

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES**

U.S. NUCLEAR REGULATORY COMMISSION

1. a. CERTIFICATE NUMBER 9080	b. REVISION NUMBER 12	c. PACKAGE IDENTIFICATION NUMBER USA/9080/A	d. PAGE NUMBER 1	e. TOTAL NUMBER PAGES 4
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2. PREAMBLE

- a. This certificate is issued to certify that the packaging and contents described in Item 5 below, meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."
- b. 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

g. PREPARED BY (Name and Address):

h. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

Westinghouse Hittman Nuclear
Incorporated
9151 Rumsey Road
Columbia, MD 21045

Westinghouse Hittman Nuclear Incorporated
application dated February 27, 1984, as supplemented.

i. DOCKET NUMBER
71-9080

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

(1) Model Nos.: HN-600, NUPAC 100, and CNS 7-100

(2) Description

Steel encased, lead shielded casks for low specific activity material. The casks are right circular cylinders 54-1/2 inches high by 84 inches in diameter. Each cask has a cavity which is 40-1/4 or 40-3/4 inches high by 75-1/2 inches in diameter. The cask side wall consists of a 3/8-inch thick inner steel shell, a 3-inch lead shell, and a 3/4-inch thick outer steel shell. The base is comprised of two steel plates welded together to form a 5-1/2-inch thick base which is integrally welded to the inner and outer steel shells of the side wall. A steel flange is welded to the inner and outer shells of the side wall at the top. The 5-1/2-inch thick lid is comprised of two steel plates welded together, which are stepped to mate with the steel flange. The cask closure is sealed by a Neoprene gasket located between the lid and steel flange. Positive closure is accomplished by eight ratchet binders. The lid contains a 6-1/2-inch thick centrally located shield plug, comprised of three steel plates stepped and welded. The shield plug is sealed by a Neoprene gasket, and eight, 3/4-inch studs and nuts or bolts are used to provide positive closure. A vent/test port in the shield plug and a stainless steel cavity sleeve is optionally provided.

Tie-down is accomplished by four tie-down lugs welded to each cask body. Each cask is provided with four lifting lugs, three lid lifting lugs, and one or three shield plug lifting lugs. The cask gross weight is approximately 48,000 pounds.

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5. (a) (3) Drawings

The Model No. HN-600 packaging is fabricated in accordance with Hittman Nuclear & Development Corporation Drawing Nos.: C001-4-9600, Sheet 1, Rev. G; C001-4-9601, Sheets 1 and 2, Rev. E; C001-4-9602, Sheets 1 and 2, Rev. D; C001-4-9603, Sheet 1, Rev. C; and C001-5-9604, Sheet 1, Rev. 1;

The Model No. NUPAC 100 packaging is fabricated in accordance with Nuclear Packaging, Incorporated Drawing No.: BA-20-200D, Sheets 1 and 2, Revision 2; or

The Model No. CNS 7-100 packaging is fabricated in accordance with Nuclear Packaging Incorporated Drawing No. BA-20-200D, Sheets 1 and 2, Revision B.

(b) Contents

(1) Type and form of material

- (i) Dewatered, solids, or solidified waste, meeting the requirements for low specific activity material, in secondary containers; or
- (ii) Activated solid components meeting the requirements for low specific activity material.

(2) Maximum quantity of material per package

Greater than Type A quantity of radioactive material with the weight of the contents, secondary containers and shoring not exceeding 13,000 pounds. Internal decay heat must not exceed 25 thermal watts.

6. (a) For any package containing water and/or organic substances which could radiolytically generate combustible gases, determination must be made by tests and measurements or by analysis of a representative package such that the following criteria are met over a period of time that is twice the expected shipment time:

- (i) The hydrogen generated must be limited to a molar quantity that would be no more than 5% by volume (or equivalent limits for other inflammable gases) of the secondary container gas void if present at STP (i.e., no more than 0.063 g-moles/ft³ at 14.7 psia and 70°F); or
- (ii) The secondary container and cask cavity must be inerted with a diluent to assure that oxygen must be limited to 5% by volume in those portions of the package which could have hydrogen greater than 5%.

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For any package delivered to a carrier for transport, the secondary container must be prepared for shipment in the same manner in which determination for gas generation is made. Shipment period begins when the package is prepared (sealed) and must be completed within twice the expected shipment time.

- (b) For any package shipped within 10 days of preparation, or within 10 days after venting of drums or other secondary containers, the determination in (a) above need not be made, and the time restriction in (a) above does not apply.
7. Except for close fitting contents, shoring must be placed between secondary containers (or activated components) and the cask cavity to prevent movement during normal conditions of transport.
 8. The lid and shield plug lifting lugs must not be used for lifting the cask, and must be covered in transit; and the secondary lid lifting lug must not be used for lifting the primary lid.
 9. Prior to each shipment, the packaging lid seals if opened (or if the security seal is broken), must be inspected. The seals must be replaced with new seals if inspection shows any defects or every twelve (12) months, whichever occurs first.
 10. The drain line must be appropriately plugged and sealed prior to transport.
 11. Each cask must be leak tested in accordance with Appendix 8.3 of the application on or before September 1, 1984 and at least once every twelve (12) months thereafter. The sensitivity of the test must be at least 1×10^{-5} atm cm³/sec (STP). Each cask which has been damaged or repaired in the area of a seal must also be tested prior to subsequent use.
 12. Packagings fabricated after August 31, 1980, must be constructed of A-516, Grade 70 carbon steel instead of A-36 carbon steel.
 13. Fabrication of packagings without a drain line is not authorized.
 14. The package authorized by this certificate must be transported on a motor vehicle, railroad car, aircraft, inland water craft, or hold or deck of a seagoing vessel assigned for the sole use of the licensee.
 15. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.
 16. Expiration date: November 30, 1988.

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REFERENCES

Westinghouse Hittman Nuclear Incorporated application dated February 27, 1984.

Supplement dated: December 7, 1984.

Chem-Nuclear Systems, Inc. supplement dated: June 29, 1979.

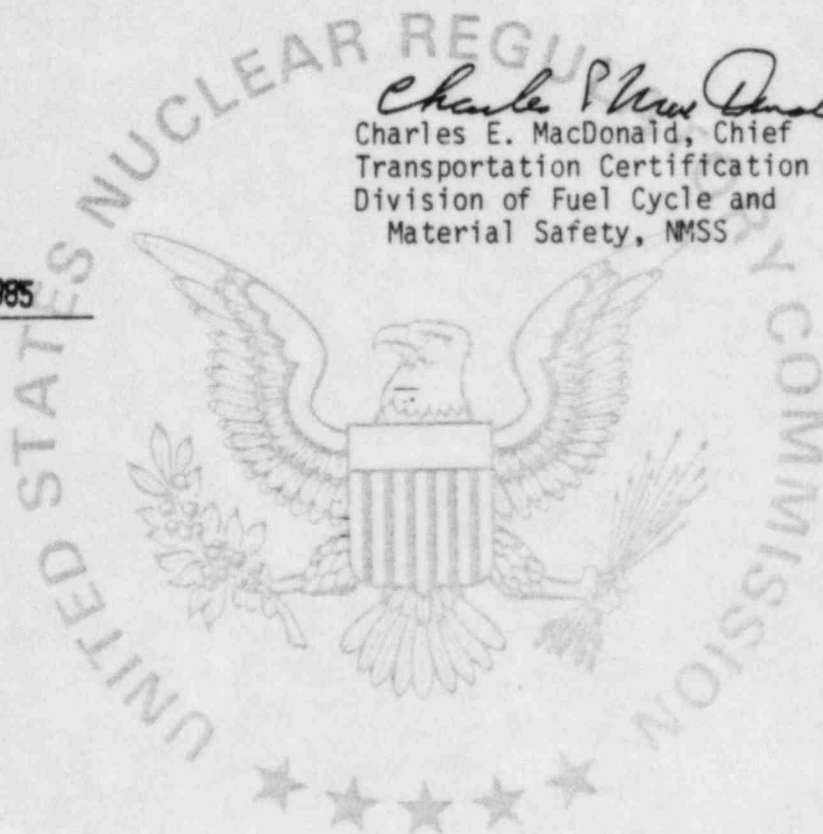
FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald

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

Date: _____

MAY 22 1985





UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

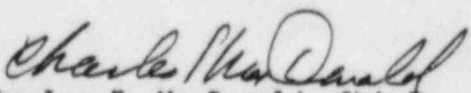
Transportation Certification Branch
Approval Record
Combustible Gas Mixtures

Conditions were imposed on packages containing water and/or organic substances to limit the accumulation of radiolytically generated gases over the shipping period to preclude the possibility of significantly reducing the packaging effectiveness due to explosion.

Part of the conditions included "...it must be determined by tests and measurements of a representative package whether or not...."

There is no reason to believe that calculational methods could not be used as means of determining gas generation. So as not to preclude a valid analysis, part of the condition to limit the accumulation of radiolytically generated gases is revised to read "...it must be determined by tests and measurements or by analysis of a representative package whether or not...."

The analytic approach involves determining the hydrogen generated in the waste by radiolysis based on the absorbed dose of the waste over a given period of time. To satisfy the condition to preclude a combustible mixture, the period since closure and twice the shipping time must be considered. The calculation requires that the properties of the waste are known. These properties may be determined from test and measurement of representative waste forms or from data that is applicable to the waste form. The determination should be documented and retained as part of the records for the shipment.


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

Date: MAY 22 1985