PDR - RETURN TO 39C-SS 71-9135

A DIVISION OF
NUCLEAR SYSTEMS

Gamma Industries 2255 TED DUNHAM AVENUE P. O. BOX 2543 BATON ROUGE, LOUISIANA 70821
TEL. (504) 388-0800 TELEX 586-473

June 15, 1982

Mr. Charles E. MacDonald, Chief
U.S. Nuclear Regulatory Commission
Transportation Branch
Directorate of Licensing
Washington, DC 20545

Dear Mr. MacDonald:

Gamma Industries has completed a test on capsules used as the primary containment vessel for Radioactive Materials in Type A and Type B transportation packages which we use. We request that the following package be certified as (U) Unilateral as defined by IAEA Transport Regulations:

USA/9135/B( )

This package has previously been tested and qualified as Type B in accordance with USA 10 CFR 71 Transportation Regulations. The enclosed test results qualify the above package as Type B (U) as required by IAEA Safety Series No. 6, 1973 Revised Edition, as amended.

Your earliest approval of this request is most desirable.

Sincerely,

GAMMA INDUSTRIES, A DIVISION
OF NUCLEAR SYSTEMS, INC.

Donald H. Riddle

Donald H. Riddle
Vice President &
General Manager

Encls:

cc: Mr. Rick Rawl

FEE EXEMPT
All for classification sheet

PROGRESS THROUGH INNOVATION

20993

Additional IAEA Test Results

I. IAEA Requirements for Type B (U) Packages Additional to 10 CFR 71:

P. 233. The Package shall be so designed that if it were subjected to the tests referred to below, it would:

a. With regard to the tests specified in Section VII, paras 709 - 714 (Tests for demonstrating ability to withstand normal conditions of transport), restrict the loss of radioactive contents to not more than $A_2 \times 10^{-6}$ per/hour;

b. With regard to the tests specified in Section VII, paras 718 - 721 (Tests for demonstrating ability to withstand accident conditions in transport), restrict the accumulated loss of radioactive contents to not more than $A_2 \times 10^{-3}$ in a period of one week.

II. Test Results:

A. Review:

Capsules containing the Radioactive Material are considered the primary containment in the following package designs:

1. USA/6717/B
2. USA/9126/B
3. USA/9127/B
4. USA/9128/B
5. USA/9135/B (~~Under NRC review~~) *Certificate issued 4-30-82; expiration date 4-30-87.

These capsules have been tested and have been demonstrated to meet the regulatory requirements for special form radioactive material as prescribed in IAEA and USA Regulations for transport of radioactive materials. An IAEA Certificate of Competent Authority has been issued (USA/0166/S) to Gamma Inudstries for the specified encapsulations.

B. Test Results for para 233 (a), (b) of IAEA:

Sample capsules of each design were submitted to an independant testing laboratory for evaluation of performance of this specific requirement.

1. Loss rate c.c/nour

All capsules tested exhibited no leakage to a sensitivity of 1.9×10^{-10} c.c/sec or 6.84×10^{-7} c.c/hr.

2. Loss rate c.c/week

All capsules tested exhibited no leakage to a sensitivity of 1.9×10^{-10} c.c/sec or 1.15×10^{-4} c.c/week.

Therefore the following capsule types have exceeded the requirements of IAEA as stated in "Safety Series No. 6, 1973 revised edition".

Model No.	Drawing No.
VD and VD (HP)	602-7001-004
NB, NB6 and NB (HP)	602-7001-005
Single Encapsulation Universal Source	602-7001-006
Double Encapsulation Universal Source	602-7001-007
Single Encapsulation Side Weld	602-7001-008

US Department
of Transportation

Research and
Special Programs
Administration

400 Seventh Street S.W.
Washington, D.C. 20590

IAEA CERTIFICATE OF COMPETENT AUTHORITY

Special Form Radioactive Material Encapsulation

Certificate Number USA/0166/S
(Revision 2)

This certifies that the encapsulated sources, as described, when loaded with the authorized radioactive contents, have been demonstrated to meet the regulatory requirements for special form radioactive material as prescribed in IAEA 1/ and USA 2/ Regulations for the transport of radioactive materials.

I. Source Description - The sources described by this certificate are identified as the following Gamma Industries models which are constructed according to the listing drawing numbers:

Model No.	Drawing No.
VD and VD(HP)	602-7001-004
NB, NBG and NB(HP)	602-7001-005
Single Encapsulation Universal Source	602-7001-006
Double Encapsulation Universal Source	602-7001-007
Single Encapsulation Side Weld	602-7001-008

All models are welded encapsulations constructed of 300 series or ARMCO Type 17-4PH stainless steel.

II. Radioactive Contents - The authorized radioactive contents of these sources consist of not more than:

Model No.	Contents
VD and VD(HP)	300 curies of:

Barium-131	Manganese-54
Cadmium-109	Phosphorus-32
Calcium-45	Rubidium-86
Calcium-47	Selenium-75
Cesium-137	Strontium-85
Chlorine-36	Thallium-204
Chromium-51	Thulium-170
Iridium-192	Tin-113
Cobalt-60	Ytterbium-169
Iron-59	Zinc-65

II. Radioactive Contents (continued)

Model No. (con'd)	Contents (cont'd)
NB, NBG and NB(HP)	25 Curies Americium-241 30 millicuires Pa-226 500 millicuries Americum-241 and Cesium-137 mixture
Single Encapsulation Universal Source	500 curies Iridium-192 20 curies Cobalt-60
Double Encapsulation Universal Source	5000 curies Iridium-192 2000 curies Cobalt-60
Single Encapsulation Side Weld	500 curies Iridium-192 20 curies Cobalt-60

III. This certificate, unless renewed, expires September 30, 1982.

This certificate is issued in accordance with paragraph 803 of the IAEA Regulations and in response to the June 1, 1981 petition by Gamma Industries, Baton Rouge, Louisiana, and in consideration of the associated information therein.

Certified by:

R. R. Rawl June 26, 1981
(DATE)

R. R. RAWL
Chief, Radioactive Materials Branch
Office of Hazardous Materials Regulations
Materials Transportation Bureau

1/ "Safety Series No. 6, Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

2/ Title 49, Code of Federal Regulations, Part 170-178, USA

Revision 0 issued in response to the September 7, 1979, petition by Gamma Industries, Baton Rouge, Louisiana.
Revision 1 issued to add Cesium-137 to Models VD and VD(HP)
Revision 2 issued to list alternate stainless steel type.

"TRANSPORTATION APPROVALS"

Docket No. 71-9135

William O. Miller
License Fee Management Branch
Office of Administration

MATERIALS TRANSPORTATION APPROVAL CLASSIFICATION

Applicant: Gamma Industries

Approval No: 9135 Fee Category 11E

Application Dated: 6/15/82 Received: 6/22/82

Applicant's Classification: —

The above application for amendment has been reviewed by the NMSS Transportation Branch, in accordance with Section 170.31, and is classified as follows:

1. Amendments to Approvals in Fee Categories 11A through 11E

   (a) ___ Major

   (b) ___ Minor

   (c) ___ Administrative

2. Justification for reclassification: IAEA request made for DOT

3. The application was filed (a) ___ pursuant to written NRC request and the amendment is being issued for the convenience of the Commission, or (b) ___ Other (State reason): _____

Signature: R H Degarder
Transportation Branch, NMSS
Date: 6/29/82