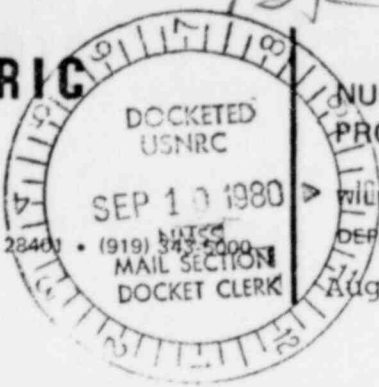


# GENERAL ELECTRIC



PDR 71-9009



NUCLEAR ENERGY PRODUCTS DIVISION  
WILMINGTON MANUFACTURING DEPARTMENT  
August 27, 1980

CASTLE HAYNE ROAD • P. O. BOX 780 • WILMINGTON, N. C. 28401

Director  
Office of Nuclear Material Safety & Safeguards  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Mr. C. E. MacDonald, Chief  
Transportation Certification Branch

Dear Sir:

Reference: Application Amendment T-18 for  
NRC Certificate of Compliance USA/9009/B()F

RECEIVED  
SEP 2 PM 12 10

With reference to the subject certificate for the FL 10-1 container, Section 12 of that certificate requires that leak tests shall be performed on each containment vessel initially and then once each year following.

We believe that for the uranyl nitrate solution (gadolinia-bearing) for which we use the FL 10-1 to ship this liquid to an offsite vendor for uranium recovery, these yearly leak tests should not be necessary.

Typically, uranium concentration in these solutions is less than 350 grams per liter and the U-235 concentration less than 15 grams per liter.

Therefore, we are requesting that the inner containers of the FL 10-1 package we use for our shipments of uranyl nitrate solutions meeting the content requirements specified above, be exempted from the annual leak test requirement of Section 12 of that certificate.

Attached for your reference is a copy of the proposed changes to Sections 5 and 12 of the certificate.

Pursuant to 10 CFR 170.31, a General Electric Company check for \$150 is attached for processing this exemption request.

Your prompt consideration of this request would be appreciated.

Applicant.....
Check No.. 90866.....
Amount/Fee Category five-115.....
Type of Fee... adm.....
Date Check Rec'd.. 9/8/80.....
Received By.....

Very truly yours,  
GENERAL ELECTRIC COMPANY

*Arthur L. Kaplan*  
Arthur L. Kaplan, Manager  
Licensing & Compliance Audits  
M/C J25

ALK:bmw  
Attachments  
TCD+

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GENERAL  ELECTRIC

Director - ONMSS  
August 27, 1980

ATTACHMENT

Two revisions are proposed, as shown on the following two pages, to NRC Certificate of Compliance USA/9009/B()F, to allow shipment of low concentration, uranyl nitrate solutions with low-enriched uranium (up to a maximum of 4% enrichment in U-235) in FL 10-1 packages without requiring an annual leak test for the inner container.

- o Add a new section 5(b)(1)(vii) as follows:

"Uranyl nitrate solutions having a concentration of uranium not exceeding 350 grams per liter and not exceeding 4% enrichment in U-235."

- o Add a sentence to Section 12 as follows:

"For shipment of the contents specified in 5(b)(1)(vii), this test shall not be required."

AL Kaplan  
:bmw

5. (a) (2) Description (continued)

(threads wrapped with teflon tape) and is protected by a 2-1/2-inch high section 5-inch Schedule 40 pipe welded to the top of the flange. The packaging has a maximum gross weight of 515 lbs.

(3) Drawings

The Model No. FL 10-1 package is described by International Nuclear Company (INCO) Drawing No. DSD-479-D, Rev. C, and the containment vessel described by INCO Drawing No. DSD-480-D, Rev. C. The containment vessel seal is described by INCO Drawing No. DED-169-B, Rev. 2.

(b) Contents

(1) Type and form of material

- (i) Uranyl nitrate solutions having a concentration of uranium 235 and uranium 233 not exceeding 350 grams per liter and an H/U-235 atomic ratio not less than 80, provided that the U-233 and plutonium content is not more than 1% of the U-235 content; or
- (ii) Uranyl nitrate solutions having a combined concentration of uranium 233 and uranium 235 not exceeding 250 grams per liter and an H to fissile material atomic ratio not less than 80 provided (1) the U-233 content is not greater than 20% of the combined U-233 and U-235 content, and (2) the plutonium content is not more than 1% of the combined U-233 or U-235 content; or
- (iii) Plutonium nitrate solutions having a concentration not exceeding 250 grams fissile plutonium per liter; or
- (iv) Uranyl sulfate solution ( $UO_2SO_4$ ) containing uranium-235; or
- (v) Dry compounds and mixtures of fissile plutonium-uranium-235; or
- (vi) Mixed U-Pu oxide interspersed with graphite or silicon carbide plus plastic packing material.
- \* (vii) Uranyl nitrate solutions having a concentration of uranium not exceeding 350 grams per liter and not exceeding 4% enrichment in U-235. \*

(2) Maximum quantity of material per package

Plutonium in excess of twenty (20) curies per package must be in the form of metal, metal alloy, or reactor elements; or must be in accordance with Item 9 below; and:

- (i) For the contents described in 5(b)(1)(i), (ii), and (iii):

Maximum decay heat load not to exceed 21 watts, and 10.5 liters of solution.

PROPOSED REVISION

11. Prior to each shipment of more than Type A quantities of radioactive material, the space between the double O-ring seal shall be tested at 100 psig and leak detection performed by a method capable of detecting a leak greater than  $10^{-3}$  atm cc/sec at standard temperature and pressure. No package with a detectable leak shall be delivered to a carrier for transport.
12. In addition to the requirements of Subpart D of 10 CFR 71, a test shall be performed on each containment vessel and associated 1/4-inch SS valve (without its associated pipe cap) initially and once each year at 300 psig and the leak detection performed by a method capable of detecting a leak greater than  $10^{-6}$  atm cc/sec at standard temperature and pressure. Any chamber that fails to pass the test shall be withdrawn from service and repaired to meet the test. \*For shipment of contents specified in 5(b)(1)(vii), this test shall not be required.\*
13. The fire resistant phenolic foam shall be in accordance with AEC Materials and Equipment Specification SP-9 or as modified by ORGDP Reports K/TL-729 and K/P-6567S.
14. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12(b).
15. Expiration date: August 31, 1983.

REFERENCES

General Electric Company application dated March 12, 1973.

Supplements dated: April 13, 1973; March 21, 1974; and April 16, 1979.

Westinghouse Electric Corporation supplements dated: October 3, 1979; and March 11, 1980.

Babcock and Wilcox Company supplement dated: May 14, 1980.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald, Chief  
Transportation Certification Branch  
Division of Fuel Cycle and  
Material Safety

Date: \_\_\_\_\_

PROPOSED REVISION

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