

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

U.S. NUCLEAR REGULATORY COMMISSION

1. a. CERTIFICATE NUMBER 9086	b. REVISION NUMBER 12	c. PACKAGE IDENTIFICATION NUMBER USA/9086/A	d. PAGE NUMBER 1	e. TOTAL NUMBER PAGES 3
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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

a. PREPARED BY (Name and Address):

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

Westinghouse Hittman Nuclear
Incorporated
9151 Rumsey Road
Columbia, MD 21045

Hittman Nuclear & Development Corporation application
dated March 1, 1983.

c. DOCKET NUMBER

71-9086

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 No.: HN-100 Series 1

(2) Description

A steel encased, lead shielded cask for low specific activity material. The cask is a right circular cylinder 82.5 inches high by 81.5 inches in diameter. The cask cavity is 74.5 inches high by 75.63 inches in diameter. The cask side wall consists of a 3/8-inch thick inner steel shell, a 1-3/4-inch lead shell, and a 7/8-inch thick outer steel shell. The base is a 4-inch thick steel plate which is welded to the inner and outer steel shells of the side wall. A steel flange is welded to the inner and outer steel shells of the side wall at the top. The lid is a 4-inch thick steel plate which is stepped to mate with the steel flange. The cask closure is sealed by a Viton or Buna-N O-ring gasket located between the lid and steel flange. Positive lid closure is accomplished by thirty, 1-inch studs and nuts. The lid contains a centrally located 4-inch stepped steel shield plug. The shield plug is sealed by a Viton or Buna-N O-ring gasket, and sixteen, 1/2-inch studs and nuts are used to provide positive closure.

Tie-down is accomplished by four tie-down lugs welded to the cask body. There are three casks lifting lugs, three lid lifting lugs, and one shield plug lifting lug. The package gross weight is 50,000 pounds.

(3) Drawings

The packaging is constructed in accordance with Hittman Nuclear & Development Corporation Drawing Nos. STD-02-028, Revision 7; STD-02-029, Revision 5; and STD-02-030, Revision 4.

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5. (b) Contents

(1) Type and form of material

Process solids either dewatered, solid or solidified meeting the requirements for low specific activity material, in secondary containers.

(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 14,500 pounds except the weight of the contents in HN-100 Series 1, Unit 5 must not exceed 6,900 pounds. Internal decay heat must not exceed 7 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%.

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 and the cask cavity to minimize movement during normal conditions of transport.
- 8. The lid and shield plug lifting lugs must not be used for lifting the cask, and shall be covered in transit.
- 9. Prior to each shipment, the packaging lid seals, if opened (or if 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.

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10. The package authorized by this certificate must be transported on a motor vehicle, railroad car, aircraft, inland watercraft, or hold or deck of a seagoing vessel assigned for the sole use of the licensee.
11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.
12. Expiration date: March 31, 1988.

REFERENCE

Hittman Nuclear & Development Corporation application dated March 1, '983.

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

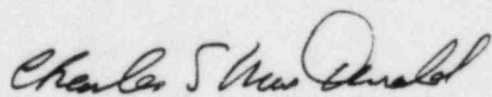
Transportation Certification Branch
Approval Record
Combustible Gas Mixtures

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
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Division of Fuel Cycle and
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Date: MAY 22 1985