**Diablo Canyon ISFSI Technical Specification Changes**

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ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| C. MPC helium leak rate limit for vent and drain port cover plate welds not met. | C.1 Perform an engineering evaluation to determine the impact of increased helium leak rate on heat removal capability and offsite dose.<br><br>AND<br><br>C.2 Develop and initiate corrective actions necessary to return the MPC to an analyzed condition. | 24 hours<br><br><br><br><br><br>7 days |
| D. Required Actions and associated Completion Times not met. | D.1 Remove all fuel assemblies from the MPC. | 30 days |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.1.1.1 | Verify MPC cavity vacuum drying pressure is ≤ 3 torr for ≥ 30 min.<br><br>OR<br><br>While recirculating helium through the MPC cavity, verify that the gas temperature exiting the demoisturizer is ≤ 21°F for ≥ 30 min. | Once, prior to TRANSPORT OPERATIONS. |
| SR 3.1.1.2 | Verify MPC helium backfill pressure is ≥ 29.3 psig and ≤ 33.3 psig. | Once, prior to TRANSPORT OPERATIONS. |
| SR 3.1.1.3 | Verify that the total helium leak rate through the MPC vent and drain port confinement welds meets the leaktight criteria of ANSI N14.5-1997. | Once, prior to TRANSPORT OPERATIONS. |

3.1 SPENT FUEL STORAGE CASK (SFSC) INTEGRITY

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## 3.2 Cask Criticality Control Program

### 3.2.1 Dissolved Boron Concentration

LCO 3.2.1 The dissolved boron concentration in the water of the MPC cavity shall be as follows:

a. For all MPCs with one or more fuel assemblies having initial enrichment of ≤ 4.1 wt% $^{235}$U: ≥ 2000 ppmb.

b. For MPC24/24E/24EF with one or more fuel assemblies having initial enrichment of > 4.1 and ≤ 5.0 wt% $^{235}$U: ≥ 2000 ppmb.

c. For MPC 32 with one or more fuel assemblies having initial enrichment of > 4.1 and ≤5.0 wt% $^{235}$U: ≥ 2600 ppmb.

APPLICABILITY: During LOADING OPERATIONS and UNLOADING OPERATIONS with water and at least one fuel assembly in the MPC.

----------NOTE----------

For MPC-32, with maximum initial enrichments between 4.1 wt% and 5.0 wt% $^{235}$U, the minimum dissolved boron concentration may be determined by linear interpolation between 2000 ppmb at 4.1 wt% and 2600 ppmb at 5.0 wt% $^{235}$U, based on the assembly with the highest initial enrichment to be loaded.

APPLICABILITY: During LOADING OPERATIONS and UNLOADING OPERATIONS with water and at least one fuel assembly in the MPC.

ACTIONS

----------NOTE----------

Separate Condition entry is allowed for each MPC.

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| CONDITION | REQUIRED ACTION | | COMPLETION TIME |
|---|---|---|---|
| A. Dissolved boron concentration not met. | A.1 | Suspend LOADING OPERATIONS or UNLOADING OPERATIONS | Immediately |
| | AND | | |
| | A.2 | Suspend positive reactivity additions | Immediately |
| | AND | | |
| | A.3 | Initiate action to restore boron concentration to within limits | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| NOTE<br>This surveillance is only required to be performed if the MPC is submerged in water or if water is to be added to or recirculated through the MPC. | | Within 4 hours prior to commencing LOADING OPERATIONS |
| SR 3.2.1.1 | Verify the dissolved boron concentration is met using two independent measurements. | AND<br><br>Every 48 hours thereafter while the MPC is in the spent fuel pool or while water is in the MPC. |
| NOTE<br>This surveillance is only required to be performed if the MPC is submerged in water or if water is to be added to or recirculated through the MPC. | | Within 4 hours prior to commencing UNLOADING OPERATIONS |
| SR 3.2.1.2 | Verify the dissolved boron concentration is met using two independent measurements. | AND<br><br>Every 48 hours thereafter while the MPC is in the spent fuel pool or while water is in the MPC. |

# 4.0 DESIGN FEATURES

## 4.1 Design Features Significant to Safety

### 4.1.1 Criticality Control

a. MULTI-PURPOSE CANISTER (MPC) MPC-24

1. Flux trap size: ≥ 1.09 in.

2. $^{10}B$ loading in the Boral neutron absorbers: ≥ 0.0267 g/cm$^2$ (Boral) and ≥ 0.0223 g/cm$^2$ (Metamic)

b MPC-24E and MPC-24EF

1. Flux trap size:

- Cells 3, 6, 19, and 22: ≥ 0.776 in.

- All Other Cells: ≥ 1.076 in.

2. $^{10}B$ loading in the Boral neutron absorbers: ≥ 0.0372 g/cm$^2$ (Boral) and ≥ 0.0310 g/cm$^2$ (Metamic)

c. MPC-32

1. Fuel cell pitch: ≥ 9.158 in.

2. $^{10}B$ loading in the Boral neutron absorbers: ≥ 0.0372 g/cm$^2$ (Boral) and ≥ 0.0310 g/cm$^2$ (Metamic)

### 4.1.2 Design Features Important to Criticality Control

a. Fuel spacers shall be sized to ensure that the active fuel region of intact fuel assemblies remain within the neutron poison region of the MPC basket with the water in the MPC.

b. The $B_4C$ content in Metamic shall be < 33.0 wt%.

c. Neutron Absorber Test

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The Minimum $^{10}B$ for the absorber shall meet the minimum requirements for each MPC model specified in Section 4.1.1 above.

The following provides information on the governing codes for the confinement boundary (important to Safety) design:

4.0 DESIGN FEATURES (continued)

4.3 Cask Handling/Cask Transfer Facility

4.3.1 Cask Transporter

A site-specific cask transporter is used to transport the TRANSFER CASK between the power plant and the CASK TRANSFER FACILITY (CTF) and the SPENT FUEL STORAGE CASK (SFSC) between the CTF and ISFSI pad. The requirements for the cask transporter are as follows:

a. TRANSPORT OPERATIONS shall be conducted using the cask transporter.

b. The cask transporter fuel tank shall not contain > 50 gallons of diesel fuel at any time.

c. The cask transporter shall be designed, fabricated, inspected, maintained, operated, and tested in accordance with the applicable guidelines of NUREG-0612.

d. The cask transporter lifting towers shall have redundant drop protection features.

e. Lifting of a SFSC, loaded TRANSFER CASK, or loaded MPC outside of structures governed by 10 CFR 50 shall be performed with lifting devices that are designed, fabricated, inspected, maintained, operated and tested in accordance with the applicable guidelines of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

4.3.2 Storage Capacity

The Diablo Canyon ISFSI can accommodate up to 4,400 spent fuel assemblies and other NONFUEL HARDWARE. The ISFSI storage capacity will accommodate up to 140 SFSCs (138 plus 2 spare locations).

4.3.3 SFSC Load Handling Equipment

Lifting of a SFSC outside of structures governed by 10 CFR 50 shall be performed with load handling equipment that is designed, fabricated, inspected, maintained, operated and tested in accordance with the applicable guidelines of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants" as clarified by Section 4.3.4 below. The CTF requirements in Section 4.3.4 below do not apply to heavy loads governed by the regulations of 10 CFR 50.

4.3.4 CTF Structure Requirements

a. Weldment and Reinforced Concrete

1. The weldment structure of the CTF shall be designed to comply with the stress limits of ASME Code, Section III, Subsection NF, Class 3 for linear structures. All compression-loaded members shall satisfy the buckling criteria of ASME Section III, Subsection NF. The applicable loads, load combinations, and associated service condition definitions are provided in Diablo Canyon ISFSI SAR Section 4.4.5.

2. The reinforced concrete structure of the CTF shall be designed in accordance with ACI-349-1997, as clarified in Diablo Canyon ISFSI SAR Section 4.2.1.2.

(continued)

4.0 DESIGN FEATURES (continued)

b. Mobile Load Handling Equipment

Mobile load handling equipment used in lieu of the cask transporter, shall meet the guidelines of NUREG-0612, Section 5.1, with the following clarifications:

1. Mobile lifting devices shall have a minimum safety factor of two over the allowable load table for the lifting device in accordance with the guidance of NUREG-0612, Section 5.1.6(1)(a) and shall be capable of stopping and holding the load during a Design Basis Earthquake (DBE) event.
2. Mobile lifting devices shall conform to the requirements of ASME B30.5, “Mobile and Locomotive Cranes,” in lieu of the requirements of ASME B30.2, “Overhead and Gantry Cranes.”
3. Mobile cranes are not required to meet the guidance of NUREG-0612, Section 5.1.6(2) for new cranes.
4. Horizontal movements of the TRANSFER CASK and MPC using a mobile crane are prohibited.

5.0 ADMINISTRATIVE CONTROLS (continued)

5.1.3 MPC and SFSC Loading, Unloading, and Preparation Program

This program shall be established and maintained to implement Diablo Canyon ISFSI SAR Section 10.2 requirements for loading fuel and components into MPCs, unloading fuel and components from MPCs, and preparing the MPCs for storage in the SFSCs. The requirements of the program for loading and preparing the MPC shall be complete prior to removing the MPC from the fuel handling building/auxiliary building. The program provides for evaluation and control of the following requirements during the applicable operation:

a. Verify that no transfer cask handling operations are allowed at environmental temperatures below -18 °C [0 °F].

b. Verify that the water is maintained to provide adequate cooling in the annular gap between the loaded MPC and the transfer cask during MPC moisture removal operations under use of vacuum drying process for low burnup fuel (≤ 45,000 MWD/MTU). Verify that there is no water present in the annular gap between the loaded MPC and the transfer cask during MPC moisture removal operations under use of forced helium dehydration process.

c. The water temperature of a water-filled or partially filled loaded MPC shall be shown by analysis to be less than boiling at all times.

d. Verify that the drying times and pressures assure that fuel cladding temperature limit is not violated and the MPC is adequately dry.

e. Verify that the inerting backfill pressure and purity assure adequate heat transfer and corrosion control.

f. Verify that leak testing assures adequate MPC integrity and consistency with offsite dose analysis.

g. Verify surface dose rates on the TRANSFER CASK are adequate to assure proper loading and consistency with the offsite dose analysis.

h. Verify surface dose rates on the SFSCs are adequate to assure proper storage and consistency with the offsite dose analysis.

i. During MPC re-flooding, verify the helium exit temperature is such that water quenching or flashing does not occur.

j. Verify that combustible gases in the MPC are monitored and controlled to avoid combustion during MPC lid-to-shell welding or MPC cutting activities.

k. For the MPC lid-to-shell weld and the MPC enclosure vessel and lid, the weld must be at minimum of three weld layers. If PT alone is used, it will be tested at least three different weld layers, including the root and final weld layers and each approximately 3/8-inch of weld depth.

l. Verify that fuel cladding is not exposed to an oxidizing environment by maintaining the cladding in water or an inert atmosphere.

(continued)

5.0 ADMINISTRATIVE CONTROLS (continued)

m. Verify that operational controls and surveillance criteria are adequate to maintain minimum soluble boron concentrations within the MPC while outside of the spent fuel pool. The controls shall consider potential water recirculation activities in the cask system and potential use of external water sources (if any) near the system during normal and off-normal operations.

This program will control limits, surveillances, compensatory measures and appropriate completion times to assure the integrity of the fuel cladding at all times in preparation of and during LOADING, UNLOADING or TRANSPORT OPERATIONS, as applicable.

5.1.4 ISFSI Operations Program

This program will implement the Diablo Canyon ISFSI SAR requirements for ISFSI operations. It will include criteria to be verified and controlled:

a) SFSC cask storage location.

b) Design features listed in Section 4.0 and design basis ISFSI pad parameters consistent with the Diablo Canyon ISFSI SAR analysis.

c) Condition of the ISFSI Pad anchor bolt surface coatings exposed directly to the elements.

5.1.5 Cask Transportation Evaluation Program

This program will evaluate and control the transportation of loaded MPCs between the DCPP fuel handling building/auxiliary building, the CTF and the ISFSI storage pads. Included in this program will be pre-transport evaluation and control during transportation of the following:

- Transportation route road surface conditions
- Onsite hazards along the transportation route
- Security
- Transporter control functions and operability
- CTF equipment operability
- SFSC auxiliary cooling capability availability