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.
1026	02/15/01	02/15/21	72-1026	2	01/28/02	USA/72-1026

Issued To: (Name/Address)

BNFL Fuel Solutions
3600 Glen Canyon Road
Scotts Valley, CA 95066

Safety Analysis Report Title

FuelSolutions™
Safety Analysis Report for the FuelSolutions™ Storage System
Docket No. 72-1026

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.: FuelSolutions™ Storage System

   The FuelSolutions™ Storage System (the cask) consists of the following components: (1) canister for dry storage of spent nuclear fuel (W21 and W74); (2) transfer cask for canister loading, closure and handling capability (W100); and (3) storage cask which provides passive vertical dry storage of a loaded canister (W150). The cask stores up to 21 pressurized water reactor (PWR) assemblies or 64 boiling water reactor (BWR) assemblies.

   b. Description

   The FuelSolutions™ Storage System is certified as described in the Safety Analysis Report (SAR) and in NRC's Safety Evaluation Report (SER) accompanying the Certificate of Compliance (CoC). The cask comprises three discrete components: the W21 and W74 canisters, the W100 transfer cask, and the W150 storage cask.

   The canister is the confinement system for the stored fuel. A typical canister consists of a shell assembly, top and bottom inner closure plates, vent and drain port covers, internal basket assembly, top and bottom shield plugs, and top and bottom outer closure plates. All structural components are constructed of high-strength carbon (electroless nickel coated) or stainless steel. The canister shell, top and bottom inner closure plates, and the vent and drain port covers form the confinement boundary. The W21 fuel basket is a right circular cylinder configuration with 21 stainless steel guide tubes for the PWR contents. The guide tubes are laterally supported by a series of spacer plates held in position by support rods that run through

1. b. Description (continued)

sleeves between the spacer plates. The guide tubes include neutron poison sheets (Boral) on all four sides. The W21 canister has two classes of canister, W21M and W21T, differing in materials of construction used for the canister shell and basket assembly. Each class of canister has four different types. The W21T canister class consists of a long lead (LL), long steel (LS), short lead (SL), and short steel (SS) canister. The W21M canister has long, depleted uranium (LD); long steel (LS); short, depleted uranium (SD), and short steel (SS) designs. The W74 fuel basket assembly consists of two right circular cylindrical baskets, with a total of 74 cell locations and a capacity of up to 64 BWR assemblies. The ten unfueled cell locations are mechanically blocked to prevent loading in these positions. The guide tubes are supported by a series of spacer plates, held in position by support tubes that run through sleeves placed between the spacer plates. The guide tubes include neutron poison sheets (borated stainless steel) in an arrangement that assures there is a poison sheet between all assemblies. The W74 canister has two classes of canister, W74M and W74T, differing in materials of construction used for the canister shell and basket assembly. Each canister class has only a long steel (LS) design.

The W150 is the storage overpack for both the W21 and W74 canisters. There is a long and a short version of the cask, both of reinforced concrete with a steel liner. The W150 provides structural support, shielding, protection from environmental conditions, and natural convection cooling of the canister during long-term storage. The storage cask has an annular air passage to allow the natural circulation of air around the canister. The spent fuel decay heat is transferred from the fuel assemblies to the guide tubes, and then via conduction through the spacer plates and radiation to the canister wall. Heat flows by radiation and convection from the canister wall to the circulating air and is exhausted through the air outlets. The passive cooling system is designed to maintain acceptable reinforced concrete and peak cladding temperatures for the authorized fuel types during storage.

The W100 transfer cask provides shielding during canister movements between the spent fuel pool and the storage cask. The cask is a multi-wall (steel/lead/steel/water/steel) design. Covers are bolted on each end of the cask to allow access to the cask cavity from either end. The top cover includes a secondary central cover for ram access during horizontal loading and unloading operations. The W100 neutron shield cavity is filled with clean water either prior to placement in or following removal from the spent fuel pool. To prevent contamination of the annular region between the W100 and the canister, an inflatable annulus seal is used during loading. Heat transfer from the transfer cask is primarily by conduction through the cask wall. A thermocouple probe is included to ensure that the transfer cask system temperatures are within limits during horizontal transfer.

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. HEAVY 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 by the facility (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 FuelSolutions™ Storage 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. 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.

9. AUTHORIZATION

The FuelSolutions™ Storage 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/

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

Attachments: Appendix A, W74 Technical Specifications only