



SIMPLIMATIC ENGINEERING COMPANY P. O. BOX 11709 LYNCHBURG, VIRGINIA 24506 PHONE 804 239-9201 TELEX 82-9408

November 17, 1987

30-29351

U.S. Nuclear Regulatory Commission, Region II
Materials Radiation Protection Section
101 Marietta Street NW
Suite 2900
Atlanta, Georgia 30323

REFERENCE: Amend Category 3J Distribution "G" License #45-24854-01

Dear Sir:

Enclosed is a check for \$230.00 and two copies of a request for an amendmant to a Category 3J Distribution "G" License #45-24854-01. Please expedite this review as there is a sale pending about January 15, 1987.

Our "Device", Model Heuft Gamma, is a gamma fill level gauge licensed under NRC Registration Document No. NR-599-D-101-G dated September 4, 1986. We wish to increase the Americium-241 source strength from 60 millicuries to 120 millicuries. The specification for the new source are shown in ATTACHMENT A. The actual specifications are for 100 millicuries; however, up to 120 millicuries is being requested to allow for manufacturing tolerance. We propose to call the new model a Heuft Gamma 100.

The only change incurred with this increase in source strength is in the radiation level in the beam which will double. No change will take place in the safety systems, the shielding, the shutter mechanism or the electronics controlling the shutter. The radiation level in the beam will increase from 125 to 250 mrad/hr at "Y" next to the source and from 17.5 to 35 mrad/hr at "X" next to the receiver. See the figure in ATTACHMENT B. The radiation profile around the "Device" will remain unchanged at less than 0.1 mrem/hr at 1 meter and less than 0.03 mrem/hr at 1.5 meters. The answers to safety issues addressed in 10 CFR 32.51(a)(2) will remain essentially unchanged.

Should there be any questions or need for additional information, please contact our consulting health physicist, Mr. John W. Cure, III, at 804/384-7003.

Sincerely yours,

William C. Butt

William C. Butt
Executive Vice-President
Operations

WCB/JWCIII/mddc

Enclosures

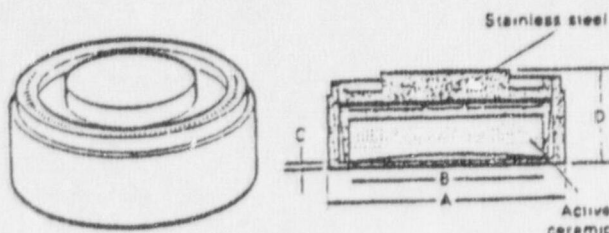
8903140309 880229
REG2 LIC30
45-24854-026 PNU

| | |
|--------------|--------------|
| Nov-7-11 | 25-218 12 18 |
| Receiver | |
| Check No. | 10343 |
| Amount | \$230 |
| Fee Category | 3J |
| Type | Amend |
| Date | 11/30/87 |
| Time | 11/30/87 |

220368 info transferred to 220377 (-02/2)

voided per Mike Lamont (noted as 220377)

Americium-241 disc source, code no. AMC.16



A = \varnothing 10,8 mm
B = \varnothing 7,5 mm
C = 0,2 - 0,25 mm
D = 6 mm

Dimensions in mm

Capsule: X.91

1. Description of the radioactive source

- 1.1 Radionuclide: Americium-241
- 1.2 Activity: 3,7 GBq (100 mCi)
- 1.3 Physical and chemical form of the radioactive material:
Am-241 incorporated in a ceramic enamel
- 1.4 Manufacturer of the source:
Amersham International plc, Amersham/England
- 1.5 Description of the capsule:
 - Capsule type: single encapsulation
 - Material: stainless steel
 - Wall thickness of window: 0,2 mm - 0,25 mm
 - Type of sealing: argonarc welded
- 1.6 Durability against mechanical and thermal influence:
ISO.2919 classification: C 64444
- 1.7 Special details:
 - Recommended working life: 15 years
 - Quality control: wipe test A, bubble test D and immersion test L
- 1.8 Details of design:
This capsule design is approved as radioactive material in special form under number GB/38/S.

10/87/Ri



Reference.....GB/38/S.....

Certificate Issue.....4.....

Certificate of Approval of Design for Special Form Radioactive Material

| | |
|--|------------------|
| Title | |
| Low Energy Photon Source - Capsule Assembly X.91 | |
| Drawing Nos and Specification Reference | |
| Components Assembly 3RC 11056/S Issue B 3RC 11057/S Issue A 3RC 11059/S Issue B 3RC 11058/S Issue A 3RC 11060/S Issue B RSD/CTR/97 Dated 14 January 1981 QCS 398 Issue 1 Dated 6 May 1981; QCS 138 Iss.6 4.11.82 | |
| Radioactive Material | Maximum Activity |
| Americium 241 | 11 GBq (295 mCi) |
| Curium 244 | 37 GBq (1 Ci) |

THIS IS TO CERTIFY that the Secretary of State for Transport being, for the purposes of the Regulations of the International Atomic Energy Agency, the Competent Authority of Great Britain in respect of inland surface transport and of the United Kingdom of Great Britain and Northern Ireland in respect of sea and air transport and the Department of the Environment for Northern Ireland being the Competent Authority of Northern Ireland in respect of inland surface transport, have approved the above-mentioned Special Form Design. Radioactive material manufactured to the above-mentioned design qualifies as special form radioactive material and as such will meet the requirements of the regulations overleaf.

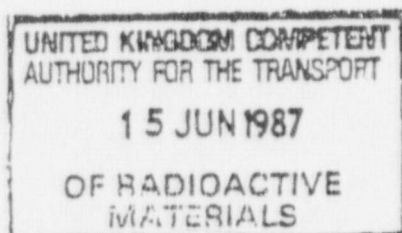
This Certificate of Approval applies only to the design as set out in the above named drawings and specifications submitted by Amersham International plc


In the event of any alteration to the above mentioned drawings and specifications or in any of the facts stated in the application for approval, this certificate will cease to have effect unless the Competent Authority is notified of the alteration and the Competent Authority confirms the certificate notwithstanding the alteration.

This Certificate Cancels all Previous Issues and is valid until 31 May 1990

Competent Authority
Identification Mark:

GB/38/S




Transport Radiological Adviser
Department of Transport
2 Marsham Street
London SW1P 3LB

On behalf of the Secretary of State
for Transport and the Department of
the Environment for Northern Ireland

Regulations and Codes of Practice Governing the Transport of Radioactive Material

INTERNATIONAL

International Atomic Energy Agency (IAEA) Safety Series No 6 Regulations for the Safe Transport of Radioactive Materials 1973 Revised Edition (As amended). 1985 edition.

International Maritime Organisation (IMO). International Maritime Dangerous Goods Code — Class 7 Radioactive Substances.

International Civil Aviation Organisation (ICAO). Technical Instructions for the Safe Transport of Dangerous Goods by Air.

ROAD

Great Britain only. The Radioactive Substances (Carriage by Road) (Great Britain) Regulations 1974. SI No 1735. The Radioactive Substances (Carriage by Road) (Great Britain) (Amendment) Regulations 1985 SI No 1729. Code of Practice for the Carriage of Radioactive Materials by Road (1982 Impression). The Ionising Radiations Regulations 1985 SI No. 1333. Approved Code of Practice

Northern Ireland only. The Radioactive Substances (Carriage by Road) Regulations (Northern Ireland) 1983. SR 1983 No 344. The Radioactive Substances (Carriage by Road) (Amendment) Regulations (Northern Ireland) SR 1986 No. 61

Europe only. European Agreement Concerning the International Carriage of Dangerous Good by Road (ADR). Class 7.

RAIL

Great Britain only. British Rail publication BR 22426 (1977 Edition) — Dangerous Goods by Freight Train and by Passenger Train or similar service — List of Dangerous Goods and Conditions of Acceptance — Class 7 Radioactive Substances.

Europe only. International Convention concerning the carriage of goods by rail (CIM). Annex 1, International Regulations concerning the carriage of dangerous goods by rail (RID).

SEA

British Ships registered in UK and other ships loading in UK ports or territorial waters only. The Merchant Shipping (Dangerous Goods) Regulations 1981: SI No 1747 and the Report of the Standing Advisory Committee on the Carriage of Dangerous Goods in Ships 1978 (The "Blue Book") Class 7.

PORT

UK only

AIR

1985 1643

1985 1939

UK only. The Air Navigation Order SI 1980 No 1965. The Air Navigation (Second Amendment) Order SI 1983 No 1905. The Air Navigation (Dangerous Goods) Regulations SI 1984 No 23. The Air Navigation (Dangerous Goods) (Amendment) Regulations SI 1984 No 1722. International Civil Aviation Organisation (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air.

Notes

1 Any questions relating to this Certificate should be addressed to the Transport Radiological Adviser, Department of Transport 2 Marsham Street, London SW1P 3EB

Telephone 01-212 7247

Telex 22221 Answer back DOE MARG

CERTIFICATE OF RADIOACTIVE SOURCE INTEGRITY

QCS 138
Issue 5

Title : Low Energy Photon disc source - Assembly X91/0

Assembly drawing : 3RC 11056/S

Nuclide : Americium 241 (²⁴¹Am)

Radiotoxicity group : A

Maximum activity : 300mCi (11.1GBq)

CLASSIFICATION : BSI/ISO C64444

RECOMMENDED WORKING LIFE : 15 years

| | | |
|---|---|--|
| Test sources : 100mCi ²⁴¹ Am in source number AMC 4901 100mCi ²⁴¹ Am in source number AMC 4902 10µCi ¹³⁷ Cs in source number 0322 LS 10µCi ¹³⁷ Cs in source number 0332 LS | } | Assembled to drawing 3RC 11056/S Issue A |
|---|---|--|

Tests carried out in accordance with Recommendation of : BS.5288 : 1976
 ISO.2919: 1980 (E)
~~BS.5288: 1976~~
 ANSI.N542 : 1977

| Leak test method | TEMPERATURE | PRESSURE | IMPACT | VIBRATION | PUNCTURE | Units |
|------------------|-------------|----------|--|-----------|----------|----------|
| | 6 | 4 | 4 | 4 | 4 | |
| Immersion | Pass | Pass | Pass | Pass | Pass | nCi |
| | 0.01 | 0.01 | 0.03 | 0.02 | 0.01 | |
| | 0.02 | 0.10 | 0.04 | 0.02 | 0.20 | |
| He Pressure | | | Pass 6.6×10^{-9} 6.0×10^{-9} | | | torr l/s |
| | | | | | | |

A. Brineade

 Quality Control Dept.

Date 13 March 1981

A. Ainsworth

 Radiation Sources Department

The Radiochemical
Centre Ltd

registered England
1002410

registered office:
White Lion Road
Amersham
Buckinghamshire
HP7 9JL

telephone:
Little Chalfont
(024 04)
4444

cables:
Activity
Amersham

telex:
83141

