

License Conditions

Before Fuel Load:

Before initial fuel loading into the reactor, the licensee shall perform an appropriate test and analysis that demonstrates that an identified NRC-approved cask can be safely connected to the spent fuel cask transfer facility (SFCTF) and the cask and its adapter meet the criteria specified in FSAR Table 9.1.4-1. Before initial fuel loading into the reactor, the licensee shall submit a report documenting the test and analysis required above and the results obtained to the Director of the Office of New Reactors or the Director's designee.

Before Initial SFCTF Use:

The licensee shall not use the spent fuel cask transfer facility (SFCTF) for initial cask loading operations until the licensee performs the tests identified in FSAR Section 14.2.12.3.17, verifies that the results of the tests fall within the acceptance criteria in FSAR Section 14.2.12.3.17, and submits a report documenting the performance of the tests and the results to the Director of the Office of New Reactors or the Director's designee.

COL Item

“A COL applicant that references the U.S. EPR design certification will perform an appropriate test and analysis, which demonstrates that an identified NRC-approved cask can be safely connected to the spent fuel cask transfer facility (SFCTF) and the cask and its adapter meet the criteria specified in Table 9.1.4-1, prior to initial fuel loading into the reactor.”

Table 9.1.4-1 – Spent Fuel Cask Requirements

#	Type	Requirement
1	Dimensional Requirements	The dimension of the cask are less than the following: <ul style="list-style-type: none"> •Height 5820 mm •Diameter 2500 mm
2	Dose Requirements	Dose rates from a loaded cask during cask handling operations do not exceed those identified in FSAR Section 12.3.
3	Cooling Requirements	The cask shall be capable of dissipating the decay heat from fuel assemblies loaded in the cask without supplemental cooling.
4	Material Requirements	The materials of construction of the cask are compatible with the operating environment including radiation heat and borated water.
5	Support System Interface Requirements	The cask shall have provisions for connecting process lines for water filling and draining, and drying of the cask. The mating surface of the cask maintains a leak-tight connection with the penetration assembly when the cask is connected to the penetration. The piping/valves that connect to the cask and serve as a fluid boundary to the cask loading pit up to and including the first valve (if a normally closed valve), or up to and including a second isolation valve (if a normally open valve with auto close or remote close capability) shall be designed in accordance with Reference 4.
6	Seismic Requirements	The cask shall be designed to withstand a site-specific safe shutdown earthquake (SSE), with seismic response spectra bounded by the generic response spectra shown in FSAR Figures 3.7.2-110, -111 and -112.
7	Structural Interface Requirements	The loads transferred to the SFCTF components and FB structures under normal operating conditions are within the following: <ul style="list-style-type: none"> •Maximum weight of fully loaded cask, including spent fuel assemblies and water, is 115,000 kg. •Distributed loads on the walls of the loading hall do not exceed 25 psf during normal operation. •Distributed loads on the floor of the loading hall do not exceed 200 psf during normal operation. •Total dead weight load of the SFCTM and fully loaded cask on the floor of loading hall does not exceed 858 kips during normal operation. The loads transferred to the SFCTF components and FB structures under a site-specific SSE and postulated drop of a fuel assembly from the maximum handling height in the cask loading pit onto a connected cask, are within the load capacity of the components and structures, and meet the leakage, dose and cooling requirements listed above.

14.2.12.3.17 Spent Fuel Cask Transfer Facility (Test #047)

1.0 OBJECTIVE

1.1 To verify the proper operation of the spent fuel cask transfer facility (SFCTF).

2.0 PREREQUISITES

3.0 TEST METHOD

3.1 Perform the following tests to verify operation of the SFCTF:

- 3.1.1 Verify that geometrical dimensions, gaps and tolerances are within design limits.
- 3.1.2 Verify cabling controls are as designed.
 - Power cabling and I&C, including adjustments to external interlocking, sensors, and limit switches.
 - Grounding.
- 3.1.3 Verify that security devices are ready to be correctly operated.
- 3.1.4 Verify the operation of the spent fuel cask transfer machine (SFCTM) inside and outside the FB, with and without its coupling (when it is self-propelled or towed by the tractor).
- 3.1.5 Verify operation of each mechanism and of each operational sub-assembly.
- 3.1.6 Verify leak tightness of lower cover of the penetration under the water column pressure.
- 3.1.7 Verify leak tightness and perform hydrostatic test of the fluid circuits.
- 3.1.8 Verify penetration leak tightness with loading pit filled.
- 3.1.9 Verify opening/closing of the upper cover with loading pit filled.
- 3.1.10 Verify leak tightness of the upper cover with loading pit filled.
- 3.1.11 Load test of biological lid handling station and penetration upper cover hoist.
- 3.1.12 Verify the external interlock with the spent fuel machine, loading pit gate, and loading hall door.
- 3.1.13 Check the sizing and ease to install adaptation parts (such as leaktightness flange, centering ring).
- 3.1.14 Verify the operation sequence and sequential interlocking without water.
- 3.1.15 Verify the operation sequence and sequential interlocking with dummy cask and dummy fuel assembly under water.
- 3.1.16 Verify the operational reversibility, i.e., return from the biological lid handling station to the loading penetration for

re-docking, unloading of fuel assembly, and undocking, up to exit of the FB.

3.1.17 Verify operation of SFCTM when it is connected to the tractor.

4.0 DATA REQUIRED

5.0 ACCEPTANCE CRITERIA

5.1 The SFCTF meets design requirements (refer to Table 9.1.4-1):

- 5.1.1 Valves, brakes and screws function as designed.
- 5.1.2 Sensors operate in their electrical range.
- 5.1.3 Biological lid handling station functions as designed.
- 5.1.4 Docking mechanism functions as designed.
- 5.1.5 Upper cover maneuvering device and hoist function as designed.
- 5.1.6 Process systems for filling, draining and drying of the cask function as designed.
- 5.1.7 Leak tightness of double wall bellow, lower cover of penetration, upper cover of penetration, valve tools and penetration/cask interface is acceptable.
- 5.1.8 Hydrostatic tests of the fluid circuits are acceptable.
- 5.1.9 Load limits setpoints are within design limits.
- 5.1.10 Interlocks function as designed.
- 5.1.11 Limit switches function as designed.
- 5.1.12 SFCTM functions as designed when connected to tractor.

Preoperational Testing – Content of section 14.2.12.3.17