CERTIFICATE OF COMPLIANCE FOR SPENT FUEL STORAGE CASKS

The U.S. Nuclear Regulatory Commission is issuing this Certificate of Compliance pursuant to Title 10 of the Code of Federal Regulations, Part 72, "Licensing Requirements for Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste" (10 CFR Part 72). This certificate is issued in accordance with 10 CFR 72.238, certifying that the storage design and contents described below meet the applicable safety standards set forth in 10 CFR Part 72, Subpart L, and on the basis of the Final Safety Analysis Report (FSAR) of the cask design. This certificate is conditional upon fulfilling the requirements of 10 CFR Part 72, as applicable, and the conditions specified below.

Certificate No.	Effective Date	Expiration Date	Docket Number	Amendment No.	Amendment Date	Package Identification No.
1027	05/30/00	05/28/20	72-1027	0	---	USA/72-1027

Issued To: (Name/Address)

Transnuclear, Inc.
4 Skyline Drive
Hawthorne, NY 10532

Safety Analysis Report Title

Transnuclear, Inc.
Final Safety Analysis Report for the TN-68 Dry Storage Cask
Docket No. 72-1027

CONDITIONS:

This certificate is conditioned upon fulfilling the requirements of 10 CFR Part 72, as applicable, the attached Appendix A (Technical Specifications), and the conditions specified below:

1. CASK

   a. Model No.: TN-68

   The TN-68 dry storage cask consists of a cask and basket assembly. The TN-68 is designed to contain up to 68 intact, unconsolidated General Electric boiling water reactor (BWR) fuel assemblies.

   b. Description

   The TN-68 cask being approved is described in the SAR and in NRC's Safety Evaluation Report (SER) accompanying the Certificate of Compliance (CoC). The TN-68 dry storage cask was designed by Transnuclear to store irradiated BWR spent fuel assemblies at an independent spent fuel storage installation (ISFSI).

   The TN-68 cask body is a right circular cylinder composed of the following components: confinement vessel with bolted lid closure, basket for fuel assemblies, gamma shield, trunnions, neutron shield, pressure monitoring system, and weather cover.

   The confinement vessel consists of an inner shell which is a welded, carbon steel cylinder with an integrally-welded, carbon steel bottom closure; a welded flange forging; a flanged and bolted carbon steel lid with an inner metallic seal; and vent and drain covers with closure bolts and inner metallic seals.

1. b. Description (continued)

The basket consists of an assembly of stainless steel cells that are welded to stainless steel plates. Above and below the stainless steel plates are slotted neutron absorber plates which form an egg-crate structure. The neutron absorber plates provide heat conduction paths from the fuel assemblies to the cask cavity, and the neutron absorber plates provide criticality control.

The gamma shield encloses the confinement vessel and consists of an independent shell and bottom plate of carbon steel which is welded to the closure flange. An optional carbon steel gamma shield ring may be used and is installed above the neutron shield. Gamma shielding is also provided by the confinement lid.

There are four trunnions attached to the cask body. The top trunnions are used for lifting and the bottom trunnions may be used for rotating the unloaded cask.

The radial neutron shield consists of a borated polyester resin compound which surrounds the gamma shield. The resin compound is cast into long, slender aluminum containers which are enclosed in a smooth outer steel shell. The aluminum containers provide a conduction path for heat transfer from the cask body to the outer shell. Axial neutron shielding is provided by a polypropylene disk placed on the cask lid.

The overpressure monitoring system provides continuous monitoring of the pressure in the interspace between the inner and outer seals on the lid, vent, and drain port covers. The overpressure monitoring system consists of a tank filled with helium, pressure transducers or switches, and associated tubing, fittings, and valves.

The torispherical weather cover with an elastomeric seal provides weather protection for the closure lid and seal components, the top neutron shield, and the overpressure system.

The auxiliary equipment necessary for ISFSI site operation is not included as part of the TN-68 cask system reviewed for a Certificate of Compliance under 10 CFR Part 72, Subpart L. Such equipment may include, but is not limited to, special lifting devices, transfer trailers or equipment, and vacuum drying/helium leak test equipment.

2. OPERATING PROCEDURES

Written operating procedures shall be prepared for cask handling, loading, unloading, movement, surveillance, and maintenance. The user's site-specific written operating procedures shall be consistent with the technical basis described in Chapter 8 of the SAR.

3. ACCEPTANCE TEST AND MAINTENANCE PROGRAM

Written cask acceptance tests and a maintenance program shall be prepared consistent with the technical basis described in Chapter 9 of the SAR.

4. QUALITY ASSURANCE

Activities in the areas of design, procurement, fabrication, assembly, inspection, testing, operation, maintenance, repair, modification of structures, systems and components, and decommissioning that are important to safety shall be conducted in accordance with a Commission-approved quality assurance program which satisfies the applicable requirements of 10 CFR Part 72, Subpart G, and which is established, maintained, and executed with regard to the cask system.

5. HEA /Y LOADS REQUIREMENTS

Each licensed facility must ensure that cask lifting is evaluated in accordance with the existing heavy loads requirements and procedures of the licensed facility in which the lift is made. An additional safety review (under 10 CFR 50.59 or 10 CFR 72.48, if applicable) is required to show operational compliance with existing facility/site-specific heavy loads requirements.

6. APPROVED CONTENTS

Contents of the TN-68 system must meet the specifications given in Appendix A to this certificate.

7. DESIGN FEATURES

Features or characteristics for the site, cask, or ancillary equipment must be in accordance with Appendix A to this certificate.

8. PRE-OPERATIONAL TESTING AND TRAINING EXERCISE

A dry run training exercise of the loading, closure, handling, unloading and transfer of the TN-68 cask shall be conducted by the cask user prior to the first use of the system to load spent fuel assemblies. The dry run may be performed in an alternate step sequence from the actual procedures. The dry run shall include but is not limited to the following:

Preparation of the TN-68 cask for loading and moving the TN-68 cask into the spent fuel pool.

Selection and verification of specific fuel assemblies to ensure type conformance.

Loading a dummy fuel assembly into the TN-68 and performing appropriate independent verification.

Installation of the TN-68 lid and removal of the TN-68 cask from the spent fuel pool.

Cask draining, vacuum drying, helium backfilling, and leakage testing.

Loading the TN-68 cask onto the cask transporter.

Transferring the cask to the ISFSI.

Placement of the TN-68 cask at the ISFSI.

Unloading operations including reflooding.

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Supplemental Sheet

9. SPECIAL REQUIREMENTS FOR CASK

Two different plate materials are approved for use as the neutron absorber in the TN-68 cask design. These neutron absorber materials are used to ensure subcriticality during loading and unloading operations that use deionized water inside the vessel. One of the approved materials is a borated wrought aluminum alloy. The other is a specific composition of a metal matrix composite material called Boralyn (TM). This composition is designated 1100/B4C/15p. Composite materials outside of this designation are envisioned as alternative materials for this application that TN could approve only after development of appropriate qualification test data that would ensure the alternative plate material meets or exceeds the service requirements for the TN-68 cask design. Criteria and methods used to establish the acceptability of such a material shall be equivalent to those used for the approved Boralyn (TM) composition. The major characteristics are described in Section 9.1.5.2 of the SER for the TN-68 cask design.

10. CHANGES TO THE CERTIFICATE OF COMPLIANCE

The holder of this certificate who desires to make changes to this certificate, which includes Appendix A (Technical Specifications), shall submit an application for amendment of the certificate.

11. AUTHORIZATION

The TN-68 system, which is authorized by this certificate, is hereby approved for general use by holders of 10 CFR Part 50 licenses for nuclear reactors at reactor sites under the general license issued pursuant to 10 CFR 72.210, subject to the conditions specified by 10 CFR 72.212, and the attached Appendix A.

FOR THE NUCLEAR REGULATORY COMMISSION

Susan J Shankman for

E. William Brach, Director
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Date: May 10, 2000

Attachment:
1. Appendix A