Rev. 3.

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(b) Contents

(1) Type and form of material

Iridium-192 or Selenium-75 as sealed sources that meet the requirements of special form radioactive material.

(1) Maximum quantity of material per package

120 (output) curies

Output curies are determined in accordance with American National Standard N432-1980, "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography."

6. The source must be secured in the shielded position of the packaging by the shipping plug, source assembly lock, and lock cap. The shipping plug, source assembly lock, and lock cap used must be fabricated of materials capable of resisting a 1475°F fire environment for one-half hour and maintaining their positioning function. The ball stop of the source assembly lock must engage the locking device. The flexible cable of the source assembly and shipping plug must be of sufficient length and diameter to provide positive positioning of the source in the shielded position.
7. The name plate on the exposure device must be fabricated of materials capable of resisting the fire test of 10 CFR Part 71 and maintaining its legibility.
8. In addition to the requirements of Subpart G of 10 CFR Part 71:
  - (a) The package must meet the Acceptance Tests and Maintenance Program of Section 8 of the application; and
  - (b) Each package shall be operated and prepared for shipment in accordance with the operating procedures in accordance with Section 7 of the application.
9. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
10. Revision No. 16 of this certificate may be used until October 31, 2019.
11. Expiration date: October 31, 2024.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

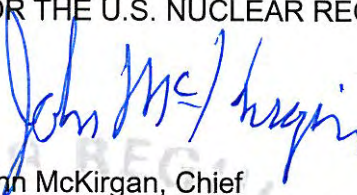
1. a. CERTIFICATE NUMBER 9157	b. REVISION NUMBER 17	c. DOCKET NUMBER 71-9157	d. PACKAGE IDENTIFICATION NUMBER USA/9157/B(U)-96	PAGE 3	PAGES OF 3
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REFERENCES

Industrial Nuclear Company application dated June 2015.

Supplements dated: July 8, August 6, 2015; February 16, 2017; July 15, 2019.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



John McKirgan, Chief  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Date: October 1, 2019



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

East Building, PHH-23  
1200 New Jersey Ave, SE  
Washington, D.C. 20590

**CERTIFICATE NUMBER:** USA/9157/B(U)-96

**ORIGINAL REGISTRANT(S) :**

Department of Energy  
U.S. Department of Energy  
1000 Independence Ave, SW  
EM-60  
Washington, DC, 20585  
USA

Source Production and Equipment Company, Inc.  
113 Teal Street  
St. Rose, LA, 70087  
USA

Industrial Nuclear Company, Inc.  
14320 Wicks Blvd.  
San Leandro, CA, 94577  
USA

Bonded Inspections Incorporated  
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Garland, TX, 75042  
USA

CIS-US (Pharmalucence)  
10 DeAngelo Drive  
Bedford, MA, 01730  
USA

Western Industrial X-Ray  
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393 South Main

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Vital Inspection Professionals  
180 Airpark Industrial Road  
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RLN Industries  
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Isoflex Radioactive  
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