

2.3.2 Core Melt Stabilization System

Design Description

1.0 System Description

The core melt stabilization system (CMSS) stabilizes molten core debris resulting from the most severe category of reactor accidents.

The CMSS does not provide any safety-related functions.

The CMSS provides the following non-safety-related functions:

- The CMSS provides temporary retention and conditioning of the molten core debris in the reactor cavity.
- The CMSS provides an area for the corium to spread in the lateral spreading compartment.
- The CMSS provides features to limit the potential for energetic fuel-coolant interactions.
- The CMSS supports the radionuclide retention function of the containment by ensuring that radionuclides can be immobilized and contained within the CMSS.

2.0 Mechanical Design Features

2.1 The bottom of the reactor pit is lined with sacrificial concrete backed by refractory brick.

2.2 The CMSS has a melt plug and gate.

2.3 The CMSS has a melt discharge channel.

2.4 The CMSS has a spreading room lined with sacrificial concrete.

2.5 The floor and walls of the spreading room are provided with channels for cooling water.

Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.3.2-1 lists the CMSS ITAAC.

Table 2.3.2-1—Core Melt Stabilization System ITAAC

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
2.1	The bottom of the reactor pit is lined with sacrificial concrete backed by refractory brick.	An inspection of the as-built reactor pit will be performed to verify that the bottom of the reactor pit is lined with sacrificial concrete backed by refractory brick.	The bottom of the reactor pit is lined with a minimum of 19.7 inches of sacrificial concrete backed by refractory brick in room UJA11001.
2.2	The CMSS has a melt plug and gate.	An inspection of the as-built cavity gate will be performed to verify that the CMSS has a melt plug and gate.	The CMSS melt plug consists of a minimum of 19.7 inches of sacrificial concrete backed by an aluminum gate room in UJA11001.
2.3	The CMSS has a melt discharge channel.	An inspection of the as-built melt discharge channel will be performed to verify that the CMSS has a melt discharge channel.	The CMSS melt discharge channel connecting rooms UJA11001 and UJA04002 has a minimum cross-sectional area of 10.76 ft ² and is lined with refractory material.
2.4	The CMSS has a spreading room lined with sacrificial concrete.	An inspection of the as-built spreading room will be performed to verify that the CMSS has a spreading room lined with sacrificial concrete.	The CMSS spreading room (UJA04002) is lined with a minimum of 19.7 inches of sacrificial concrete.
2.5	The floor and walls of the spreading room are provided with channels for cooling water.	An inspection of the as-built spreading room will be performed to verify that the floor and walls of the spreading room are provided with channels for cooling water.	The floor and walls of the spreading room (UJA04002) are provided with channels for cooling water.