Form NRC 618
(12 73)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION
CERTIFICATE OF COMPLIANCE
For Radioactive Materials Packages

1.(a) Certificate Number	1.(b) Revision No.	1.(c) Package Identification No.	1.(d) Pages No.	1.(e) Total No. Pages
5942	4	USA/5942/B( )F	1	3

2. PREAMBLE

2.(a) This certificate is issued to satisfy Sections 173.393a, 173.394, 173.395, and 173.396 of the Department of Transportation Hazardous Materials Regulations (49 CFR 170-189 and 14 CFR 103) and Sections 146-19-10a and 146-19-100 of the Department of Transportation Dangerous Cargoes Regulations (46 CFR 146-149), as amended.

2.(b) The packaging and contents described in item 5 below, meets the safety standards set forth in Subpart C of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."

2.(c) 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—

3.(a) Prepared by (*Name and address*):

General Electric Company
P.O. Box 460
Pleasanton, CA 94566

3.(b) Title and identification of report or application:

General Electric Application dated March 18, 1980, as supplemented.

3.(c) Docket No. 71-5942

4. CONDITIONS

This certificate is conditional upon the fulfilling of the requirements of Subpart D of 10 CFR 71, as applicable, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References:

(a) Packaging

(1) Model No.: GE-700

(2) Description

A steel encased lead shielded shipping cask enclosed by a double-walled protective jacket of the same shape with a rectangular baseplate. The cask is a double-walled steel circular cylinder, 37-inch-diameter by 65-inch high with a central cavity 15-inch-diameter by 40-inch high. Approximately 10.25 inches of lead surround the central cavity. The cask is equipped with a cavity drain line, pressure relief valve set at 100 psig, and lifting device. Closure is accomplished by a silicone rubber gasketed and bolted steel lead filled plug. The maximum weight of the packaging is 23,000 pounds.

The cask may be modified with a 14-inch high cavity extension with an additional silicone rubber gasket. The modified cask is 79 inches high and weighs 28,000 pounds.

(3) Drawings

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

237E325, Rev. 2	289E646, Rev. 3
106D4150, Rev. 0	289E647, Rev. 1
106D4331, Rev. 0	289E642, Rev. 2
195F127, Rev. 0	129D4059, Rev. 1

DUPE 8001020506

5. (b) Contents

(1) Type and form of material

Byproduct, source, and special nuclear material contained in solid or metal oxide form.

(2) Maximum quantity of material per package

(i) 740 gm U-235, provided that the maximum U-235 enrichment does not exceed 6 weight percent; or

(ii) 1,200 gm U-235, provided that the fuel material is in the form of MTR-type fuel elements with a minimum active fuel length of 23 inches; or

(iii) 220 gm fissile material; or

(iv) 1,650 gm U-235, provided that the maximum U-235 enrichment does not exceed 3.5 weight percent and the fuel material is in the form of 88 rods loaded with 0.376-inch-diameter pellets with a minimum active fuel length of 37 inches; or

(v) those values presented in Figure 1, UO_2 Weight Limits for Model 700 Shipping Container, of Exhibit A to this application, applicable to fuel material in the form of rods with a minimum pellet diameter of 0.40 inch; or

(vi) 5,100 gm U-235, provided the fuel is in the form of ETR-type fuel elements (GETR Fuel) with each element containing no more than 510 gm U-235 and inserted in the spaced stainless steel fuel shipping basket described in GE Drawing No. 106D4150, Rev. 0.

(vii) 6,200 gm U-235, provided the fuel is in the form of MURR TRTR type elements containing not more than 775 gm U-235 per element; loaded and spaced in the stainless steel fuel shipping basket as described in MURR Drawing No. 1228, Sheets 1 thru 5, Revision 0. Fuel elements shall have at least 150 days cooling time since last reactor operation.

(3) Maximum quantity of radioactive decay heat per package

(i) 6,500 watts for dry shipments, or

(ii) 1,500 watts for wet shipments, provided that the cavity shall contain at least a 1,000 cu in air void (at standard temperature and pressure) at the time of delivery to a carrier for transport.

(c) Fissile Class III

Maximum number of packages per shipment 2

6. The radioactive material shall be in the form of fuel rods, or plates, fuel assemblies, or meeting special form requirements of 10 CFR §71.4(o).

7. Shoring shall be provided to minimize movement of contents during accident conditions of transport.

8. Prior to each shipment the silicone rubber lid gasket(s) shall be inspected. This gasket(s) shall be replaced if inspection shows any defects or every twelve (12) months, whichever occurs first. Cavity drain line shall be sealed with appropriate sealant applied to threads of pipe plug.

9. The applicant shall confirm annually that the pressure relief valve is operable at 100 psig.

10. When needed, sufficient antifreeze in the cask shall be used to prevent damage of any component of the package due to freezing.

11. The total radioactivity in the coolant shall not exceed the limits specified in 10 CFR §71.36(a)(2).

12. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12(b).

13. Expiration date: June 30, 1985.

REFERENCES

General Electric application dated March 18, 1980.

Additional Reference Required for the Contents Limited In Item 5.(b)(2)(vii).

University of Missouri letter dated March 20, 1980.

Appendix 6-A regarding University of Missouri's quality assurance program is not considered part of this application.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

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

Date: JUN 18 1980

PREPARATION OF SOURCE

1. Build table in cave to hold source.
2. Install band saw, provide for remote operation.
3. Practice use of band saw with dummy basket.
4. Set new support for source, so that source can be lowered onto it.
5. Close door, set source on new support.
6. Transfer cable hook to new support.
7. Put source on its side, put basket handles in saw.
8. Saw off handles.
9. Return source to well.

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4/30/81

SOURCE SHIPMENT PROCEDURE

1. Shipping cask arrives.
2. Inspect, survey and wipe cask jacket, record data.
3. Remove the 8 each 2" bolts securing the jacket to the base.
4. Sling jacket and lift off from the cask.

   Note: Observe positioning of the cask and jacket on the base and make index marks for later reassembly. (Step 43)
5. Wipe-test the cask, and inspect in accordance with 10 CFR 71.
6. Remove the steel spacer from the cask lid lifting eye (weight - 250 lbs.)

   Note: Spacer not included when cask is fitted with the extension cavity.
7. Remove the 8 each 3/4-10 lid bolts and lid.

   Note: Observe the ¼" thick gasket inside the metal retaining ring. Use caution during handling to keep the retaining ring and gasket in place.
8. Survey and wipe-test inside of cask.
9. Install cask insert.
10. Replace cask lid.
11. Locate truck under hoist.
12. Lift cask, drive truck out, set cask on concrete.
13. Lower hoist beam and install door patch beam.
14. Lift cask and trolly into cave - set on floor.
15. Trolly hoists to fixed beam.
16. Remove beam extension, set on cave floor.
17. Raise cask lid with small hoist, practice lowering.
18. Tie chain leader to lid.
19. Practice moving lead shot hopper spout.
20. Practice installing lid on inner container.
21. Remove door patch beam.
22. Close door.
23. Raise source and drip dry.
24. Trolly source to position near cask.
25. Using manipulators, guide source into cask.

26. Using manipulators, remove cable hook.
27. Using manipulators, move lead shot spout over cask.
28. Using manipulators, open valve on shot hopper.
29. Using manipulators, level shot and remove spout.
30. Using manipulators, put lid on inner liner.
31. Using manipulators, put nuts on to hold inner lid.
32. Place chain on insert lid to clear cask lid seat area.
33. Lower cask lid.
34. Open door with careful monitoring.
35. Monitor and wipe test cask.
36. Bolt lid on.
37. Install trolly beam extension.
38. Reinstall cave door patch beam.
39. Return hoists to cask area.
40. Lift cask and trolly out of cave.
41. Set cask on concrete.
42. Raise hoist beam.
43. Lift cask and set on base on truck. Note index marks (Step 4) to assure proper orientation.
44. Install steel spacer on cask lid.
45. Install protective jacket.

    Note: Observe orientation of jacket to assure fit.
46. Install 8 each 2" bolts securing jacket to the base.
47. Do final monitoring and wipe tests.

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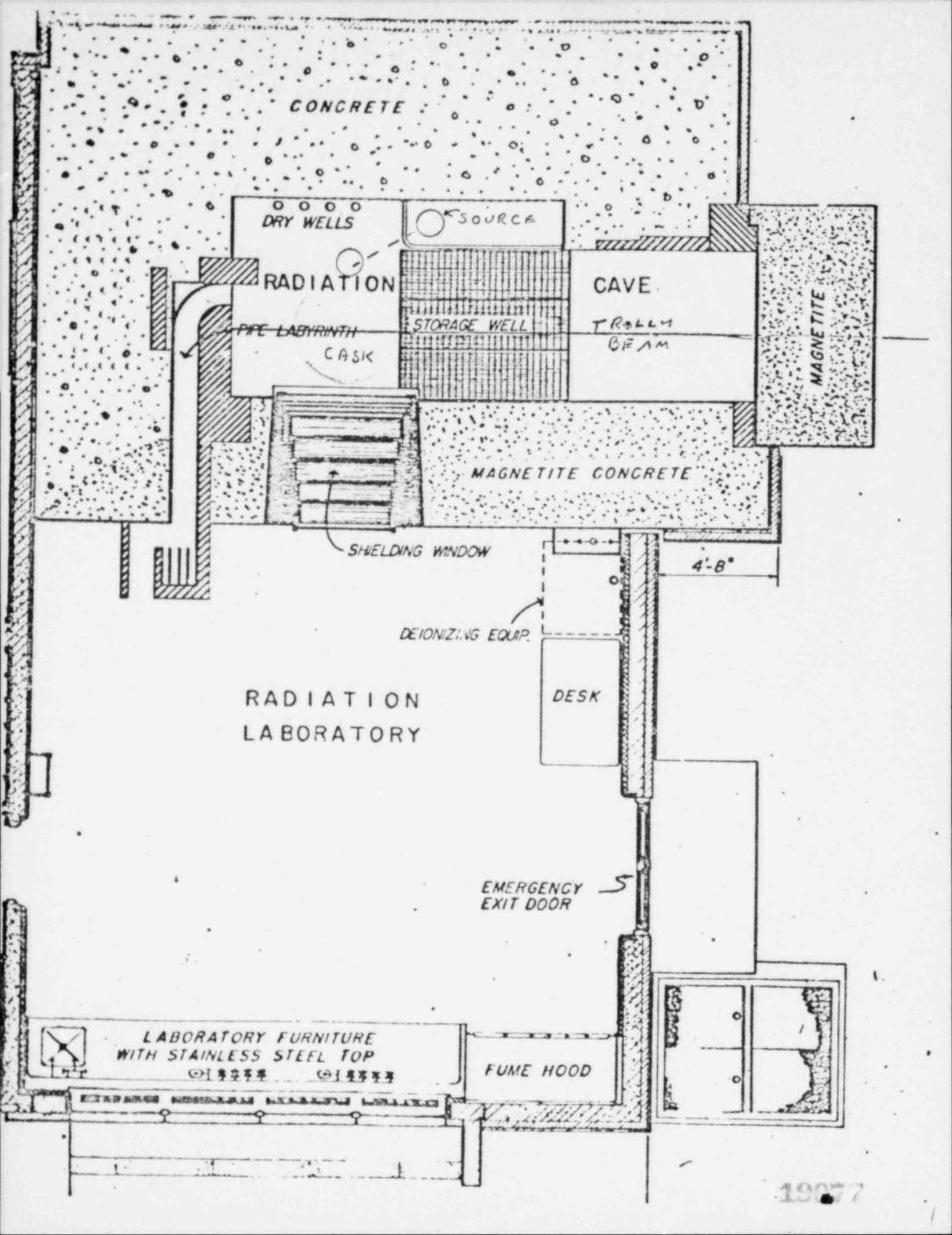
4/29/81


CONCRETE
DRY WELLS
SOURCE
RADIATION
CAVE
PIPE LABYRINTH
CASK
STORAGE WELL
TROLLEY BEAM
MAGNETITE
MAGNETITE CONCRETE
SHIELDING WINDOW
4'-8"
DEIONIZING EQUIP.
DESK
RADIATION LABORATORY
EMERGENCY EXIT DOOR
LABORATORY FURNITURE WITH STAINLESS STEEL TOP
FUME HOOD

"TRANSPORTATION APPROVALS"

Docket No. 71-5942

William O. Miller
License Fee Management Branch
Office of Administration

MATERIALS TRANSPORTATION APPROVAL CLASSIFICATION

Applicant: ARCO

Approval No: 5942 Fee Category 11B

Application Dated: 5/1/81 Received: _____

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) ___ Administ ive

2. Justification for reclassification: _____

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 F Ohrgaard
Transportation Branch, NMSS
Date: May 19, 1981