

**CERTIFICATE OF COMPLIANCE  
FOR SPENT FUEL STORAGE CASKS**  
Supplemental Sheet

Certificate No. 1014

Amendment No. 14

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## 1. b. Description (continued)

There are nine types of MPCs: the MPC-24, MPC-24E, MPC-24EF, MPC-32, MPC-32F, MPC-68, MPC-68F, MPC-68FF, and MPC-68M. The number suffix indicates the maximum number of fuel assemblies permitted to be loaded in the MPC. All nine MPC models have the same external diameter.

The HI-TRAC transfer cask provides shielding and structural protection of the MPC during loading, unloading, and movement of the MPC from the spent fuel pool to the storage overpack. The transfer cask is a multi-walled (carbon steel/lead/carbon steel) cylindrical vessel with a neutron shield jacket attached to the exterior. All transfer cask sizes have identical cavity diameters. The higher weight HI-TRAC transfer casks have thicker shielding and larger outer dimensions than the lighter HI-TRAC transfer casks.

## Above Ground Systems

The HI-STORM 100 or 100S storage overpack provides shielding and structural protection of the MPC during storage. The HI-STORM 100S is a variation of the HI-STORM 100 overpack design that includes a modified lid which incorporates the air outlet ducts into the lid, allowing the overpack body to be shortened. The overpack is a heavy-walled steel and concrete, cylindrical vessel. Its side wall consists of plain (un-reinforced) concrete that is enclosed between inner and outer carbon steel shells. The overpack has air inlets at the bottom and at the top to allow air to circulate naturally through the cavity to cool the MPC inside. The inner shell has supports attached to its interior surface to guide the MPC during insertion and removal, provide a medium to absorb impact loads, and allow cooling air to circulate through the overpack. A loaded MPC is stored within the HI-STORM 100 or 100S storage overpack in a vertical orientation. The HI-STORM 100A and 100SA are variants of the HI-STORM 100 family and are outfitted with an extended baseplate and gussets to enable the overpack to be anchored to the concrete storage pad in high seismic applications.

## Underground Systems

The HI-STORM 100U System is an underground storage system identified with the HI-STORM 100 Cask System. The HI-STORM 100U storage Vertical Ventilated Module (VVM) utilizes a storage design identified as an air-cooled vault or caisson. The HI-STORM 100U storage VVM relies on vertical ventilation instead of conduction through the soil, as it is essentially a below-grade storage cavity. Air inlets and outlets allow air to circulate naturally through the cavity to cool the MPC inside. The subterranean steel structure is seal welded to prevent ingress of any groundwater from the surrounding subgrade, and it is mounted on a stiff foundation. The surrounding subgrade and a top surface pad provide significant radiation shielding. A loaded MPC is stored within the HI-STORM 100U storage VVM in the vertical orientation.

## 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 FSAR.

## 3. ACCEPTANCE TESTS AND MAINTENANCE PROGRAM

Written cask acceptance tests and maintenance program shall be prepared consistent with the technical basis described in Chapter 9 of the FSAR. At completion of welding the MPC shell to baseplate, an MPC confinement weld helium leak test shall be performed using a helium mass spectrometer. This test shall include the base metals of the MPC shell and baseplate. A helium leak test shall also be performed on the base metal of the fabricated MPC lid. In the field, a helium leak test shall be performed on the vent and drain port confinement welds and cover plate base metal. The confinement boundary leakage rate tests shall be performed in accordance with ANSI N14.5 to "leaktight" criteria. If a leakage rate exceeding the acceptance criteria is detected, then the area of leakage shall be determined and the area repaired per ASME Code Section III, Subsection NB requirements. Re-testing shall be performed until the leakage rate acceptance criterion is met. Casks previously loaded to Amendment 7 and all prior amendments are exempt from this requirement and must meet the requirements of the amendment to which they were loaded.