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.
1025	4/10/00	4/10/20	72-1025	1	11/13/2001	USA/72-1025

Issued To: (Name/Address)

NAC International Inc.
655 Engineering Drive
Norcross, GA 30092

Safety Analysis Report Title

NAC International Inc., Final Safety Analysis Report (FSAR) for the NAC Multi-Purpose Canister (NAC-MPC) System, Docket No. 72-1025

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.: NAC-MPC

The principal components of the NAC-MPC system are the transportable storage canister (TSC), the vertical concrete cask (VCC), and the transfer cask. The NAC-MPC system is a transport compatible dry storage system that uses a stainless steel TSC stored within the central cavity of a VCC. The transfer cask is used to move the loaded TSC to and from the VCC.

The TSC is designed to contain up to 36 intact Yankee Class pressurized water reactor spent fuel assemblies, which consists of fuel assemblies manufactured by Westinghouse, United Nuclear, Exxon, and Combustion Engineering. A TSC may also contain one or more Reconfigured Fuel Assemblies (RFAs), which are designed and approved to confine intact or damaged Yankee Class spent fuel rods or fuel debris. An RFA can accept up to 64 full length spent fuel rods (either rod segments or a whole rod), held in individual stainless steel tubes in an 8 by 8 array.

b. Description

The NAC-MPC system is described in the final safety analysis report (FSAR). The NAC-MPC system is a transport compatible dry storage system that uses a stainless steel TSC stored within the central cavity of a VCC.

1. b. Description (continued)

The TSC is designed 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.

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 36 fuel tubes laterally supported by a series of stainless steel support disks, which are retained by spacers on eight radially located tie rods. The spent fuel assemblies are positioned in the stainless steel fuel tubes. The square fuel tubes are encased with Boral sheets on all four sides for criticality control. An alternate fuel basket design with enlarged fuel tubes in the four corner locations is authorized. In this alternate configuration, the Boral sheet and stainless steel cover are removed from each side of the standard 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 carbon steel plate (gamma shielding) and NS-4-FR (neutron shielding), and a carbon steel lid. The lid is bolted in place and has tamper indicating seals between two of the bolts.

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 transfer cask, clean water is circulated in the gap between the cask inner surface and the TSC outer surface during spent fuel pool loading operations.

The fuel transfer and ancillary equipment necessary for Independent Spent Fuel Storage Installation (ISFSI) 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

1. b. Description (continued)

include, but is not limited to, special lifting devices, transfer trailers or equipment, and vacumn drying/helium leak test equipment.

2. OPERATING PROCEDURES

Written operating procedures shall be prepared for cask handling, loading, 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 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 SAR.

4. 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.

5. HEAVY LOADS REQUIREMENTS

Each lift of an NAC-MPC TSC, transfer cask, or VCC must be made in accordance with the existing 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.

6. APPROVED CONTENTS

Contents of the NAC-MPC system must meet the fuel 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. CHANGES TO THE CERTIFICATE OF COMPLIANCE

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

9. 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 attached Appendix A.

FOR THE NUCLEAR REGULATORY COMMISSION
/RA/ original signed by /s/
E. William Brach, Director
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Attachment:
Appendix A