



Certificate

CDN/E044/-96 (Rev. 22)

Endorsement of Transport Package Design

No. USA/9036/B(U)-96 (Rev. 17)

The transport package design identified below is certified by the Canadian Nuclear Safety Commission pursuant to paragraph 21(1)(h) of the *Nuclear Safety and Control Act* and Subsection 10(1) of the *Packaging and Transport of Nuclear Substances Regulations*, 2015 and to the IAEA's *Regulations for the Safe Transport of Radioactive Material*, 2012 Edition.

REGISTRATION OF USE OF PACKAGES

All users of this authorization shall register their identity in writing with the Canadian Nuclear Safety Commission prior to the first use of this authorization and shall certify that they possess the instructions necessary for preparation of the package for shipment.

PACKAGE IDENTIFICATION

Designer: **Source Production & Equipment Co., Inc.**

Make/Model: **C-1 Source Changer**

Mode of Transport: **Air, Sea, Road, Rail**

IDENTIFICATION MARK

The package shall bear the competent authority identification mark "**USA/9036/B(U)-96**".

PACKAGE DESCRIPTION

The package as shown on attached Drawing Nos. B322000 (Rev. 3) and B311000, Sheets 2 and 5, (Rev. 2); consists of a rectangular box of 3 mm thick steel with dimensions 190 mm wide by 190 mm deep by 230 mm high and of a polyurethane foam filled drum overpack. The inner receptacle consists of a depleted uranium shield equipped with two closed bottom Zircaloy "J" tubes, each of which may house one special form source assembly.



The configuration of the package is as follows:

Shape:	Drum	Shielding:	Depleted Uranium
Mass:	45 kg	Outer Casing:	Steel
Length:	n/a	Height:	521 mm
Width:	n/a	Diameter:	368 mm

AUTHORIZED RADIOACTIVE CONTENTS

This package is authorized to contain not more than two sealed source assemblies with a combined output activity* of not more than 11.1 TBq (300 Ci) of Iridium 192, Selenium 75 or Ytterbium 169, encapsulated in a sealed source with a valid special form radioactive material certificate. Authorized source assemblies are:

- i) QSA Global Source Model Nos. A424-9 and 969;
- ii) SPEC Model Nos. B-16F, B-16T, G-1T, G-1F, G-3F, G-40F, G-40T, G-60, T-5 and T-5F; and
- iii) Industrial Nuclear Company Model INC 32.

* Output activity is determined by measuring the source output at 1 meter and expressing its activity in curies derived from the following: 0.48 R/h-Ci Iridium-192 at 1 meter.

MANAGEMENT SYSTEM

The management system for the design, manufacture, testing, documentation, use, maintenance and inspection of the package shall be in accordance with:

- Certificate No. USA/9036/B(U)-96 (Rev. 17)
- Packaging and Transport of Nuclear Substances Regulations, 2015

SHIPMENT

The preparation for shipment of the package shall be in accordance with:

- Certificate No. USA/9036/B(U)-96 (Rev. 17)
- Packaging and Transport of Nuclear Substances Regulations, 2015

This certificate is valid only in Canada.

E. Lemoine
Designated Officer pursuant to paragraph 37(2)(a) of the Nuclear
Safety and Control Act



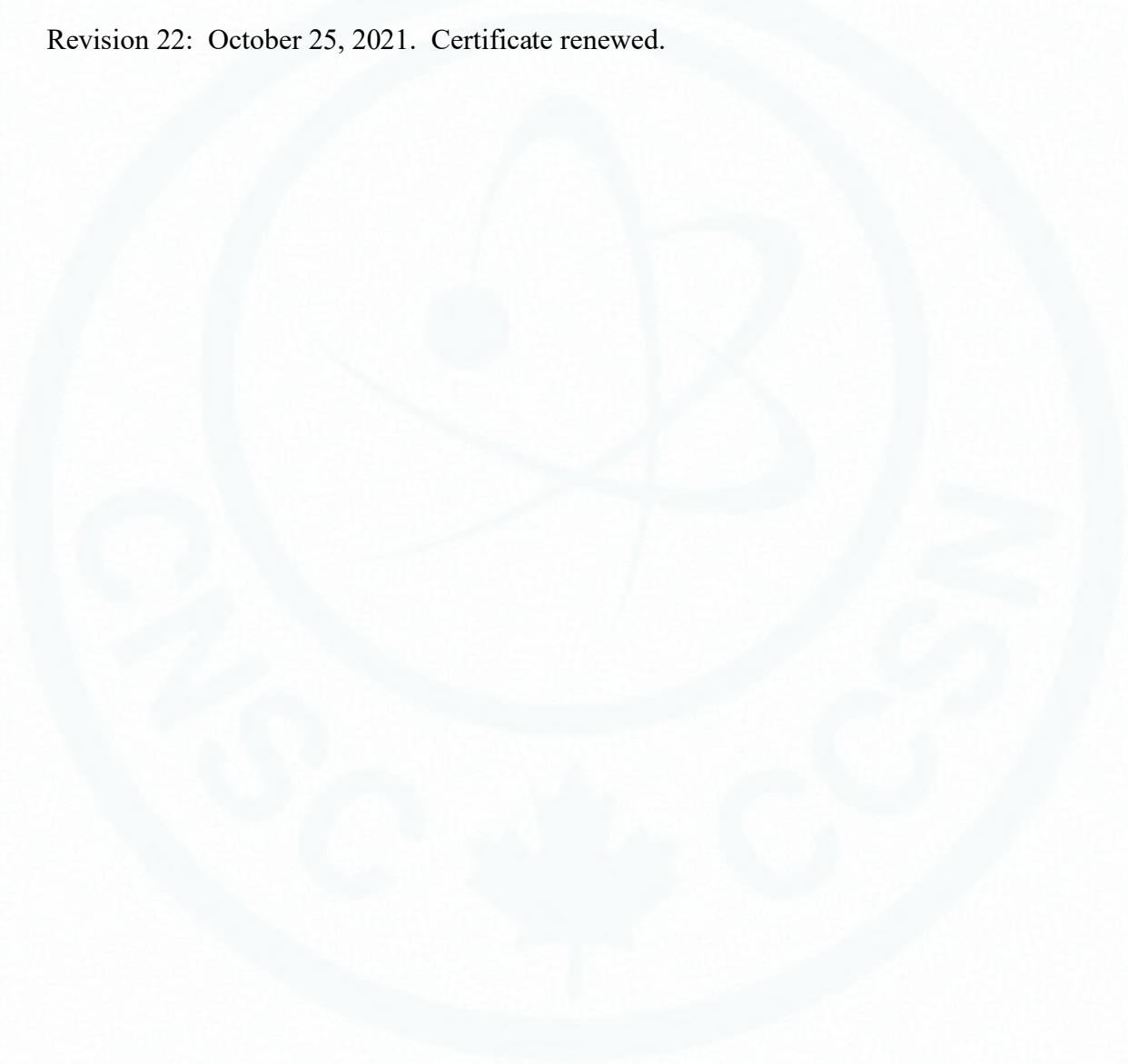
NOTES

Foreign Certificate No. USA/9036/B(U)-96, (Rev. 17) attached.

Revision 20: October 25, 2016. Certificate issued to incorporate Revision 16 of Foreign certificate.

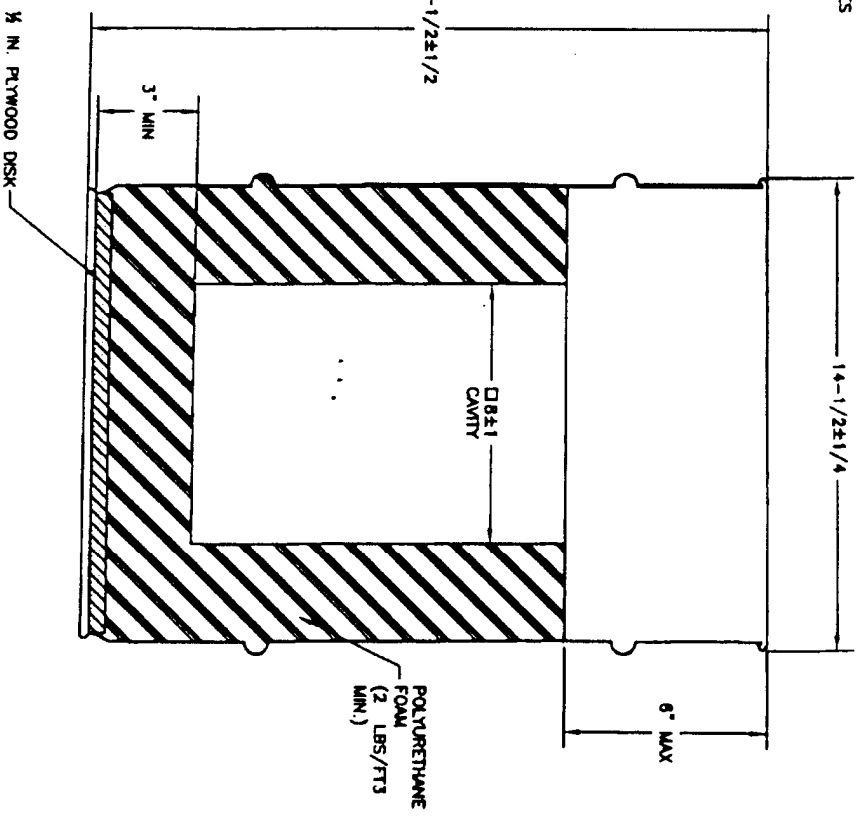
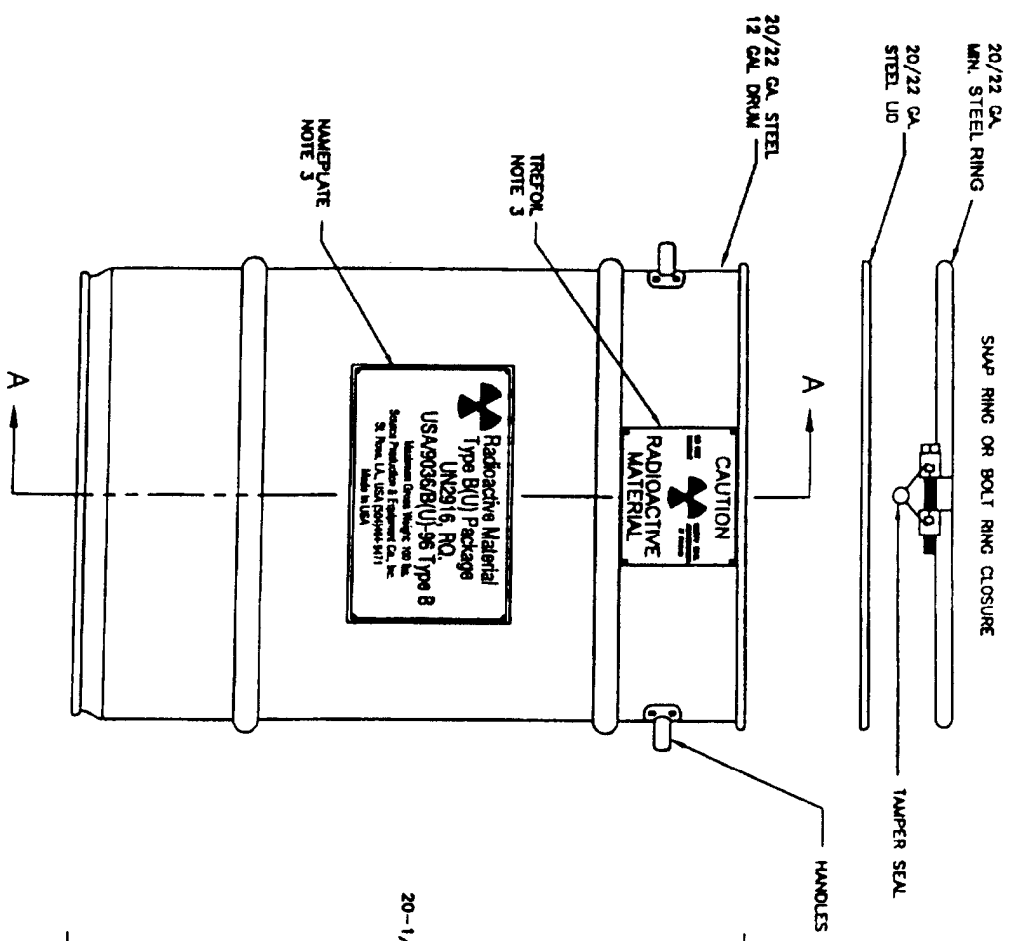
Revision 21: October 1, 2018. Certificate amended to add a source assembly model.

Revision 22: October 25, 2021. Certificate renewed.



CONTROLLED COPY NO

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
(1)	INCORPORATED ESR# 001103-2	11/8/00	S. BRND
(2)	INCORPORATED ESR# 030423-1	02/28/01	DCM RLL
(3)	INCORPORATED ESR# 030818-1	04/23/06	SJM DCM
		04/23/06	DCM
		04/21/04	SJM
		6/22/06	(LZ)



NOTES:

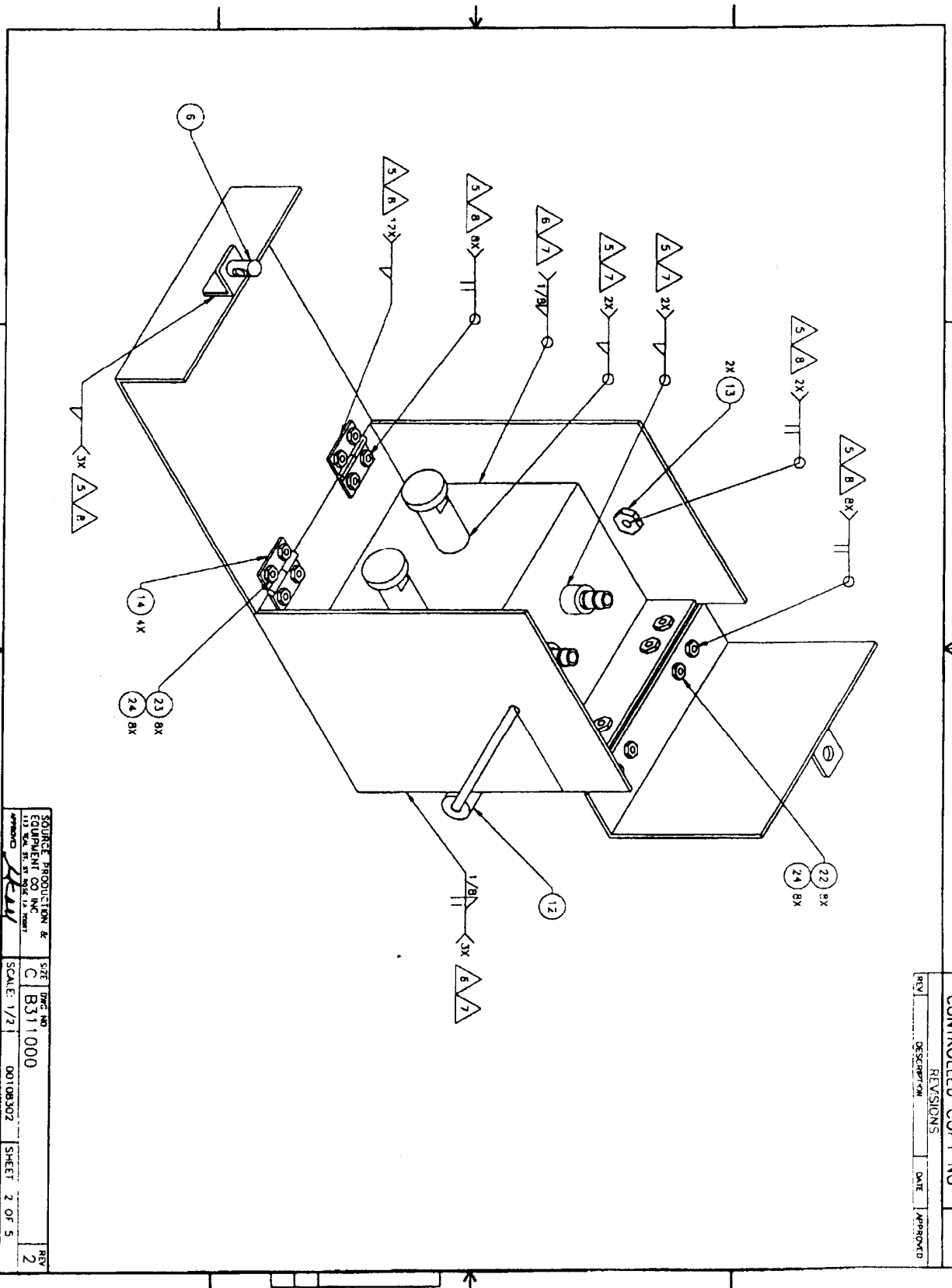
1. STEEL DRUM OVERPACK MAXIMUM WEIGHT: 22 LBS.
2. PACKAGING (C-1, OVERPACK, ASSOCIATED HARDWARE AND BRACING) MAXIMUM GROSS WEIGHT: 100 LBS.
3. THE NAMEPLATE AND TREFOL ARE FABRICATED FROM SS AND AFFIXED TO THE DRUM WITH SS RIVETS. LOCATIONS MAY VARY.

HIDDEN LINES NOT SHOWN

SECTION A-A
LID AND RING CLOSURE NOT SHOWN

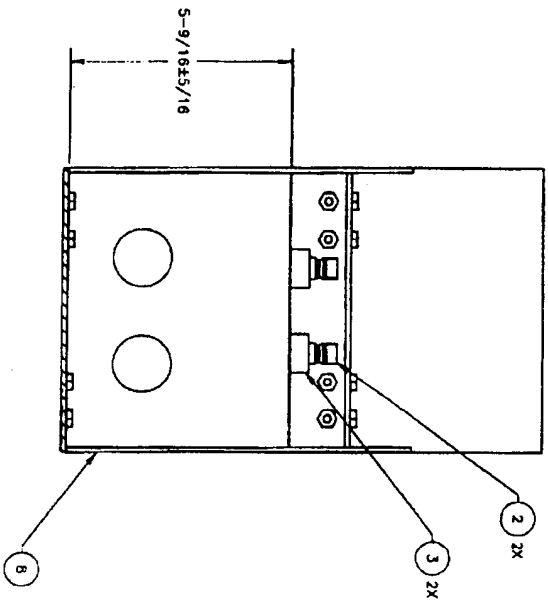
SOURCE PRODUCTION & EQUIPMENT CO., INC. 113 TEAL ST. ST ROSE, LA 70087	
NAME: STEEL DRUM OVERPACK- SPEC: C-1 C 8322000	SCALE: 3/8 00108503 SHEET 1 OF 1
APPROVED: [Signature] DATE: 6/28/00	CHECKED: [Signature] DATE: 6/20/00
DRAWN: [Signature] DATE: 7/6/00	APPROVED: [Signature] DATE: 7/6/00

CONTROLLED COPY NO	
REV	DESCRIPTION
DATE	APPROVED

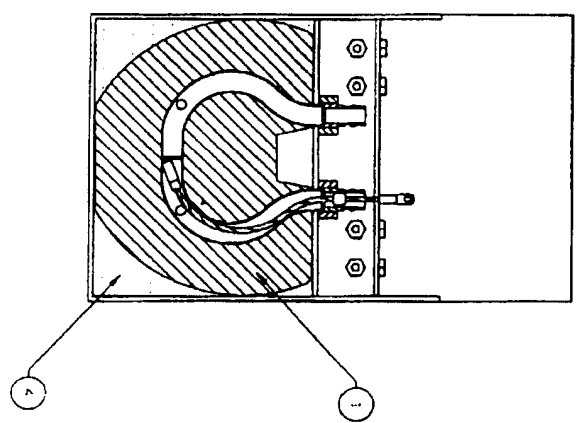


SOURCE PRODUCTION & EQUIPMENT CO. INC. 111 N. W. ST. SUITE 111, TAMPA, FL 33604	
SIZE	DRG. NO.
C	B311000
SCALE: 1/2	00108302
SHEET	2 OF 5
REV	2

CONTROLLED COPY NO.	
REV	REVISIONS
DESCRIPTION	DATE
APPROVED	



SECTION B-B
SEE SHEET 3
HANDLE AND HIDDEN
LINES NOT SHOWN



SECTION C-C
SEE SHEET 3
HANDLE AND HIDDEN
LINES NOT SHOWN

EQUIPMENT PRODUCTION & EQUIPMENT		STATE	DWG. NO.
113 7th St. SE, Box 14, CORVALLIS, OREGON		C	B311000
APPROVED		SCALE: 1/2"	00108302
			SHEET 5 OF 5
			REV 2



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/9036/B(U)-96, REVISION 17**

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 Agency¹ and the United States of America² The package design is approved for use within the United States for import and export shipments made in accordance with applicable international and domestic transport regulations.

1. Package Identification - C-1.
2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9036, Revision 14 (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.

¹ "Regulations for the Safe Transport of Radioactive Material, 2012 Edition, No. SSR-6" 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/9036/B(U)-96, REVISION 17

- 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.
 - d. Records of Management System activities required by Paragraph 306 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.
4. Marking and Labeling - The package shall bear the marking USA/9036/B(U)-96 in addition to other required markings and labeling.
5. Expiration Date - This certificate expires on October 31, 2026. Previous editions which have not reached their expiration date may continue to be used.

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 5, 2021 petition by Source Production and Equipment Company, Inc., St. Rose, LA, and in consideration of other information on file in this Office.

Certified By:



William Schoonover
Associate Administrator for Hazardous
Materials Safety

October 06, 2021
(DATE)

Revision 17 - Issued to endorse U.S. Nuclear Regulatory Commission
Certificate of Compliance No. 9036, Revision 14.

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9036	14	71-9036	USA/9036/B(U)-96	1 OF	3

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

- | | |
|--|--|
| a. ISSUED TO (<i>Name and Address</i>)
Source Production and
Equipment Company, Inc.
113 Teal Street
St. Rose, LA 70087-9691 | b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION
Source Production and Equipment Company, Inc.
application dated February 28, 2001, as supplemented. |
|--|--|

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.: C-1
- (2) Description

The packaging consists of a steel inner unit inside an outer overpack. The inner unit is a rectangular box approximately 9" high x 7.5" wide x 7.5" deep around a depleted uranium shield. All fittings and source locking components are protected and enclosed within the 1/8" carbon steel outer shell. The inner receptacle consists of a uranium shield equipped with two closed bottom Zircalloy or titanium "J" tubes, each of which may house one "pigtail type" special form source. The overpack is a 12-gallon, 20- or 22-gage steel drum partially filled with foam. The weight of the inner unit is 51 to 70 lbs. The weight of the overpack is 19 to 22 lbs. Up to 8 lbs. of ancillary equipment may be included within the overpack. The maximum gross weight of the package is 100 lbs.

(3) Drawings

The packaging is constructed in accordance with Source Production and Equipment Company, Inc., Drawing Nos. B322000, Rev. (3); B311000, Rev. (2); B311001, Rev. (1); and B311002, Rev. (0).

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9036	14	71-9036	USA/9036/B(U)-96	2 OF	3

5.(b) Contents

(1) Type and form of material

Iridium-192, Selenium-75, and Ytterbium-169 as sealed sources that meet the requirements of special form radioactive material.

(2) Maximum quantity of material per package

Two sealed sources with a combined activity not to exceed 300 curies (11.1 TBq) (output)

Output curies are determined by measuring the source output at 1 meter and expressing its activity in curies derived from the following: 0.48 R/(h-Ci) Iridium-192.

6. Tungsten shield pads, with dimensions up to approximately 2-inches diameter and ½-inch thick, may be welded to the inside surface of the source changer housing.
7. The nameplate shall be fabricated of materials capable of resisting the fire test of 10 CFR Part 71 and maintaining their legibility.
8. 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 Section 7.0 of the application, as supplemented; and
 - (b) The package shall meet the Acceptance Tests and be maintained in accordance with the Maintenance Program of Section 8.0 of the application, as supplemented.
9. The packaging authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
10. Revision No. 13 of this certificate may be used until October 31, 2021.
11. Expiration date: October 31, 2026.

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9036	14	71-9036	USA/9036/B(U)-96	3 OF	3

REFERENCES

Source Production and Equipment Company, Inc., applications dated September 27, 2000, and February 28, 2001.

Supplements dated: April 11, and May 11, 2001; May 1, June 14, and June 23, 2006; May 26, 2011; May 31, 2016; and September 28, 2021.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

**John B.
McKirgan**

Digitally signed by John B.
McKirgan

Date: 2021.10.01 09:38:51 -04'00'

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

Date: October 1, 2021





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

U.S. Department of
Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

CERTIFICATE NUMBER: USA/9036/B(U)-96

ORIGINAL REGISTRANT(S) :

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MDS Nordion
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Global X-Ray & Testing Corporation
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