CERTIFICATE OF COMPLIANCE NO. 1008

APPENDIX A

TECHNICAL SPECIFICATIONS FOR

THE HI-STAR 100 CASK SYSTEM

AMENDMENT 3

TABLE OF CONTENTS

1.0 USE AND APPLICATION

1.1 Definitions

----------Note ----------
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
DAMAGED FUEL ASSEMBLY	DAMAGED FUEL ASSEMBLIES are fuel assemblies with known or suspected cladding defects, as determined by a review of records, greater than pinhole leaks or hairline cracks, empty fuel rod locations that are not filled with dummy fuel rods, missing structural components such as grid spacers, whose structural integrity has been impaired such that geometric rearrangement of fuel or gross failure of the cladding is expected based on engineering evaluations, or that cannot be handled by normal means. Fuel assemblies which cannot be handled by normal means due to fuel cladding damage are considered FUEL DEBRIS.
DAMAGED FUEL CONTAINER (DFC)	DFCs are specially designed enclosures for DAMAGED FUEL ASSEMBLIES or FUEL DEBRIS which permit gaseous and liquid media to escape while minimizing dispersal of gross particulates.
FUEL BUILDING	The FUEL BUILDING is the site-specific power plant facility, licensed pursuant to 10 CFR Part 50, where the loaded OVERPACK is transferred to or from the transporter.
FUEL DEBRIS	FUEL DEBRIS is ruptured fuel rods, severed rods, loose fuel pellets or fuel assemblies with known or suspected defects which cannot be handled by normal means due to fuel cladding damage.

(continued)

1.1 Definitions (continued)

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)	The facility within the perimeter fence licensed for storage of spent fuel within SFSCs. (See also 10 CFR 72.3)
INTACT FUEL ASSEMBLY	INTACT FUEL ASSEMBLIES are fuel assemblies without known or suspected cladding defects greater than pinhole leaks or hairline cracks and which can be handled by normal means. Partial fuel assemblies, that is fuel assemblies from which fuel rods are missing, shall not be classified as INTACT FUEL ASSEMBLIES unless dummy fuel rods are used to displace an amount of water greater than or equal to that displaced by the original fuel rod(s).
LOADING OPERATIONS	LOADING OPERATIONS include all licensed activities on an SFSC while it is being loaded with fuel assemblies. LOADING OPERATIONS begin when the first fuel assembly is placed in the SFSC and end when the SFSC is suspended from or secured on the transporter.
MULTI-PURPOSE CANISTER (MPC)	MPCs are the sealed spent nuclear fuel canisters which consist of a honeycombed fuel basket contained in a cylindrical canister shell which is welded to a baseplate, lid with welded port cover plates, and closure ring. The MPC provides the confinement boundary for the contained radioactive materials.
OVERPACK	OVERPACKs are the casks which receive and contain the sealed MPCs. They provide the helium retention boundary, gamma and neutron shielding, and a set each of lifting and pocket trunnions for handling.
PLANAR-AVERAGE INITIAL ENRICHMENT	PLANAR-AVERAGE INITIAL ENRICHMENT is the average of the distributed fuel rod initial enrichments within a given axial plane of the assembly lattice.

(continued)

1.1 Definitions (continued)

SPENT FUEL STORAGE CASKS (SFSCs)	SFSCs are storage containers approved for casks of spent fuel assemblies at the ISFSI. The HI-STAR 100 SFSC System consists of the OVERPACK and its integral MPC.
STORAGE OPERATIONS	STORAGE OPERATIONS include all licensed activities that are performed at the ISFSI while an SFSC containing spent fuel is sitting on a storage pad within the ISFSI perimeter.
TRANSPORT OPERATIONS	TRANSPORT OPERATIONS include all licensed activities performed on an SFSC loaded with one or more fuel assemblies when it is being moved to and from the ISFSI. TRANSPORT OPERATIONS begin when the SFSC is first suspended from or secured on the transporter and end when the SFSC is at its destination and no longer secured on or suspended from the transporter.
UNLOADING OPERATIONS	UNLOADING OPERATIONS include all licensed activities on an SFSC to be unloaded of the contained fuel assemblies. UNLOADING OPERATIONS begin when the OVERPACK or TRANSFER CASK is no longer suspended from or secured on the transporter and end when the last fuel assembly is removed from the SFSC. UNLOADING OPERATIONS does not include MPC transfer between the TRANSFER CASK and the OVERPACK.
ZR	ZR means any zirconium-based fuel cladding or fuel channel material authorized for use in a commercial nuclear power plant reactor.

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND

Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentions of the logical connectors.

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

(continued)

1.2 Logical Connectors (continued)

EXAMPLES The following examples illustrate the use of logical connectors.

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Verify . . . AND A.2 Restore . . .	

In this example the logical connector AND is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

(continued)

1.2 Logical Connectors (continued)

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Stop . . . OR A.2.1 Verify . . . AND A.2.2.1 Reduce . . . OR A.2.2.2 Perform . . . OR A.3 Remove. . .	

This example represents a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices, only one of which must be performed as indicated by the use of the logical connector OR and the left justified placement. Any one of these three ACTIONS may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector AND. Required Action A.2.2 is met by performing A.2.2.1 or A.2.2.2. The indented position of the logical connector OR indicates that A.2.2.1 and A.2.2.2 are alternative choices, only one of which must be performed.

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE

The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.

BACKGROUND

Limiting Conditions for Operation (LCOs) specify the lowest functional capability or performance levels of equipment required for safe operation of the facility. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Times(s).

DESCRIPTION

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, provided that the SFSC is in a specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the SFSC is not within the LCO Applicability.

Once a Condition has been entered, subsequent subsystems, components, or variables expressed in the Condition, discovered to be not within limits, will not result in separate entry into the Condition unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.

----------Note ----------
When “Immediately” is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

(continued)

1.3 Completion Times (continued)

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Perform Action B.1 AND B.2 Perform Action B.2	12 hours 36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to complete action B.1 within 12 hours AND complete action B.2 within 36 hours. A total of 12 hours is allowed for completing action B.1 and a total of 36 hours (not 48 hours) is allowed for completing action B.2 from the time that Condition B was entered. If action B.1 is completed within 6 hours, the time allowed for completing action B.2 is the next 30 hours because the total time allowed for completing action B.2 is 36 hours.

(continued)

1.3 Completion Times (continued)

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One system not within limit.	A.1 Restore system to within limit.	7 days
B. Required Action and associated Completion Time not met.	B.1 Complete action B.1. AND B.2 Complete action B.2.	12 hours 36 hours

When a system is determined not to meet the LCO, Condition A is entered. If the system is not restored within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the system is restored after Condition B is entered, Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

(continued)

1.3 Completion Times (continued)

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each component.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Restore compliance with LCO.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Complete action B.1 AND B.2 Complete action B.2	6 hours 12 hours

The Note above the ACTIONS table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

The Note allows Condition A to be entered separately for each component, and Completion Times tracked on a per component basis. When a component is determined to not meet the LCO, Condition A is entered and its Completion Time starts. If subsequent components are determined to not meet the LCO, Condition A is entered for each component and separate Completion Times start and are tracked for each component.

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE	The purpose of this section is to define the proper use and application of Frequency requirements.
DESCRIPTION	Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated Limiting Condition for Operation (LCO). An understanding of the correct application of the specified Frequency is necessary for compliance with the SR. The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 2.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR. Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 2.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 2.0.4 imposes no restriction.

(continued)

1.4 Frequency (continued)

EXAMPLES The following examples illustrate the various ways that Frequencies are specified.

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify pressure within limit	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the interval specified in the Frequency is allowed by SR 2.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 2.0.1 (such as when the equipment or variables are outside specified limits, or the facility is outside the Applicability of the LCO). If the interval specified by SR 2.0.2 is exceeded while the facility is in a condition specified in the Applicability of the LCO, the LCO is not met in accordance with SR 2.0.1.

If the interval as specified by SR 2.0.2 is exceeded while the facility is not in a condition specified in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 2.0.2 prior to entry into the specified condition. Failure to do so would result in a violation of SR 2.0.4

(continued)

1.4 Frequency (continued)

EXAMPLES
(continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify vacuum drying pressure is within limits.	Once within 12 hours prior to starting activity AND 24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time the example activity is to be performed, the Surveillance must be performed within 12 hours prior to starting the activity.

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the 25% extension allowed by SR 2.0.2.

"Thereafter" indicates future performances must be established per SR 2.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If the specified activity is canceled or not performed, the measurement of both intervals stops. New intervals start upon preparing to restart the specified activity.

2.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 2.0.1 LCOs shall be met during specified conditions in the Applicability, except as provided in LCO 2.0.2.

LCO 2.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 2.0.5.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

LCO 2.0.3 Not applicable.

LCO 2.0.4 When an LCO is not met, entry into a specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in specified conditions in the Applicability that are required to comply with ACTIONS or that are related to the unloading of an SFSC.

LCO 2.0.5 Equipment removed from service or not in service in compliance with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate it meets the LCO or that other equipment meets the LCO. This is an exception to LCO 2.0.2 for the system returned to service under administrative control to perform the testing.

2.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 2.0.1 SRs shall be met during the specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 2.0.3. Surveillances do not have to be performed on equipment or variables outside specified limits.

SR 2.0.2 The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as “once,” the above interval extension does not apply. If a Completion Time requires periodic performance on a “once per...” basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

SR 2.0.3 If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is less. This delay period is permitted to allow performance of the Surveillance.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

(continued)

2.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY (continued)

SR 2.0.4 Entry into a specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent entry into specified conditions in the Applicability that are required to comply with Actions or that are related to the unloading of an SFSC.

2.1 SFSC INTEGRITY

2.1.1 Multipurpose Canister (MPC)

LCO 2.1.1 The MPC shall be dry and helium filled.

APPLICABILITY: During TRANSPORT OPERATIONS and STORAGE OPERATIONS.

ACTIONS

---------- NOTE ----------
Separate Condition entry is allowed for each SFSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MPC cavity vacuum drying pressure or demoisturizer exit gas temperature limit not met.	A.1 Perform an engineering evaluation to determine the quantity of moisture left in the MPC. AND A.2 Determine and complete corrective actions necessary to return the MPC to an analyzed condition.	7 days 30 days
B. MPC helium backfill pressure limit not met.	B.1 Perform an engineering evaluation to determine the impact of helium differential. AND B.2 Determine and complete corrective actions necessary to return the MPC to an analyzed condition.	72 hours 14 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. MPC helium leak rate limit not met.	C.1 Perform an engineering evaluation to determine impact of increased helium leak rate on heat removal capability and offsite dose release effects. AND C.2 Determine and complete corrective actions necessary to return MPC to an analyzed condition.	24 Hours 7 days
D. Required Actions and associated Completion Times not met.	D.1 Remove all fuel assemblies from the SFSC.	30 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 2.1.1.1	Verify MPC cavity has been dried in accordance with the applicable limits in Table 2-1 for the applicable MPC model.	During LOADING OPERATIONS
SR 2.1.1.2	Verify MPC helium backfill pressure is within the limit specified in Table 2-1 for the applicable MPC model.	During LOADING OPERATIONS
SR 2.1.1.3	Verify that the helium leak rate through the MPC vent and drain port cover plates (confinement welds and the base metal) meets the leaktight criteria of ANSI N14.5-1997.	Once, prior to TRANSPORT OPERATIONS

Table 2-1
MPC Model-Dependent Limits

MPC MODEL	LIMITS
1. MPC-24	
a. MPC Cavity Vacuum Drying Pressure OR FHD gas temperature	≤ 3 torr for ≥ 30 min ≤ 21°F for ≥ 30 min
b. OVERPACK Annulus Vacuum Drying Pressure	≤ 3 torr for ≥ 30 min
c. MPC Helium Backfill Pressure[1]	≤ 22.2 psig (Vertically-Oriented System) and 40.8 psig +/-2 psi (Horizontally-Oriented System)
d. OVERPACK Annulus Helium Backfill Pressure	≥ 10 psig and ≤ 14 psig
e. Deleted	Deleted
f. OVERPACK Helium Leak Rate	≤ 4.3E-6 atm cc/sec (He)
2. MPC-68	
a. MPC Cavity Vacuum Drying Pressure OR FHD gas temperature	≤ 3 torr for ≥ 30 min ≤ 21°F for ≥ 30 min
b. OVERPACK Annulus Vacuum Drying Pressure	≤ 3 torr for ≥ 30 min
c. MPC Helium Backfill Pressure[1]	≤ 28.5 psig (Vertically-Oriented System) and 40.8 psig +/- 2psi (Horizontally-Oriented System)
d. OVERPACK Annulus Helium Backfill Pressure	≥ 10 psig and ≤ 14 psig
e. Deleted	Deleted
f. OVERPACK Helium Leak Rate	≤ 4.3E-6 atm cc/sec (He)
3. MPC-68F	
a. MPC Cavity Vacuum Drying Pressure OR FHD gas temperature	≤ 3 torr for ≥ 30 min ≤ 21°F for ≥ 30 min
b. OVERPACK Annulus Vacuum Drying Pressure	≤ 3 torr for ≥ 30 min
c. MPC Helium Backfill Pressure[1]	≤ 28.5 psig (Vertically-Oriented System) and 40.8 psig +/- 2 psi (Horizontally-Oriented System)
d. OVERPACK Annulus Helium Backfill Pressure	≥ 10 psig and ≤ 14 psig
e. Deleted	Deleted
f. OVERPACK Helium Leak Rate	≤ 4.3E-6 atm cc/sec (He)

Table 2-1 (continued)
MPC Model-Dependent Limits

MPC MODEL	LIMITS
4. MPC-32	
a. MPC Cavity Vacuum Drying Pressure	≤ 3 torr for ≥ 30 min
OR FHD gas temperature	≤ 21°F for ≥ 30 min
b. OVERPACK Annulus Vacuum Drying Pressure	≤ 3 torr for ≥ 30 min
c. MPC Helium Backfill Pressure[1]	≤ 22.2 psig (Vertically-Oriented System) and 40.8 psig +/- 2 psi (Horizontally-Oriented System)
d. OVERPACK Annulus Helium Backfill Pressure	≥ 10 psig and ≤ 14 psig
e. Deleted	Deleted
f. OVERPACK Helium Leak Rate	≤ 4.3E-6 atm cc/sec (He)

[1] Helium used for backfill of MPC shall have a purity of ≥99.995%. The backfill pressure for horizontally-oriented systems is a reference pressure at a reference temperature of 70°F, and the backfill procedure shall compensate for actual conditions.

2.1 SFSC INTEGRITY

2.1.2 OVERPACK

LCO 2.1.2 The OVERPACK shall be dry and helium filled.

APPLICABILITY: TRANSPORT OPERATIONS and STORAGE OPERATIONS

ACTIONS

---------- NOTE ----------
Separate Condition entry is allowed for each SFSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. OVERPACK annulus vacuum drying pressure limit not met.	A.1 Perform an engineering evaluation to determine quantity of moisture left in OVERPACK. AND A.2 Determine and complete corrective actions necessary to return OVERPACK to analyzed condition.	7 days 30 days
B. OVERPACK annulus helium backfill pressure limit not met	B.1 Perform an engineering evaluation to determine impact of helium pressure differential. AND B.2 Determine and complete corrective actions necessary to return the OVERPACK to analyzed condition.	72 hours 30 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. OVERPACK helium leak rate limit not met.	C.1 Perform an engineering evaluation to determine impact of increased helium leak rate on heat removal capability and off-site dose release effects. AND C.2 Determine and complete corrective actions necessary to return OVERPACK to analyzed condition.	7 days 30 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 2.1.2.1	Verify OVERPACK annulus vacuum drying pressure is within limit specified in Table 2-1 for the applicable MPC model.	During LOADING OPERATIONS
SR 2.1.2.2	Verify OVERPACK annulus helium backfill pressure is within the limit specified in Table 2-1 for the applicable MPC model.	During LOADING OPERATIONS
SR 2.1.2.3	Verify that the total helium leak rate through the OVERPACK closure plate inner mechanical seal, the OVERPACK vent port plug seal, and the OVERPACK drain port plug seal is within the limits specified in Table 2-1 for the applicable MPC model.	During LOADING OPERATIONS

2.1 SFSC INTEGRITY

2.1.3 SFSC Lifting Requirements

LCO 2.1.3 An OVERPACK loaded with spent fuel shall be lifted in accordance with either of the following requirements

a. i. A lift height $\leq$ 21 inches when oriented vertically.

AND

ii. A lift height $\leq$ 72 inches when oriented horizontally.

OR

b. The OVERPACK is lifted with lifting devices designed to be single failure proof in accordance with NUREG-0612 and having redundant drop prevention design features.

OR

c. Site-specific analysis to evaluate site-specific conditions to ensure that the drop accidents impact loads remain within HI-STAR 100 SAR limits of 60g.

APPLICABILITY: During TRANSPORT OPERATIONS.

---------- NOTE ----------
This LCO is not applicable when the SFSC is in the FUEL BUILDING or is being handled by a device providing support from underneath (i.e., on a rail car, heavy haul trailer, air pads, etc.)

ACTIONS

---------- NOTE ----------
Separate Condition entry is allowed for each SFSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFSC lifting requirements not met.	A.1 Initiate actions to meet SFSC lifting requirements.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 2.1.3.1 Verify SFSC lifting requirements are met.	After the SFSC is suspended from, or secured in the transporter and prior to the transporter beginning to move the SFSC within ISFSI

2.1 SFSC INTEGRITY

2.1.4 MPC Cavity Reflooding

LCO 2.1.4 The MPC cavity pressure < 100 psig.

---------- NOTE ----------
The LCO is only applicable to wet UNLOADING OPERATIONS.

APPLICABILITY: UNLOADING OPERATIONS prior to and during re-flooding.

ACTIONS

---------- NOTE ----------
Separate Condition entry is allowed for each MPC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MPC cavity pressure not within limit.	A.1 Stop re-flooding operations until MPC Cavity pressure is within limit AND A.2 Ensure MPC vent port is not closed or blocked.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 2.1.4.1	Ensure via analysis or direct measurement that MPC cavity pressure is within limit.	Prior to initiation of MPC re-flooding operations. AND Once every 1 hour thereafter when using direct measurement.

2.2 SFSC RADIATION PROTECTION

2.2.1 OVERPACK Average Surface Dose Rates

LCO 2.2.1 The average surface dose rates of each OVERPACK shall not exceed:

1.02 125 mrem/hour (neutron + gamma) on the side;

1.03 80 mrem/hour (neutron + gamma) on the top;

APPLICABILITY: TRANSPORT OPERATIONS and STORAGE OPERATIONS

ACTIONS

---------- NOTE ----------
Separate Condition entry is allowed for each SFSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. OVERPACK average surface dose rate limits not met.	A.1 Administratively verify correct fuel loading. AND A.2 Perform written evaluations to verify compliance with the ISFSI offsite radiation protection requirements of 10 CFR Part 20 and 10 CFR Part 72.	24 hours 48 hours
B. Required Action and Associated Completion Time not met.	B.1 Remove all fuel assemblies from SFSC.	30 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 2.2.1.1	Verify average surface dose rates of OVERPACK containing fuel assemblies are within limits. OVERPACK dose rates shall be measured at the top and sides of the overpack. A minimum of 12 dose rate measurements shall be taken on the side of the overpack in three sets of four measurements. One measurement set shall be taken approximately at the cask mid-height plane, 90 degrees apart around the circumference of the cask. The second and third measurements shall be taken approximately 60 inches above and below the mid-height plane, respectively, also 90 degrees apart around the circumference of the cask. A minimum of four measurements shall be taken on the top of the overpack. Measurements shall be taken on a 32 inch diameter circle between the center and edge of the lid, 90 degrees apart.	During LOADING OPERATIONS
NOTE:	SR 2.2.1.1 shall be performed after the MPC has been dried.	
NOTE:	If a loaded OVERPACK is placed into storage after transport from an off-site location, SR 2.2.1.1 shall be performed after receipt of the OVERPACK and prior to STORAGE OPERATIONS.	

2.2 SFSC RADIATION PROTECTION

2.2.2 SFSC Surface Contamination

LCO 2.2.2 Removable contamination on the exterior surfaces of the OVERPACK and accessible portions of the MPC shall each not exceed:

a. 1000 dpm/100 cm^2 from beta and gamma sources; and

b. 20 dpm/100 cm^2 from alpha sources.

APPLICABILITY: TRANSPORT OPERATIONS and STORAGE OPERATIONS

ACTIONS

---------- NOTE ----------
Separate Condition entry is allowed for each SSSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFSC removable surface contamination limits not met.	A.1 Restore SFSC removable surface contamination to within limits.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 2.2.2.1	Verify that the removable contamination on the exterior surfaces of OVERPACKs and accessible portions of the MPC containing fuel is within limits NOTE: If a loaded OVERPACK is placed into storage after transport from an off-site location, SR 2.2.2.1 shall be performed after receipt of the OVERPACK and prior to STORAGE OPERATIONS.	During LOADING OPERATIONS

2.3 SFSC CRITICALITY CONTROL

2.3.1 Boron Concentration

LCO 2.3.1 The concentration of boron in the water in the MPC shall meet the following limits for the applicable MPC model and the most limiting fuel assembly array/class and classification to be stored in the MPC:

a. MPC-24 with one or more fuel assemblies having an initial enrichment greater than the value in Table 1.1-2 of Appendix B for no soluble boron credit and ≤ 5.0 wt% ^{235}U; ≥ 400 ppmb

b. MPC-32 Minimum soluble boron concentration as required by the table below[†].

Array/Class	All INTACT FUEL ASSEMBLIES	
	Maximum Initial Enrichment ≤ 4.1 wt% ^{235}U (ppmb)	Maximum Initial Enrichment 5.0 wt% ^{235}U (ppmb)
14x14A/B/C/D	1,300	1,900
15x15A/B/C/G	1,800	2,500
15x15D/E/F/H	1,900	2,600
16x16A	1,400	2,000
17x17A/B/C	1,900	2,600

† For maximum initial enrichments between 4.1 wt% and 5.0 wt% ^{235}U, the minimum soluble boron concentration may be determined by linear interpolation between the minimum soluble boron concentrations at 4.1 wt% and 5.0 wt%.

APPLICABILITY: During PWR fuel LOADING OPERATIONS with fuel and water in the MPC

AND

During PWR fuel UNLOADING OPERATIONS with fuel and water in the MPC.

ACTIONS

---------- NOTE ----------
Separate Condition entry is allowed for each MPC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boron concentration not within limit.	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 limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
----------NOTE---------- 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. ----------	Once, within 4 hours prior to entering the Applicability of this LCO.
SR 2.3.1.1 Verify boron concentration is within the applicable limit using two independent measurements.	AND Once per 48 hours thereafter.

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3.0 ADMINISTRATIVE CONTROLS AND PROGRAMS

The following programs shall be established, implemented, and maintained.

3.1 Deleted

3.2 Deleted

3.3 Deleted

3.4. Radioactive Effluent Control Program

This program implements the requirements of 10 CFR 72.44(d).

a. The HI-STAR 100 Cask System does not create any radioactive materials or have any radioactive waste treatment systems. Therefore, specific operating procedures for the control of radioactive effluents are not required. Specification 2.1.1, Multi-Purpose Canister (MPC), provides assurance that there are no radioactive effluents from the SFSC.

b. This program includes an environmental monitoring program. Each general license user may incorporate SFSC operations into their environmental monitoring program for 10 CFR Part 50 operations.

c. An annual report shall be submitted pursuant to 10 CFR 72.44(d)(3).