



Department of Energy
Washington, DC 20585

August 27, 2014

Department of the Air Force
Air Force Technical Application Center
Attn: AFTAC/CC
1030 S. Highway A1A
Patrick AFB, Florida 32925

Dear Colonel Worley:

Per your request dated March 24 attached are the U. S. Department of Energy (DOE) Certificate of Compliance (CoC), Certificate Number 4888, Revision No. 1, for Package Identification No. USA/4888/B() (DOE) and Certificate Number 5862, Revision No. 1, for Package Identification No. USA/5862/B() (DOE). These certificates were revised to allow shipment of Sentinel 25A, 25E, 25F, and 100F packages under approved and active DOE Exemptions. The expiration date for DOE Certificate Number 4888, Revision No. 1, and 5862, Revision 1, is August 31, 2019.

Also, attached are DOE Exemptions DOE-E1402 and DOE-E1404, and their supporting Safety Evaluation Reports. These exemptions are authorized for a one-way shipment of nine Sentinel-25 series packages and one Sentinel-100F package stored at Burnt Mountain, Alaska to the Nevada National Security Site in Mercury, Nevada to transfer these packages to DOE. The expiration date of DOE-E1402 and DOE-E1404 is upon completion of the shipment or August 31, 2016, whichever comes first.

If you have any questions, please contact me or Dr. James M. Shuler of my staff, at (301) 903-5513

Sincerely,

A handwritten signature in blue ink, appearing to read "Frank Marcinowski".

Frank Marcinowski
Headquarters Certifying Official
Deputy Assistant Secretary for
Waste Management

Attachments

cc: Jeffery England, SRNL
James M. Shuler, EM-33





U.S. DEPARTMENT OF
ENERGY

DOE Packaging Certification Program

**CERTIFICATE OF COMPLIANCE
For Radioactive Materials Package**

DOE F 5822.1
(5-85 Formerly EV-618)

1a. Certificate Number 4888	1b. Revision No. 1	1c. Package Identification No. USA/4888/B() (DOE)	1d. Page No. 1	1e. Total No. Pages 3
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2. PREAMBLE

- 2a. This certificate is issued under the authority of 49 CFR Part 173.7(d).
- 2b. The packaging and contents described in item 5 below meet the safety standards set forth in subpart E, "Package Approval Standards" and subpart F, "Package, Special Form, and LSA-III Tests" Title 10, Code of Federal Regulations, Part 71.
- 2c. 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 --

(1) Prepared by (*Name and address*):

Department of the Air Force
Air Force Technical Application
Center
1030 S. HWY A1A
Patrick AFB, FL 32925-3002

(2) Title and Identification of report or application:

Teledyne Energy Systems applications dated April 26,
1985 and August 19, 1986, as supplemented [See 5.(d)]

(3) Date:

April 1985

4. CONDITIONS

This certificate is conditional upon the fulfilling of the applicable Operational and Quality Assurance requirements of 49CFR parts 100-199 and 10CFR Part 71, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Transport Index, Other Conditions, and References:

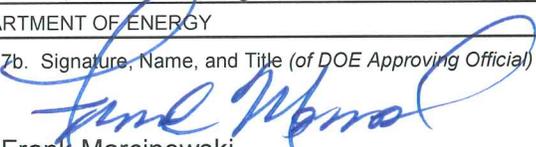
(a) Packaging

NOTE: THIS COC IS NOT AUTHORIZED FOR SHIPMENTS IN COMMERCE, BUT IS ONLY AUTHORIZED FOR STORAGE OR USE UNDER AN APPROVED AND ACTIVE DOE EXEMPTION.

(1) Model Numbers: Sentinel-25A, RTG S/N 004; Sentinel-25E, S/Ns 008, 009, 010, 017, 018, 019, & 020; and Sentinel-25F, RTG S/N 014

(2) Description:

The packages are thermoelectric generators. The major components include the main housing, tungsten shield, housing flange, and electrical connectors. The approximate dimensions and weights for the various Model Numbers. are shown on the following table:

6a. Date of Issuance: 8/27/14	6b. Expiration Date: August 31, 2019
FOR THE U.S. DEPARTMENT OF ENERGY	
7a. Address (of DOE Issuing Office) U.S. Department of Energy Office of Packaging and Transportation, EM-33 1000 Independence Avenue SW Washington, DC 20585	7b. Signature, Name, and Title (of DOE Approving Official)  Frank Marcinowski Headquarters Certifying Official Deputy Assistant Secretary for Waste Management

Model No.	Dimensions (inches)	Weight (pounds)
Sentinel-25A	25 OD X 25	3,000
Sentinel-25E	25 OD X 34	4,200
Sentinel-25F	25 OD X 32	1.400

(3) Drawings:

The packaging is constructed in accordance with the following Drawing Nos.:

<u>Model No.</u>	<u>Drawing Nos.</u>
All Models	Isotopes, Inc. Drawing Nos.: 001-20000, Rev. E 001-20001, Rev. F 001-20002, Rev. F 001-20003, Sheet 1, Rev. B 001-80003
Sentinel-25A,	Martin Company Drawing Nos.: N00113100, Rev. A N00113108, Rev. D 001-40000, Rev. A Isotopes, Inc. Drawing Nos.: 001-10000, Rev. B 001-70024, Rev. C 001-70025, Sheet 1, Rev. D 001-70033, Sheets 1&2, Rev. A 001-70036 001-80005
Sentinel-25E	Isotopes, Inc. Drawing Nos.: 001E10000, Sheets 1&2, Rev. E & Sheet 3 001-70039, Rev. C 001-70025, Sheet 1, Rev. D & Sht. 2 001-70024, Rev. C 001-40017, Sheets 1 & 2 Rev. D 001-40006, Rev. B
Sentinel-25F	Isotopes, Inc. Drawing Nos.: 001F10000, Sheets 1&2, Rev. H* 001-70070, Rev. C 001-70060, Rev. C 001-70009, Rev. D 001-40025, Rev. A

*As modified by Figure 1 of the April 26, 1985, application.

Certificate Number	Revision No.	Package Identification No.	Page No.	Total No. Pages
4888	1	USA/4888/B() (DOE)	3	3

(b) Contents:

(1) Type and form of material.

- (i) Strontium-90 titanate, doubly encapsulated in a Hastelloy or Uniloy fuel capsule which meet the requirements of special form radioactive materials; or
- (ii) Model No. Sentinel-25F may have, strontium fluoride, doubly encapsulated in Hastelloy or Uniloy fuel capsule, with a Hastelloy C-276 liner which meets the requirements of special form radioactive material.

(2) Maximum quantity or material per package.

125,000 curies.

(c) Conditions:

- (1) Fabrication of additional packages is not authorized.
- (2) A barrier (permitting the free circulation of air) must be provided with sufficient separation distance to ensure that the requirement of 10 CFR 71.43(g) will be met.
- (3) Eye-bolts shall be removed or covered during transportation to prevent their use as tie-down devices of packages.
- (4) In addition to the requirements of Subpart G of 10 CFR Part 71 each package shall be operated, prepared for shipment, and maintained in accordance with the following Operating Procedures and Maintenance Programs:

Model No.	Operating Procedures	Maintenance Program
Sentinel-25A,	Appendix E of TES-3206 [See 5(d)(2)]	Appendix F of TES-3206 as [See 5(d)(2)]
Sentinel-25E	Appendix E of TES-3213 [See 5(d)(7)]	Appendix F of TES-3213 [See 5(d)(7)]
Sentinel-25F	Chapter VII of TES-3202 [See 5(d)(8)]	Chapter IX of TES-3202 [See 5(d)(8)]

- (5) This CoC does **not** authorized shipments in commerce, but only authorizes use for storage or use under an approved and active DOE Exemption.

(d) References

- (1) Teledyne Energy Systems applications SEN-JFV-403, dated April 26, 1985 (with Enclosure: TES-3202, dated April 19, 1985) and SEN-RGH-571, dated August 19, 1986 (with Enclosures: TES-3206, TES-3209 through TES-3213 dated August 1986).
- (2) Teledyne supplements dated November 3, 1986 (Rev 1 to TES-3202, 3206, 3209 – 3213), September 17, 1991, and December 2, 1991 (Rev 2 to TES-3202, 3206, 3209 – 3213).
- (3) Department of Air Force supplements November 12, 1993, December 11, 1996, January 15, 2002, and December 15, 2006.