



U.S. Department
of Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

**IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIALS
CERTIFICATE NUMBER USA/0696/S-96, REVISION 7**

1200 New Jersey Avenue, S.E.
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 United States of America² for the transport of radioactive material.

1. Source Identification - Los Alamos National Laboratory (LANL) Model II Source Capsule (formerly QSA Global Inc. Model II Source Capsule).
2. Source Description - Cylindrical single over-encapsulation consisting of a capsule body, sealing plug, impact plug, snap ring, and cap made of stainless steel that provides a metal-to-metal seal when assembled. Approximate outer dimensions are 76.2 mm (3.0 in.) in diameter and 298.5 mm (11.75 in.) in length. Minimum wall thickness is 7.62 mm (0.3 in.). Final assembly shall be in accordance with either attached LANL Drawing 90Y-219998, Rev. H or AEA Technology QSA, Inc. Drawing No. R20047, Rev. B.
3. Radioactive Contents - The capsule described by this certificate is authorized to contain any one of the following single radionuclides, the sole pair of radionuclides, or either one of the two sets of six (6) radionuclides, in the chemical forms identified, and limited to the activities shown, in the table below. The radioactive material is limited to solid form in stainless steel capsules, between layers of non-radioactive stainless steel, or affixed to non-radioactive stainless steel by electroplating or other means. The maximum mass of the contents is limited to 2,500 grams.

Radionuclide(s)	Maximum Activity(ies)	Chemical/Physical Form
Americium-241	9.99 TBq (270.0 Ci)	Oxide or oxide incorporated into a ceramic enamel
Americium-241:Target (Be, Li, C, F, or B)	9.99 TBq (270.0 Ci)	Oxide mixed with target material pressed into a solid pellet or intermetallic
Americium-241:Be AND Cesium-137	Am-241 - 37.0 GBq 1.0 (Ci) Cs-137 - 7.4 GBq (200.0 mCi)	Am-241 - Oxide mixed with beryllium powder pressed into a solid pellet or intermetallic Cs-137 - Cesium in silicate glass matrix, sulfate pellet, compressed anhydrous chloride pellet or aluminosilicate ceramic pellet

¹ "Regulations for the Safe Transport of Radioactive Materials, 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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Radionuclide(s)	Maximum Activity(ies)	Chemical/Physical Form
Californium-252	199.8 GBq (5.4 Ci)	Oxide or oxide in sintered palladium metal to form a cermet
Cesium-137	200.0 TBq (5405.4 Ci)	Cesium in silicate glass matrix, sulfate pellet, compressed anhydrous chloride pellet or aluminosilicate ceramic pellet
Cobalt-60	40.0 TBq (1081.1 Ci)	Metal
Curium-244	20.0 TBq (540.5 Ci)	Oxide or oxide incorporated into a ceramic enamel
Iridium-192	37.0 TBq (1000.0 Ci)	Metal
Neptunium-237	20.0 TBq (540.5 Ci)	Metal, alloy, or oxide
Plutonium-238	9.99 TBq (270.0 Ci)	Oxide or oxide incorporated into ceramic or refractory composite plate metal
Plutonium-238:Target (Be, Li, C, F, or B)	9.99 TBq (270.0 Ci)	Metal or oxide mixed with target material pressed into a solid pellet
Plutonium-239 AND Plutonium-238 AND Plutonium-240 AND Plutonium-241 AND Plutonium-242 AND Americium-241	Pu-239 - 3.7 TBq (100 Ci) Pu-238 - 9.99 TBq (270 Ci) Pu-240 - 9.99 TBq (270 Ci) Pu-241 - 40.0 TBq (1081.1 Ci) Pu-242 - 9.99 TBq (270 Ci) Am-241 - 9.99 TBq (270 Ci)	Oxide incorporated into a ceramic, refractory composite, metal foil, or metal plated to substrate

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Radionuclide(s)	Maximum Activity(ies)	Chemical/Physical Form
Plutonium-239:Target (Be, Li, C, F, or B) AND Plutonium-238 AND Plutonium-240 AND Plutonium-241 AND Plutonium-242 AND Americium-241	Pu-239 - 3.7 TBq (100 Ci) Pu-238 - 9.99 TBq (270 Ci) Pu-240 - 9.99 TBq (270 Ci) Pu-241 - 40.0 TBq (1081.1 Ci) Pu-242 - 9.99 TBq (270 Ci) Am-241 - 9.99 TBq (270 Ci)	Metal or oxide mixed with target material pressed into a solid pellet
Strontium-90	37.0 TBq (1000.0 Ci)	Strontium titanate, strontium fluoride, oxide in ceramic enamel or fluoride in aluminum or tin antimony metal matrix
Radium-226	370.0 GBq (10.0 Ci)	Sulfate, chloride, or halide carbonate
Radium-226:Be	370.0 GBq (10.0 Ci)	Sulfate, chloride, or halide carbonate mixed with beryllium target material

4. Special Conditions -

- a. Capsule assembly shall be conducted in accordance with either LANL procedure OSR-OP-190, R.1, Assembly Procedure for LANL Special Form Capsule, or QSA Global Inc. H1070, Rev. 6, Assembly Procedure for the Model II Special Form Capsule.
- b. Capsule components must have been obtained from either LANL or QSA Global Inc.
- c. A copy of either the applicable, completed Traveler Sheet required by LANL procedure OSR-OP-190, R.1, Assembly Procedure for LANL Special Form Capsule, or the Record Sheet required by QSA Global Inc. H1070, Rev. 6, Assembly Procedure for the Model II Capsule, shall be attached to this IAEA Certificate of Competent Authority in order to demonstrate the regulatory requirements for special form radioactive material have been met.

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5. Quality Assurance -

- a. Each assembler of the Model II Source Capsule shall register their identity, in writing, and provide evidence of a Quality Assurance program based on international or national standards to the Office of Hazardous Material Technology (PHH-23), Pipeline and Hazardous Materials Administration, U.S. Department of Transportation, Washington, D.C. 20590-0001.
- b. Assembly of the Model II Source Capsule shall be performed under the Quality Assurance program registered with the U.S. DOT.
- c. 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 and consignees in the United States exporting shipments under this certificate shall satisfy the requirements of Subpart H of 10 CFR 71.

6. Expiration Date - This certificate expires on November 30, 2020.

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 petition and information dated January 12, 2015 submitted by the U.S. Department of Energy, Washington, DC, and in consideration of other information on file in this Office.

Certified by:

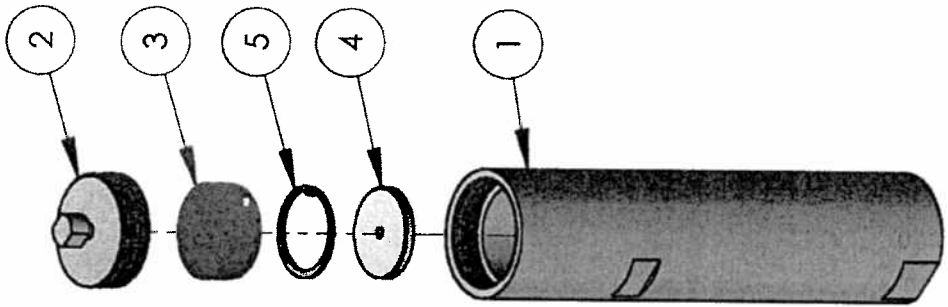


Dr. Magdy El-Sibaie
Associate Administrator for
Hazardous Materials Safety

NOV 17 2015

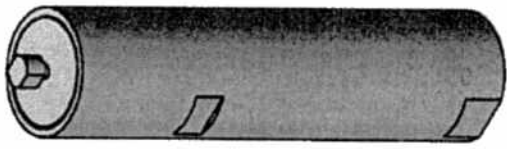
(DATE)

Revision 7 - Issued to extend the expiration date.

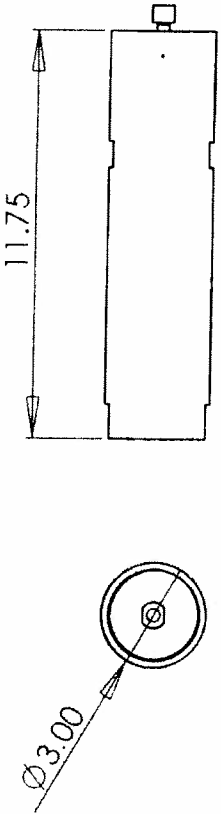


EXPLODED VIEW
SCALE: NONE

SIMPLIFIED SKETCH
DRAWING



ISOMETRIC VIEW
SCALE: NONE



- NOTES:
1. THREAD DEPTH .750.
 2. THREAD, 2 1/2-10 ACME 2G.
 3. ITEM (4) LUBRICANT, DUPONT, KRYTOX LVP FLOURINATED GREASE.

ITEM NO.	PART NUMBER	MATERIAL	Default/ QTY.
1	CAPSULE CYLINDER, LANL P/N 90Y-219998-2	STAINLESS STEEL	1
2	219998-1_AF0Copy		1
3	219998-3_AF0Copy		1
4	IMPACT_PLUG_AF0Copy		1
5	RET_RING-N5000-206_AF0Copy		1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL:
ANGULAR: MACH: BEND: 3
TWO PLACE DECIMAL: 3
THREE PLACE DECIMAL: 3

INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL

FINISH

NEXT ASSY USED ON APPLICATION

DO NOT SCALE DRAWING

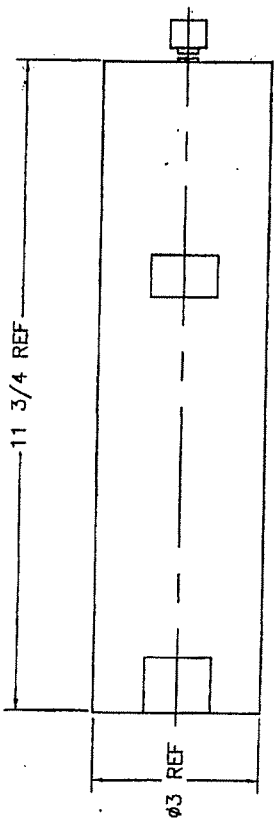
NAME: **MIKE HOOD**
TITLE: **OSR**

NAME: **DANNY MARTINEZ**
TITLE: **SOURCE CONTAINMENT CAPSULE MODULE II**

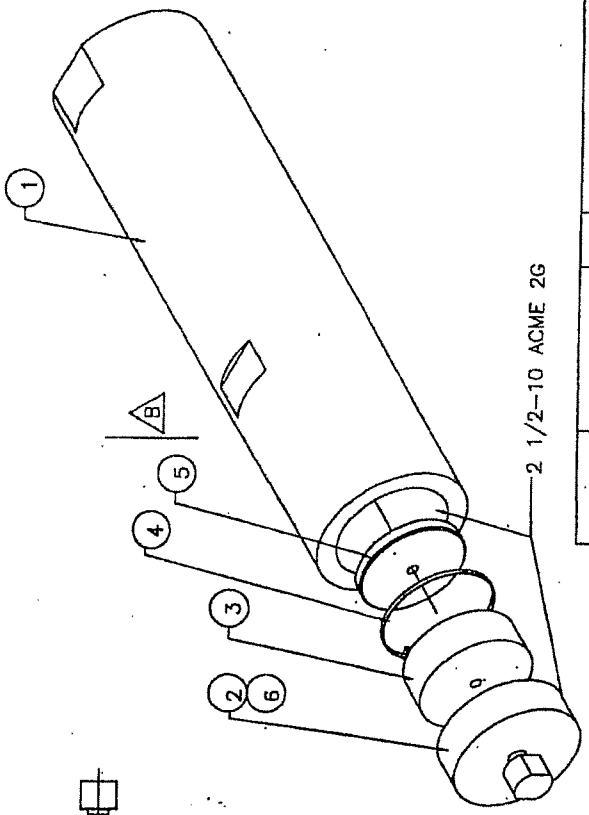
SIZE DWG. NO. **A 90Y-219998** REV **H**

SCALE: NONE SHEET 1 OF 1

5 4 3 2 1



CAPSULE AFTER ASSEMBLY
(KNOB SHEARED OFF)



ITEM NO.	PART NAME	QTY.	DESCRIPTION
6	LUBRICANT	AR	Dupont Krytox LVP Fluorinated Grease
5	IMPACT PLUG	1	ST. STEEL
4	SNAP RING	1	ST. STEEL
3	SEALING PLUG	1	ST. STEEL
2	CAP	1	ST. STEEL
1	BODY	1	ST. STEEL

NOTES:

1. CAP AND BODY THREAD DEPTH 3/4"



DESCRIPTIVE DRAWING

UNLESS OTHERWISE SPECIFIED
TOLERANCES ARE IN INCHES
FINISHES: XX ± 0.12
XXX ± 0.08
XXXX ± 0.05

APPROVALS: *L. By* *efefor* DATE: *1/5/86 US*

APPROVALS: *R. Baker* DATE: *1/5/86 US*

SIZE DWG. NO. R20047

SCALE: NTS

SHEET 1 OF 1

REV B

5 4 3 2 1



U.S. Department
of Transportation

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1200 New Jersey Avenue SE
Washington, D.C. 20590

**Pipeline and
Hazardous Materials
Safety Administration**

CERTIFICATE NUMBER: USA/0696/S-96, Revision 7

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