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 and Bases.

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.
HORIZONTAL STORAGE MODULE (HSM)	The HSM (Standardized HSM, HSM-H, high seismic option for HSM-H or other models enveloped by these designs) is a reinforced concrete structure for storage of a loaded DSC at a spent fuel storage installation. e.g., Standardized HSM includes HSM Model 80, Model 102, Model 152 or Model 202 as described in the Updated Final Safety Analysis Report (UFSAR). The generic term “HSM-H” refers to HSM-H or high seismic option for HSM-H except where a specific HSM-H configuration is called out.
DRY SHIELDED CANISTER (DSC)	A DSC (Model 24P, 52B, 61BT, 32PT, 24PHB, 24PTH, 61BTH, 32PTH1, 69BTH, 37PTH or other models enveloped by these designs) is a welded vessel that provides confinement of fuel assemblies in an inert atmosphere.
INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)	A complex designed and constructed for the interim storage of spent nuclear fuel, solid reactor-related GTCC waste, and other radioactive materials associated with spent fuel and reactor-related GTCC waste storage.
INTACT FUEL ASSEMBLY	INTACT FUEL ASSEMBLY is defined as an assembly containing fuel rods with no known or suspected cladding defects greater than hairline cracks or pin hole leaks. Non-cladding material damage is acceptable to the extent that the fuel assembly can be handled by normal means and the fuel assembly is retrievable after all normal and off-normal conditions.
DAMAGED FUEL ASSEMBLY, FAILED FUEL ASSEMBLY	The definitions for damaged or failed fuel assemblies are in the fuel specification tables for each DSC referred to in Technical Specification 2.1.

(continued)

1.1 Definitions

LOADING OPERATIONS	LOADING OPERATIONS include all licensed activities on a DSC in a TC while it is being loaded with fuel assemblies. LOADING OPERATIONS begin when the first fuel assembly is placed in the DSC and end when the TC is ready for TRANSFER OPERATIONS (i.e., when the cask is in a horizontal position on the trailer). The placement of the Outer Top Trailer Shielding onto the OS197L TC is considered part of the LOADING OPERATIONS. LOADING OPERATIONS do not include DSC transfer between the TC and the HSM.
OPERABLE/OPERABILITY	A system, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, and other auxiliary equipment that are required for the system, component or device to perform its specified safety function(s) are also capable of performing their related support functions(s).
STORAGE OPERATIONS	STORAGE OPERATIONS include all licensed activities that are performed at the ISFSI while a DSC containing fuel assemblies is located in an HSM on the storage pad within the ISFSI perimeter. STORAGE OPERATIONS do not include DSC transfer between the TC and the HSM.
TRANSFER CASK (TC)	The TC (Standardized TC, OS197, OS197H, OS197L, OS197FC, OS197FC-B, OS197HFC, OS197HFC-B, OS200, OS200FC TC) consists of a licensed NUHOMS® onsite transfer cask.
TRANSFER OPERATIONS	TRANSFER OPERATIONS include all licensed activities involving the movement of a TC loaded with a DSC containing fuel assemblies. TRANSFER OPERATIONS begin after the TC has been placed horizontal on the transfer trailer (and for the OS197L, the supplemental trailer shielding has been put in place) ready for TRANSFER OPERATIONS and end when the DSC is at its destination and no longer horizontal on the transfer trailer. TRANSFER OPERATIONS include transfer of a DSC between the TC and the HSM.

(continued)

UNLOADING OPERATIONS	UNLOADING OPERATIONS include all licensed activities on a DSC to unload fuel assemblies. UNLOADING OPERATIONS begin when the TC is no longer horizontal on the transfer trailer and end when the last fuel assembly has been removed from the DSC. UNLOADING OPERATIONS do not include DSC transfer between the TC and the HSM.
FUEL BUILDING	The FUEL BUILDING is the site-specific area or a facility where the LOADING OPERATIONS take place.
BLEU FUEL MATERIAL	Blended Low Enriched Uranium (BLEU) fuel material is identical to UO_2 fuel material except for the presence of higher cobalt impurity.
UNANALYZED FUEL (UF)	UNANALYZED FUEL is BWR fuel with an enrichment below the minimum enrichments defined in Table 1-4e (for the Standardized HSM) and Table 1-4f (for the HSM-H).

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.
EXAMPLES	The following examples illustrate the use of logical connectors: EXAMPLE 1.2-1 ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO (Limiting Condition for Operation) 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

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Stop… OR A.2 A.2.1 Verify… AND A.2.2 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.

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Times 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 are not met. Specified with each stated Condition are Required Action(s) and Completion Time(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, providing the Cask System 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 Cask System 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.

(continued)

1.3 Completion Times

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 Complete Action B.1 AND B.2 Complete 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.

EXAMPLES

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 to not 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, Condition A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

(continued)

1.3 Completion Times

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.

IMMEDIATE COMPLETION TIME

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

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 3.0, Limiting Condition for Operation (LCO) and Surveillance Requirement (SR) Applicability. The "Specified Frequency" consists of the requirements of the Frequency column of each SR, as well as certain Notes in the Surveillance column that modify performance requirements. 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 3.0.4 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 a SR satisfied, SR 3.0.4 imposes no restriction.

(continued)

1.4 Frequency

EXAMPLES (continued)

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. Commencement 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 stated Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is determined to not meet the LCO, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 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 3.0.1.

If the interval as specified by SR 3.0.2 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 3.0.2 prior to entry into the specified condition. Failure to do so would result in a violation of SR 3.0.4.

(continued)

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify flow 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 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 3.0.2.

"Thereafter" indicates future performances must be established per SR 3.0.2, 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 FUNCTIONAL AND OPERATING LIMITS

2.1 Fuel to be Stored in the Standardized NUHOMS® System

The spent nuclear fuel to be stored in the Standardized NUHOMS® System is specific to each DSC model as listed below and shall meet all the requirements of the applicable Fuel Specification Tables, including the cross-referenced figures and tables listed in their applicable Fuel Specification Tables.

DSC MODEL	Applicable Fuel Specification
24P	Table 1-1a
52B	Table 1-1b
61BT	Table 1-1c and Table 1-1j
32PT	Table 1-1e
24PHB	Table 1-1i
24PTH*	Table 1-1l
61BTH	Table 1-1t
32PTH1	Table 1-1aa
69BTH	Table 1-1gg
37PTH	Table 1-1ll

*Note: The 24PTH-S-LC is only authorized for storage of B&W 15x15 fuel assemblies.

DSC models are listed in the CoC. If the model number has a variant which specifically has certain limitations, then those are specifically called out in the TS. Information concerning the fuel types, dose rate limits, or other technical specifications applies to all variants if they are not explicitly mentioned in the CoC or technical specifications. An example is the 24PTH DSC. In this case, 24PTH is the model number. The 24PTH-S, -L and –S-LC are variants with specific limitations, which are called out in the TS.

2.1.1 Each of the DSC models listed above may be stored inside an HSM model in accordance with ITE 4.4.

2.2 Functional and Operating Limits Violations Immediate Actions

If any Functional and Operating Limit of 2.1 is violated, the following actions shall be completed:

2.2.1 The affected fuel assemblies shall be placed in a safe condition.

3.0 LIMITING CONDITION FOR OPERATION (LCO) AND SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

LCO 3.0.1	LCOs shall be met during specified conditions in the Applicability, except as provided in LCO 3.0.2.
LCO 3.0.2	Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met. 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 3.0.3	Not applicable to a spent fuel storage cask.
LCO 3.0.4	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 a DSC. Exceptions to this Specification are stated in the individual Specifications. These exceptions allow entry into specified conditions in the Applicability when the associated ACTIONS to be entered allow operation in the specified condition in the Applicability only for a limited period of time.
LCO 3.0.5	Not applicable to a spent fuel storage cask.

(continued)

3.0 Limiting Condition for Operation (LCO) and Surveillance Requirement (SR) Applicability

SR 3.0.1	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 3.0.3. Surveillances do not have to be performed on equipment or variables outside specified limits.
SR 3.0.2	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 3.0.3	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.
SR 3.0.4	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 a DSC.

3.1 Fuel Integrity

3.1.1 DSC Bulkwater Removal Medium and Vacuum Drying Pressure

LCO 3.1.1	Medium: Helium shall be used for all drainage of liquid water from the DSC. Pressure: The DSC vacuum drying pressure shall be sustained at or below 3 Torr (3 mm Hg) absolute for a period of at least 30 minutes following evacuation.
APPLICABILITY:	During LOADING OPERATIONS but before TRANSFER OPERATIONS.

(continued)

3.1 Fuel Integrity

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
Note: Not applicable until SR 3.1.1 is performed. A. If the required vacuum pressure cannot be obtained.	A.1 A.1.1 Confirm that the vacuum drying system is properly installed. Check and repair the vacuum drying system as necessary. <u>OR</u> A.1.2 Check and repair the seal weld between the inner top cover plate/ top shield plug assembly and the DSC shell. <u>OR</u> A.2 Establish helium pressure of at least 1.0 atm and no greater than 15 psig in the DSC. <u>OR</u> A.3 Flood the DSC with spent fuel pool water or water meeting the requirements of LCO 3.2.1 if applicable submerging all fuel assemblies.	30 days 30 days 30 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1	Verify that the DSC vacuum pressure is less than, or equal to, 3 Torr (3 mm Hg) absolute for at least 30 minutes following evacuation.	Once per DSC, after an acceptable NDE of the inner top cover plate/top shield plug assembly.

(continued)

3.1 Fuel Integrity

3.1.2 DSC Helium Backfill Pressure

LCO 3.1.2	(a) 24P or 52B DSC helium backfill pressure shall be 2.5 psig ± 2.5 psig (stable for 30 minutes after filling) after completion of vacuum drying. (b) 61BT, 32PT, 24PHB, 24PTH, 61BTH, 32PTH1, 69BTH, or 37PTH DSC helium backfill pressure shall be 2.5 psig ± 1.0 psig (stable for 30 minutes after filling) after completion of vacuum drying.
APPLICABILITY:	During LOADING OPERATIONS but before TRANSFER OPERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
Note: Not applicable until SR 3.1.2 is performed. A. The required backfill pressure cannot be obtained or stabilized.	A.1 A.1.1 Maintain helium atmosphere in the DSC cavity. AND A.1.2 Confirm, check and repair or replace as necessary the vacuum drying system, helium source and pressure gauge. AND A.1.3 Check and repair as necessary the seal weld between the inner top cover plate/top shield plug assembly and the DSC shell. OR A.2 Establish the DSC helium backfill pressure to within the limit. If pressure exceeds the criterion, release a sufficient quantity of helium to lower the DSC cavity pressure.	14 days 14 days

(continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	OR A.3 Flood the DSC with spent fuel pool water or water meeting the requirements of LCO 3.2.1, if applicable, submerging all fuel assemblies.	14 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2	(a) Verify that the 24P or 52B DSC helium backfill pressure is 2.5 psig $\pm$ 2.5 psig stable for 30 minutes after filling. (b) Verify that the 61BT, 32PT, 24PHB, 24PTH, 61BTH, 32PTH1, 69BTH, or 37PTH DSC helium backfill pressure is 2.5 psig $\pm$ 1 psig stable for 30 minutes after filling.	Once per DSC, after the completion of LCO 3.1.1 actions.

(continued)

3.1 Fuel Integrity

3.1.3 Time Limit for Completion of DSC Transfer (24PTH, 61BTH Type 2, 32PTH1, 69BTH, or 37PTH DSC Only).

LCO 3.1.3

DSC Model	Basket Type	Heat Load Zoning Configuration Number (HLZC)	Time Limit (hours)
24PTH-S or 24PTH-L DSC	1A, 1B or 1C	4	No limit
	1A, 1B or 1C	1, 2, 3, or 6	9.5
	2A, 2B or 2C	1, 2, 3, or 4	25
61BTH, Type 2 DSC Only	NA	1, 2, 3, 4, or 9	No limit
		5, 6, or 8	26
		7, 10, 11, 12, or 13	13
32PTH1 DSC	NA	3	No limit
		1, 5, or 6	13
		2 or 4	14 (Intact Fuel) 10 (Damaged Fuel)
69BTH DSC	NA	1,2,3,4, 5, or 7	13
		6	No limit
37PTH DSC	NA	2	No limit
		3	14

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

The time limit for completion of a DSC transfer is defined as the time elapsed in hours after the initiation of draining of TC/DSC annulus water until the completion of insertion of the DSC into the HSM-H.

APPLICABILITY: During LOADING OPERATIONS AND TRANSFER OPERATIONS.

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
Note: Not applicable until SR 3.1.3 is performed. A. The required time limit for completion of a DSC transfer not met.	A.1 If the TC is in the cask handling area in a vertical orientation, fill the TC/DSC annulus with clean water. OR A.2 If the TC is in a horizontal orientation on transfer skid, initiate air circulation in the TC/DSC annulus by starting one of the blowers provided on the transfer skid. OR A.3 Return the TC to the cask handling area and follow action A.1 above.	2 hours 2 hours* 2 hours

**After the blowers are turned off, the time limit for completion of DSC transfer is as indicated in the LCO 3.1.3 table.*

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3	Verify that the time limit for completion of DSC transfer is met.	Once per DSC, after the completion of LCO 3.1.2 actions or after the initiation of draining of TC/DSC annulus water.

3.2 Cask Criticality Control

LCO 3.2.1 The boron concentration of the spent fuel pool water and the water added to the cavity of a loaded DSC (24P, 32PT, 24PHB, 24PTH, 32PTH1, or 37PTH) shall be greater than or equal to the boron concentration below:

DSC Model	Minimum Boron Concentration
24P	a. 2000 ppm for fuel with an equivalent unirradiated maximum planar average enrichment of less than or equal to 1.45 wt. % U-235 per Figure 1-1. b. 2350 ppm for fuel with an equivalent unirradiated maximum planar average enrichment of greater than 1.45 wt. % U-235 per Figure 1-1.
32PT	Per Table 1-1g or Table 1-1g1 or Table 1-1g2 or Table 1-1g3
24PHB	a. 2350 ppm for fuel with the maximum planar average enrichment of less than or equal to 4.0 wt. % U-235 based on the spent fuel assembly with the highest maximum planar average initial enrichment in the DSC. b. Per Figure 1-10 and Figure 1-10a for fuel with the maximum planar average initial enrichment of greater than 4.0 wt. % U-235 based on the spent fuel assembly with the highest maximum planar average initial enrichment in the DSC.
24PTH	Per Table 1-1p or Table 1-1q or Table 1-1q1
32PTH1	Per Table 1-1cc or Table 1-1dd or Table 1-1dd1
37PTH	Per Table 1-1oo or Table 1-1pp

APPLICABILITY: During LOADING OPERATIONS and UNLOADING OPERATIONS with fuel and liquid water in the DSC Cavity.

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Dissolved boron concentration limit not met.	A.1 Suspend loading of fuel assemblies into DSC. AND A.2	Immediately
	A.2.1 Add boron and re-sample, and test the concentration until the boron concentration is shown to be greater than that required. OR	Immediately
	A.2.2 Remove all fuel assemblies from DSC.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1	Verify dissolved boron concentration limit in spent fuel pool water and water to be added to the DSC cavity is met using two independent measurements (two samples analyzed by different individuals) for LOADING OPERATIONS.	Within 4 hours before insertion of the first fuel assembly into the DSC. AND Every 48 hours thereafter while the DSC is in the spent fuel pool or until the fuel has been removed from the DSC.
SR 3.2.2	Verify dissolved boron concentration limit in spent fuel pool water and water to be added to the DSC cavity is met using two independent measurements (two samples analyzed by different individuals) for UNLOADING OPERATIONS.	Once within 4 hours prior to flooding DSC during UNLOADING OPERATIONS. AND Every 48 hours thereafter while the DSC is in the spent fuel pool or until the fuel has been removed from the DSC.

3.3 Radiation Safety

3.3.1 Dry Shielded Canister Surface Contamination Levels

LCO 3.3.1	The DSC smearable surface contamination levels on the outer top 1 foot surface of the DSC shall be less than 2,200 dpm/100 cm^2 from beta and gamma sources, and less than 220 dpm/100 cm^2 from alpha sources.
APPLICABILITY:	During LOADING OPERATIONS, following placement of each loaded TC/DSC into the cask decontamination area but prior to seal welding the DSC inner top cover plate/top shield plug assembly to the DSC shell.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The required limits are not met.	A. Use any available commercial decontamination technique on the entire length of the DSC outer surface to attempt to reduce the DSC surface contamination levels to below the required limits.	30 days
B. After completing Action A.1 contamination levels are still not met.	B. Remove the fuel assemblies from the DSC and put them back in the fuel pool, remove the DSC from the TC and decontaminate as necessary, insert the clean DSC back in the TC, check and replace the TC/DSC annulus seal if needed, and repeat the canister loading process.	30 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1	Verify the DSC surface contamination levels.	Following placement of each loaded TC/DSC into the cask decontamination area, or after decontamination actions have been completed, but prior to seal welding of the DSC inner top cover plate/top shield plug assembly to the DSC shell.

4.0 ADMINISTRATIVE CONTROLS

4.1 Functional and Operating Limits Violations Reportability Actions

If any Functional and Operating Limit of Technical Specification 2.1 is violated, the following actions shall be completed:

4.1.1 Notify the NRC Operations Center per the requirements of 10 CFR 72.75.

4.1.2 Within 30 days, submit a separate report which describes the cause of the violation and the actions taken to restore compliance and prevent recurrence.

4.2 Procedures

4.2.1 Procedures

Each user of the standardized NUHOMS® System shall prepare, review, and approve written procedures for all normal operations (cask handling, loading movement and surveillance) and maintenance at the ISFSI prior to its operation. The operating procedures suggested generically in the UFSAR should provide the basis for the user's written operating procedures. Written procedures shall be established, implemented, and maintained.

4.2.2 Aging Management Program Procedures and Reporting

Each general licensee shall have a program to establish, implement, and maintain written procedures for each AMP described in the UFSAR. The program shall include provisions for changing AMP elements, as necessary, and within the limitations of the approved licensing bases to address new information on aging effects based on inspection findings and/or industry operating experience provided to the general licensee during the renewal period. Each procedure shall contain a reference to the specific aspect of the AMP element implemented by that procedure, and that reference shall be maintained even if the procedure is modified.

The general licensee shall establish and implement these written procedures within 180 days of the effective date of the renewal of the CoC or 180 days of the 20th anniversary of the loading of the first dry storage system at its site, whichever is later. The general licensee shall maintain these written procedures for as long as the general licensee continues to operate Standardized NUHOMS® Horizontal Modular Storage Systems inservice for longer than 20 years.

4.3 Programs

Each user of the NUHOMS® System will implement the following programs:

- Radiological Environmental Monitoring Program
- Radiation Protection Program

4.3.1 Radiological Environmental Monitoring Program

a) A radiological environmental monitoring program shall be implemented to verify that the annual dose equivalent to an individual located outside the ISFSI controlled area does not exceed the annual dose limits specified in 10 CFR 72.104(a).
b) Operation of the ISFSI does not create any radioactive materials or result in any credible liquid or gaseous effluent release.

4.3.2 Radiation Protection Program

As part of its evaluation pursuant to 10 CFR 72.212, the licensee shall perform an analysis to confirm that the limits of 10 CFR Part 20 and 10 CFR 72.104 will be satisfied under the actual site conditions and configurations considering the planned number of DSCs/HSMs to be used and the planned fuel loading conditions.

A dose assessment shall also be performed to account for occupational exposures during normal LOADING and TRANSFER OPERATIONS. If remote handling devices are used for movement of a TC during LOADING OPERATIONS then the dose assessment shall include recovery from the off-normal event of a potential malfunction of these devices. The licensee shall perform this dose assessment including occupational and public exposures from off-normal and accident conditions as a part of their 10 CFR 72.212 evaluations and augment their 10 CFR Part 20 radiation protection plan as required. The licensee shall develop appropriate measures (such as use of remote camera monitoring, use of temporary shielding etc.) to keep the dose rates ALARA during recovery from these potential malfunctions if needed. The licensee shall provide appropriate training to personnel involved in the possible repair/recovery operations.

When using an OS197L TC, the ALARA assessment shall include at least the assessment of occupational and public exposures associated with the following:

1. The off-normal event of cask handling crane hangup during the movement of a loaded OS197L TC from the spent fuel pool to the decontamination area and from the decontamination area to the transfer trailer.
2. Surface, 100-meter and in the most affected unrestricted area (if any) dose rates from the transfer trailer without the top outer trailer shield in place for their impact on compliance with 10 CFR 72.104 and 10 CFR 20.1301(a)(2) dose values.
3. Worker doses associated with visual inspection of the openings at the top and bottom of the decontamination area shields.
4. Any other operation that has credible potential for high worker or public exposure.

(continued)

4.3 Programs (continued)

For the OS197L, approved written procedures shall be developed and followed that address normal, off-normal, and accident conditions. Specifically, these procedures shall address the impact on plant operations due to potentially-increased radiation levels from the unshielded loaded OS197L. These may include operator actions required by 10 CFR Part 50 TSs, security guard actions, control room habitability, and response to alarms set off by the loaded OS197L.

Remote operations and appropriate ALARA practices shall be used due to very high dose rates during movement of the loaded OS197L TC from fuel pool to the decontamination area and from the decontamination area to the transfer trailer. When remote operations are used, approved written procedures shall be in place to govern these operations. When remote operations are used redundancy of equipment and their quality standards shall be considered and appropriate quality standards for the remote handling equipment shall be assigned.

When using an OS197L TC, the neutron shield (NS) shall be verified to be filled when DSC cavity draining or TC/DSC annulus draining operations are initiated and continually monitored during the first five minutes of the draining evolution to ensure the NS remains filled. The NS shall also be verified to be filled prior to movement of the loaded TC from the decontamination area (before the shield bell is removed). Observation of water level in the expansion tank or some other means can be used to verify compliance to this requirement.

When using a TC with a liquid NS, other than the OS197L TC, if draining the NS is required to meet the plant lifting crane capacity limits, the NS shall be verified to be filled after completion of the lift. If DSC cavity draining or TC/DSC annulus draining operations, as applicable, are initiated after the lift, the NS shall be verified to be filled before these draining operations are initiated and continually monitored during the first five minutes of the draining evolution to ensure the NS remains filled. Observation of water level in the expansion tank or some other means can be used to verify compliance to this requirement.

4.3.3 Hydrogen Gas Monitoring for NUHOMS®

For all NUHOMS® DSCs, while welding the inner top cover plate during LOADING OPERATIONS, and while cutting the outer or inner top cover plates during UNLOADING OPERATIONS, hydrogen monitoring of the space under the shield plug in the DSC cavity is required, to ensure that the combustible mixture concentration remains below the flammability limit of 4%.

(continued)

4.3 Programs (continued)

4.3.4 Heavy Loads Requirements

Each lift of a DSC and TC must be made in accordance with the existing heavy loads requirements and procedures of the licensed facility at which the lift is made. A plant-specific safety review (under 10 CFR 50.59 or 10 CFR 72.48, if applicable) is required to show operational compliance with NUREG-0612 and or existing plant-specific heavy loads requirements.

If a single failure proof crane is not used, the licensee must evaluate the accidental drop of the shielding components of the OS197L TC under 10 CFR 50.59, 10 CFR 72.48, and 10 CFR 72.212, and evaluate the consequences of the accident drops.

4.3.5 Pre-Operational Testing and Training Exercise

A dry run training exercise of the loading, closure, handling, unloading and transfer of the Standardized NUHOMS® System shall be conducted by each licensee prior to the first use of the system to load spent nuclear fuel assemblies. The training exercise shall not be conducted with spent nuclear fuel in the canister. The dry run may be performed in an alternate step sequence from the actual procedural guidelines in the SAR. The dry run shall include, but need not be limited to the following:

Loading Operations

a) Fuel Loading
b) DSC sealing, drying and backfilling operations
c) TC downending and transport to the ISFSI
d) DSC transfer to the HSM
e) Use of the remote crane operations and laser/optical systems for targeting if the OS197L TC is to be used for loading
f) Manual crane operations if the OS197L TC is to be used for loading

Unloading Operations

a) DSC retrieval from the HSM
b) Flooding of the DSC
c) Opening of the DSC

(continued)

4.3 Programs (continued)

4.3.6 HSM or HSM-H Thermal Monitoring Program

This program provides guidance for temperature measurements that are used to monitor the thermal performance of each HSM.

Note: Only one of the two alternate surveillance activities listed below (4.3.6 a or 4.3.6 b) shall be performed for monitoring the HSM or HSM-H thermal performance.

a) Daily Visual Inspection of the HSM or HSM-H Air Inlets and Outlets (Front Wall and Roof Bird Screens)

A daily visual surveillance shall be conducted of the exterior of the air inlets and outlets to ensure that HSM air vents are not blocked for periods longer than assumed in the safety analysis.

In addition, a visual inspection shall be performed to ensure that no materials accumulate between the modules (only applicable for HSM designs with gap between adjacent modules) that could block the air flow.

If the surveillance shows blockage of air vents (any blockage of the outlet vents or more than 50% of the inlet vents), they shall be cleared. If the bird screen is damaged, it shall be replaced.

b) Daily HSM or HSM-H Temperature Measurement

Verify the thermal performance of each HSM or HSM-H via a direct temperature measurement on a daily basis. The temperature measurement could be any parameter such as (1) a direct measurement of the HSM or HSM-H temperatures, (2) a direct measurement of the DSC temperatures, (3) a comparison of the inlet and outlet temperature difference to predicted temperature differences for each individual HSM or HSM-H, or (4) other means that would identify and allow for the correction of off-normal thermal conditions that could lead to exceeding the concrete and fuel clad temperature criteria. If air temperatures are measured, they must be measured in such a manner as to obtain representative values of inlet and outlet air temperatures. Also, due to the proximity of adjacent HSM or HSM-H modules, care must be exercised to ensure that measured air temperatures reflect only the thermal performance of an individual module, and not the combined performance of adjacent modules.

(continued)

4.3 Programs (continued)

If the temperature measurement shows a significant unexplained difference, so as to indicate the approach to the concrete material or fuel clad temperature criteria, take appropriate action to determine the cause and return the canister to normal operation. If the measurement or other evidence suggests that the concrete accident temperature criteria (350 °F for HSM or the elevated temperature used in CoC Appendix A, Section 4.2 to perform concrete testing for HSM-H) has been exceeded for more than 24 hours, the licensee can provide analysis results and/or test results in accordance with ACI-349, Appendix A.4.3, demonstrating that the structural strength of the HSM or HSM-H has an adequate margin of safety. Take additional appropriate actions if necessary based on the results of the evaluation above.

The temperature measurement program should be of sufficient scope to provide the licensee with a positive means to identify conditions which threaten to approach temperature criteria for proper HSM or HSM-H operation and allow for the correction of off-normal thermal conditions that could lead to exceeding the concrete and fuel clad temperature criteria.

4.4 Cask Transfer Controls

4.4.1 TC/DSC Lifting/Handling Height Limits

The requirements of 10 CFR Part 72 apply to TC/DSC lifting/handling height limits outside the FUEL BUILDING. The requirements of 10 CFR Part 50 apply to TC/DSC lifting/handling height limits inside the FUEL BUILDING.

A. TC/DSC Lifting/Handling Height at Low Temperature and Location

Confirm the basket temperature and ambient temperature before the TRANSFER OPERATIONS of the loaded TC/DSC.

The lifting/handling height of a loaded TC/DSC, is limited as a function of location and low temperature as follows:

- No lifts or handling of the TC/DSC at any height are permissible at DSC basket temperatures below -20°F inside the FUEL BUILDING.
- The maximum lift height of the TC/DSC shall be 80 inches if the basket temperature is below 0°F but higher than -20°F inside the FUEL BUILDING.
- No lift height restriction is imposed on the TC/DSC if the basket temperature is higher than 0°F inside the FUEL BUILDING and a special lifting device that has at least twice the normal stress design factor for handling heavy loads, or a single failure proof handling system is used. If the special lifting device or single failure proof handling system is not used, measures shall be taken such that the drop g loads do not exceed those analyzed for the TC/DSC.
- When handling a loaded TC/DSC at a height greater than 80 inches outside the FUEL BUILDING, a special lifting device that has at least twice the normal stress design factor for handling heavy loads, or a single failure proof handling system shall be used and the basket temperature may not be lower than 0°F.

The requirements of 10 CFR Part 72 apply when the TC/DSC is in horizontal orientation on the transfer trailer. The requirements of 10 CFR Part 50 apply when the TC/DSC is being lifted/handled using the cask handling crane/hoist. (This distinction is valid only with respect to lifting/handling height limits.) If calculation or measurement of the basket temperature is unavailable, then the ambient temperature may be conservatively used.

B. TC/DSC TRANSFER OPERATIONS at High Ambient Temperatures

- The ambient temperature for TRANSFER OPERATIONS of a loaded TC/DSC (24P, 52B, 61BT, 32PT, 24PHB, 24PTH, 61BTH, 69BTH, or 37PTH DSC) shall not be greater than 100°F (when the cask is exposed to direct insolation). The corresponding ambient temperature limit for a TC with a loaded 32PTH1 DSC is 106°F.
- For TRANSFER OPERATIONS when ambient temperature exceeds 100°F (106°F for 32PTH1 TC/DSC), a solar shield shall be used to provide protection against direct solar radiation.

(continued)

4.4 Cask Transfer Controls (continued)

- This ambient temperature limit applies to all TRANSFER OPERATIONS of a loaded TC/DSC outside the FUEL BUILDING.
- Confirm what the ambient temperature is before transfer of the TC/DSC and every 2 hours when the loaded cask is exposed to direct insolation during TRANSFER OPERATIONS. If the ambient temperature before the transfer operation is greater than 100 °F or if the ambient temperature is expected to exceed the above limits provide an appropriate solar shield.

C. Verification of concrete storage pad parameters

Verify that the concrete storage pad parameters are consistent with the UFSAR analysis.

4.4.2 Trailer Shielding Drop onto OS197L TC

The DSC and the OS197L TC and the trailer shielding shall be inspected for damage and evaluated for further use after the accident drop of the trailer shielding onto the OS197L TC.

The lifting of outer top trailer shielding is restricted such that the bottommost part of the body of the outer top trailer shielding is less than 4 inches above the inner top trailer shielding.

4.5 HSM-H Configuration Changes

The use of HSM-H thermal performance methodology is allowed for evaluating HSM-H configuration changes except for changes to the HSM-H cavity height, cavity width, elevation and cross-sectional areas of the HSM-H air inlet/outlet vents, total outside height, length and width of HSM-H if these changes exceed 8% of their nominal design values shown on the approved CoC Amendment Number 8 drawings.