2.2.8 Fuel Handling System

1.0 Description

The fuel handling system (FHS) provides for handling of fuel assemblies from the time new fuel assemblies are received at the plant site until the spent fuel assemblies are removed from the spent fuel pool. The FHS handles and transfers fuel assemblies across the containment. The system provides a means of receiving, inspecting, and storing new fuel assemblies. The spent fuel assemblies are stored in the underwater storage racks in the spent fuel pool. The spent fuel assemblies are removed from the fuel storage pool through the use of the spent fuel cask transfer facility. The main pieces of equipment used for fuel handling operations are the refueling machine, fuel transfer tube facility, new fuel elevator, spent fuel machine, auxiliary crane, and fuel storage racks.

The FHS provides the following safety related functions:

- Maintains fuel assemblies in a subcritical array.
- Facilitates cooling of the irradiated fuel assemblies to avoid overheating.
- Provides for safe handling of heavy loads (i.e., loads weighing more than one fuel assembly and its handling device) to prevent a load drop in a critical area.
- Maintains its portion of the containment isolation.

2.0 Arrangement

2.1 The location of the FHS equipment and components is as listed in Table 2.2.8-1—FHS Equipment Mechanical Design.

3.0 Mechanical Design Features

3.1 Equipment listed in Table 2.2.8-1 as ASME Code Section III is designed and tested in accordance with ASME Code Section III.

3.2 Equipment identified as Seismic Category II in Table 2.2.8-1 can maintain its structural integrity under loads during a design basis seismic event.

4.0 System Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.8-2—FHS Inspections, Tests, Analyses, and Acceptance Criteria specifies the inspections, tests, analyses, and acceptance criteria for the FHS.

Table 2.2.8-1—FHS Equipment Mechanical Design

Equipment Description	Equipment Tag Number(1)	Equipment Location	ASME Code Section III	Seismic Category
New Fuel Elevator	FCD10	Fuel Building (UFA)	N/A	II
Spent Fuel Machine	FCD01	Fuel Building (UFA)	N/A	II
Transfer Tube (Fuel Transfer Tube Facility)	FCJ05	Fuel Building (UFA) and Reactor Building (UJA)	yes [Division 1, Sub Section NC]	I
Mechanism (Fuel Transfer Tube Facility)	FCJ01	Fuel Building (UFA) and Reactor Building (UJA)	N/A	II
Refueling Machine	FCB01	Reactor Building (UJA)	N/A	II

1) Equipment tag numbers are provided for information only and are not part of the certified design.

Table 2.2.8-2—FHS Inspections, Tests, Analyses, and Acceptance Criteria

Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
2.1 Equipment is located as listed in Table 2.2.8-1.	An inspection will be performed of the location of the equipment listed in Table 2.2.8-1.	The equipment listed in Table 2.2.8-1 is located as listed in Table 2.2.8-1.
3.1 The components designated as ASME Code Section III in Table 2.2.8-1 are designed and constructed in accordance with ASME Code Section III requirements.	Inspections will be conducted.	The components listed as ASME Code Section III in Table 2.2.8-1 have been designed, constructed and tested in accordance with ASME Code Section III requirements.
3.2 Equipment identified as Seismic Category II in Table 2.2.8-1 can maintain its structural integrity while carrying load during a design basis seismic event.	Type tests, tests, analyses, or a combination of tests and analyses will be performed.	The equipment designated as Seismic Category II in Table 2.2.8-1 can withstand a design basis seismic event without losing its structural stability.