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 No.	Amendment No.	Amendment Effective Date	Package Identification No
1025	04/10/2000	04/10/2020	72-1025	5	tbd	USA/72-1025

Issued To: (Name/Address)

NAC International, Inc.
3930 East Jones Bridge Road
Norcross, GA 30092

Safety Analysis Report Title

NAC International, Inc.
Final Safety Analysis Report for the
NAC Multi-Purpose Canister (MPC) System

APPROVED SPENT FUEL STORAGE CASK

Model No.: NAC-MPC

Description:

The NAC-MPC system is described in the Final Safety Analysis Report (FSAR). The Nuclear Regulatory Commission has reviewed the FSAR as documented in the Safety Evaluation Reports for the certificate.

The principal components of the NAC-MPC system are the transportable storage canister (TSC), the vertical concrete cask (VCC), and the transfer cask.

The TSC is intended to be compatible with the NAC-STC transport cask to allow future shipment. The VCC provides radiation shielding and contains internal air flow paths that allow decay heat from the TSC spent fuel contents to be removed by natural air circulation around the canister wall. The transfer cask is used to move the loaded TSC to and from the VCC and provides radiation shielding while the TSC is being closed and sealed. The TSC is placed in the VCC by positioning the transfer cask on top of the VCC and subsequently lowering the TSC.

Description (continued):

The TSC assembly consists of a right circular cylindrical shell with a welded bottom plate, a fuel basket, a shield lid, two penetration port covers, and a structural lid. The cylindrical shell, plus the bottom plate and lids, constitutes the confinement boundary. The stainless steel fuel basket is a right circular cylinder configuration with up to 36 fuel tubes (for Yankee Class fuel) and up to 26 fuel tubes (for Connecticut Yankee fuel) laterally supported by a series of stainless steel support disks, which are retained by spacers on radially-located tie rods. The spent fuel assemblies are contained in stainless steel fuel tubes. The square fuel tubes are encased with Boral sheets on all four sides for criticality control.

For the Yankee Class MPC, an alternate fuel basket design with enlarged fuel tubes in the four corner locations is also authorized. In this alternate configuration, the Boral sheet and stainless steel cover are removed from each side of the fuel tube in the four corner locations. Aluminum heat transfer disks are spaced midway between the support disks and are the primary path for conducting heat from the spent fuel assemblies to the TSC wall.

The VCC is the storage overpack for the TSC and provides structural support, shielding, protection from environmental conditions, and natural convection cooling of the TSC during long-term storage. The VCC is a reinforced concrete (Type II Portland cement) structure with a carbon steel inner liner. The VCC has an annular air passage to allow the natural circulation of air around the TSC. The air inlet and outlet vents take non-planar paths to the VCC cavity to minimize radiation streaming. The spent fuel decay heat is transferred from the fuel assemblies to the tubes in the fuel basket and through the heat transfer disks to the TSC wall. Heat flows by convection from the TSC wall to the circulating air, as well as by radiation from the TSC wall to the VCC inner liner. The heat flow to the circulating air from the TSC wall and the VCC liner is exhausted through the air outlet vents. The top of the VCC is closed by a shield plug, consisting of a carbon steel plate (gamma shielding) and solid neutron shielding material, covered by a carbon steel lid. The lid is bolted in place.

The transfer cask provides shielding during TSC movements between work stations, the VCC, or the transport cask. It is a multi-wall (steel/lead/NS-4-FR/steel) design and has a bolted top retaining ring to prevent a loaded canister from being inadvertently removed through the top of the transfer cask. Retractable (hydraulically operated) bottom shield doors on the transfer cask are used during unloading operations. To minimize contamination of the TSC, clean water is circulated in the gap between the transfer cask and the TSC during spent fuel pool loading operations.

The fuel transfer and auxiliary equipment necessary for an independent spent fuel storage installation operation are not included as part of the NAC-MPC 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.

CONDITIONS

1. 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 FSAR.

2. ACCEPTANCE TESTS 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 FSAR.

3. QUALITY ASSURANCE

Activities in the areas of design, purchase, 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.

4. HEAVY LOADS REQUIREMENTS

Each lift of an NAC-MPC TSC, transfer cask, or VCC must be made in accordance with the heavy loads requirements and procedures of the licensed facility at which the lift is made. A plant-specific safety review (under 10 CFR 50.59 or 10 CFR 72.48 requirements, if applicable) is required to show operational compliance with existing plant-specific heavy loads requirements.

5. APPROVED CONTENTS

Contents of the NAC-MPC system must meet the fuel specifications in the attachments to this certificate.

6. DESIGN FEATURES

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

7. AUTHORIZATION

The NAC-MPC 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 attachments to this certificate.

FOR THE NUCLEAR REGULATORY COMMISSION

DRAFT

Robert A. Nelson, Chief
Licensing Branch
Division of Spent Fuel Storage
and Transportation
Office of Nuclear Material Safety
and Safeguards

Attachments:
1. Appendix A - Technical Specifications
2. Appendix B - Approved Contents and Design Features

Dated: DRAFT