TECHNICAL SPECIFICATIONS

FOR NORTH ANNA INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

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 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.
INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)	The facility within the perimeter fence licensed for storage of spent fuel within SSSCs.
LOADING OPERATIONS	LOADING OPERATIONS include all licensed activities on an SSSC while it is being loaded with fuel assemblies. LOADING OPERATIONS begin when the first fuel assembly is placed in the SSSC and end when the SSSC is suspended from the transporter.
SEALED SURFACE STORAGE CASKS (SSSCs)	SSSCs are storage containers for spent fuel approved for use at the ISFSI.
STORAGE OPERATIONS	STORAGE OPERATIONS include all licensed activities that are performed at the ISFSI while an SSSC containing spent fuel is sitting on a storage pad within the ISFSI perimeter.
TRANSPORT OPERATIONS	TRANSPORT OPERATIONS include all licensed activities performed on an SSSC loaded with one or more fuel assemblies when it is being moved to and from the ISFSI. TRANSPORT OPERATIONS begin when the SSSC is first suspended from the transporter and end when the SSSC is at its destination and no longer suspended from the transporter.
UNLOADING OPERATIONS	UNLOADING OPERATIONS include all licensed activities on an SSSC to be unloaded of the contained fuel assemblies. UNLOADING OPERATIONS begin when the SSSC is no longer suspended by the transporter and end when the last fuel assembly is removed from the SSSC.

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.
EXAMPLES	The following examples illustrate the use of logical connectors.

1.2 Logical Connectors

EXAMPLES (continued)

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.

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.2.1 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, providing the facility 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 facility 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 <u>not</u> 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.

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 Perform Action B.1.	12 hours
	AND	
	B.2 Perform Action B.2.	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.

1.3 Completion Times

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 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, Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

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.

1.3 Completion Times

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

1.0 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 3.0, 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 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 an SR satisfied, SR 3.0.4 imposes no restriction.

1.4 Frequency

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 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 or a variable is outside specified limits, or the facility 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.

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 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 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 Functional and Operating Limits

2.1.1 Fuel To Be Stored At The ISFSI

The spent nuclear fuel to be stored in SSSCs at the North Anna ISFSI shall meet the following requirements:

a. Only fuel irradiated at the North Anna Power Station Unit Nos. 1 and 2 may be used.

b. Fuel assemblies shall be intact. Partial fuel assemblies, that is, fuel assemblies from which fuel rods are missing must not be loaded in SSSCs unless dummy fuel rods are used to displace an amount of water equal to that displaced by the original fuel rods.

c. Fuel assemblies known or suspected to have structural defects sufficiently severe to adversely affect fuel handling and transfer capability shall not be loaded into SSSCs for storage.

d. Fuel assemblies known or suspected to have cladding defects in excess of those approved for the SSSC design shall not be loaded into SSSCs for storage.

e. Fuel assemblies shall meet the limits for initial enrichment, average burnup, cooling time after reactor discharge, decay heat, gamma and neutron source, fuel assembly design, and fuel assembly inserts as specified in Table 2.1-1.

2.2 Functional and Operating Limits Violations

If any Functional and Operating Limits of 2.1.1 are violated, the following actions shall be completed:

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

2.2.2 Within 24 hours, notify the NRC Operations Center.

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

Table 2.1-1 (page 1 of 1)
Fuel Assembly Limits

SSSC MODEL	LIMIT
1. TN-32	
a. Initial Enrichment	≤ 3.85 wt. %
b. Average Burnup	≤ 40,000 MWD/MTU
c. Cooling Time After Discharge	≥ 7 years
d. Decay Heat	≤ 0.847 kw/assembly
e. Gamma Source per Cask	≤ 2.31E17 photons/second
f. Neutron Source per Cask	≤ 4.83E9 neutrons/second
g. Fuel Assembly Design	Westinghouse 17x17 Standard Westinghouse 17x17 Vantage 5H
h. Fuel Assembly Inserts	Fuel assemblies may not contain either burnable poison rod assemblies (BPRAs) or thimble plugging devices (TPDs).

3.0 LIMITING CONDITION FOR OPERATION (LCO) 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, except as provided in LCO 3.0.5. 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 3.0.3	Not applicable to an ISFSI
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 an SSSC.
LCO 3.0.5	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 3.0.2 for the system returned to service under administrative control to perform the testing.
LCO 3.0.6	Not applicable to an ISFSI
LCO 3.0.7	Not applicable to an ISFSI

3.0 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.

3.0 SR APPLICABILITY

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 an SSSC.

3.1 SSSC INTEGRITY

3.1.1 SSSC Cavity Vacuum Drying Pressure

LCO 3.1.1 The SSSC cavity vacuum drying pressure shall meet the limit specified in Table 3-1 for the applicable SSSC design.

APPLICABILITY: During LOADING OPERATIONS.

ACTIONS

NOTE

Separate Condition entry is allowed for each SSSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSSC cavity vacuum drying pressure limit not met.	A.1 Establish SSSC cavity vacuum drying pressure within limit.	48 hours
B. Required Action and Associated Completion Time not met.	B.1 Remove all fuel assemblies from the SSSC.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SSSC cavity vacuum drying pressure is within limit.	Within 48 hours after removing SSSC from the spent fuel pool

3.1 SSSC INTEGRITY

3.1.2 SSSC Helium Backfill Pressure

LCO 3.1.2 The SSSC helium backfill pressure shall meet the limit specified in Table 3-1 for the applicable SSSC design.

APPLICABILITY: During LOADING OPERATIONS.

ACTIONS

NOTE

Separate Condition entry is allowed for each SSSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSSC helium backfill pressure limit not met.	A.1 Establish SSSC helium backfill pressure within limit.	48 hours
B. Required Action and Associated Completion Time not met.	B.1 Remove all fuel assemblies from the SSSC.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	Verify SSSC helium backfill pressure is within limit.	Within 24 hours after verifying SSSC cavity vacuum drying pressure is within limit

3.1 SSSC INTEGRITY

3.1.3 SSSC Helium Leak Rate

LCO 3.1.3 The SSSC helium leak rate for all closure seals shall not exceed the limit specified in Table 3-1 for the applicable SSSC design.

APPLICABILITY: During LOADING OPERATIONS.

ACTIONS

NOTE

Separate Condition entry is allowed for each SSSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSSC helium leak rate limit not met.	A.1 Establish SSSC helium leak rate within limit.	48 hours
B. Required Action and Associated Completion Time not met.	B.1 Remove all fuel assemblies from the SSSC.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Verify SSSC helium leak rate is within limit.	Within 48 hours after verifying SSSC helium backfill pressure is within limit

3.1 SSSC INTEGRITY

3.1.4 SSSC Seal Integrity

LCO 3.1.4 The SSSC seal integrity shall be maintained.

APPLICABILITY: During STORAGE OPERATIONS.

ACTIONS

NOTE
Separate Condition entry is allowed for each SSSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSSC seal integrity not maintained.	A.1 Restore SSSC seal integrity.	30 days
B. Required Action and Associated Completion Time not met.	B.1 Remove all fuel assemblies from the SSSC.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify SSSC seal integrity in accordance with Table 3-1.	24 hours

3.1 SSSC INTEGRITY

3.1.5 SSSC Maximum Lifting Height

LCO 3.1.5 The SSSC lifting height shall not exceed the limit in Table 3-1.

APPLICABILITY: During TRANSPORT OPERATIONS.

ACTIONS

NOTE
Separate Condition entry is allowed for each SSSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSSC lifting height higher than limit.	A.1 Initiate action to restore SSSC lifting height within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify SSSC lifting height within limit.	Prior to movement of SSSC with transporter

3.2 SSSC CRITICALITY CONTROL

3.2.1 Dissolved Boron Concentration

LCO 3.2.1 The dissolved boron concentration of the spent fuel pool and of the water added to the cavity of an SSSC shall be within limits specified in Table 3-1.

APPLICABILITY: During LOADING OPERATIONS,
During UNLOADING OPERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Dissolved boron concentration limit not met.	A.1	Suspend loading of fuel assemblies into SSSC.	Immediately
	AND		
	A.2	Remove all fuel assemblies from SSSC.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	Verify dissolved boron concentration limit in spent fuel pool water and water to be added to the SSSC cavity is met using two independent measurements.	Within 4 hours prior to commencing LOADING OPERATIONS AND 48 hours thereafter while the SSSC is in the spent fuel pool.
SR 3.2.1.2	Verify dissolved boron concentration limit in spent fuel pool water and water to be added to the SSSC cavity is met using two independent measurements.	Within 4 hours prior to flooding SSSC during UNLOADING OPERATIONS AND 48 hours thereafter while the SSSC is in the spent fuel pool.

3.3 SSSC RADIATION PROTECTION

3.3.1 SSSC Average Surface Dose Rates

LCO 3.3.1 The average surface dose rates of each SSSC shall not exceed:

a. 129 mrem/hour (neutron + gamma) on the side; and

b. 55 mrem/hour (neutron + gamma) on the top.

APPLICABILITY: During LOADING OPERATIONS.

ACTIONS

NOTE

Separate Condition entry is allowed for each SSSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSSC average surface dose rate limits not met.	A.1 Administratively verify correct fuel loading.	24 hours
	AND	
	A.2 Perform analysis to verify compliance with the ISFSI offsite radiation protection requirements of 10 CFR Part 20 and 10 CFR Part 72.	Prior to TRANSPORT OPERATIONS
B. Required Action and Associated Completion Time not met.	B.1 Remove all fuel assemblies from the SSSC.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Verify average surface dose rates of SSSC containing fuel assemblies are within limits.	Prior to TRANSPORT OPERATIONS

3.3 SSSC RADIATION PROTECTION

3.3.2 SSSC Surface Contamination

LCO 3.3.2 Removable contamination on the SSSC exterior surfaces shall not exceed:

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

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

APPLICABILITY: During LOADING OPERATIONS.

ACTIONS

NOTE

Separate Condition entry is allowed for each SSSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSSC removable surface contamination limits not met.	A.1 Restore SSSC removable surface contamination to within limits.	Prior to TRANSPORT OPERATIONS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Verify that the removable contamination on exterior surfaces of SSSC containing fuel assemblies is within limits.	Prior to TRANSPORT OPERATIONS

3.3 SSSC RADIATION PROTECTION

3.3.3 ISFSI Perimeter Radiation

LCO 3.3.3 The ISFSI's contribution to the radiation doses (neutron+gamma) at the ISFSI perimeter fence shall not exceed the limits provided in Figure 3.3.3-1.

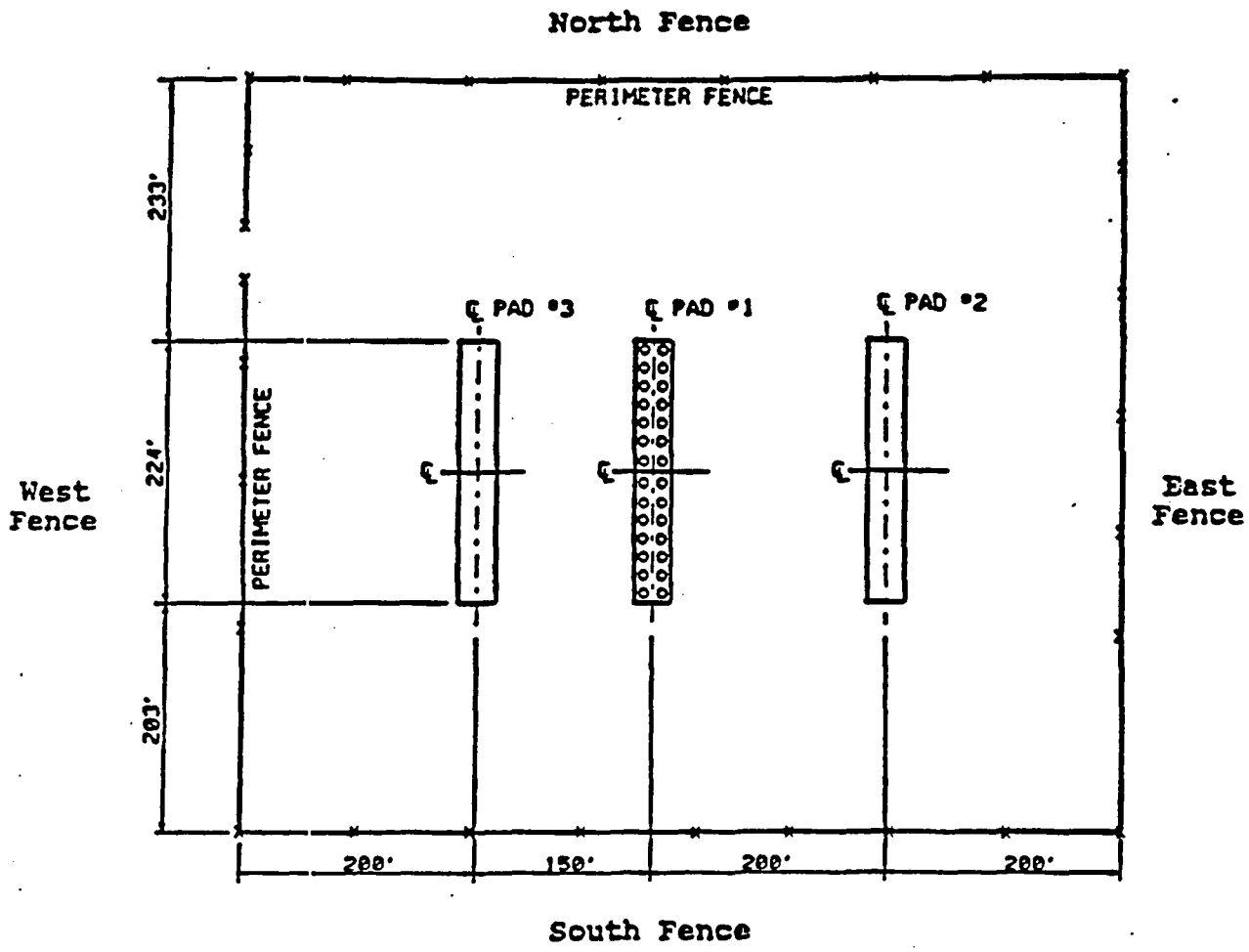
APPLICABILITY: During STORAGE OPERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ISFSI perimeter radiation not within limits.	A.1 Initiate action to restore ISFSI perimeter radiation to within limits.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Verify ISFSI's contribution to radiation doses (neutron+gamma) at ISFSI perimeter fence does not exceed the specified limits.	92 days



West Fence Limit: 0.327 mRem/Hour
North Fence Limit: 0.160 mRem/Hour
East Fence Limit: 1.020 mRem/Hour
South Fence Limit: 0.609 mRem/Hour

Figure 3.3.3-1 (page 1 of 1)
ISFSI Perimeter Radiation Limits

Table 3-1 (page 1 of 1)
SSSC Model-Dependent Limits

SSSC MODEL	LIMITS
1. TN-32	
a. Cavity Vacuum Drying Pressure	$\leq$ 3 mbar held for 10 minutes
b. Helium Backfill Pressure	2230 mbar $\pm$ 100 mbar
c. Helium Leak Rate	$\leq 1.0 \times 10^{-5}$ mbar-liter/sec
d. Seal Integrity Verification	Inter-Seal Pressure $\geq$ 3100 mbar
e. Dissolved Boron Concentration	$\geq$ 2000 ppm
f. Maximum Lifting Height	eighteen inches

4.0 DESIGN FEATURES

4.1 Site

4.1.1 Site Location

The North Anna ISFSI is located approximately 2000 feet southwest of the North Anna Power Station Units 1 and 2 protected area and within the boundaries of the North Anna site. The North Anna site is located in the north-central portion of Virginia in Louisa County and is approximately 40 miles north-northwest of Richmond, 36 miles east of Charlottesville; 22 miles southwest of Fredericksburg; and 70 miles southwest of Washington, D.C. The site is on a peninsula on the southern shore of Lake Anna at the end of State Route 700.

4.2 Storage Features

4.2.1 Storage Cask

The North Anna ISFSI is licensed to store spent fuel in the TN-32 dry storage cask.

4.2.2 Storage Capacity

The total storage capacity of the North Anna ISFSI is limited to 839.04 metric tons uranium.

4.2.3 Storage Pad

The North Anna ISFSI storage pads are reinforced concrete, with nominal dimensions of 224 feet x 32 feet x 2 feet thick with a 40-foot ramp on each end for vehicle access. Each pad is designed to store 28 SSSCs arranged in two rows. The SSSCs in each row will be spaced a nominal 16 feet apart center to center. Each row of SSSCs will be spaced a nominal 16 feet apart center to center. The facility will have up to three storage pads.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

5.1.1 The plant manager shall be responsible for overall ISFSI operation and shall delegate in writing the succession to this responsibility during his absence.

The plant manager or his designee shall approve, prior to implementation, each proposed test, experiment or modification to systems or equipment that affects nuclear safety.

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

5.2.1 Onsite and Offsite Organizations

Onsite and offsite organizations shall be established for facility operation and corporate management, respectively. The onsite and offsite organizations shall include the positions for activities affecting safety of the ISFSI.

a. Lines of authority, responsibility, and communication shall be defined and established throughout highest management levels, intermediate levels, and all operating organization positions. These relationships shall be documented and updated, as appropriate, in organization charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements, including the plant-specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications, shall be documented in the Safety Analysis Report or the Virginia Electric and Power Company Operational Quality Assurance Program Topical Report;

b. The plant manager shall be responsible for overall safe operation of the facility and shall have control over those onsite activities necessary for safe operation and maintenance of the facility;

c. The responsible corporate executive shall have corporate responsibility for overall facility nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the facility to ensure nuclear safety; and

d. The individuals who train the operating staff, carry out health physics, or perform quality assurance functions may report to the appropriate onsite manager; however, these individuals shall have sufficient organizational freedom to ensure their independence from operating pressures.

5.0 ADMINISTRATIVE CONTROLS

5.3 Facility Staff Qualifications

5.3.1 Each member of the facility staff shall meet or exceed the minimum qualifications of ANS 3.1 (12/79 Draft) for comparable positions except that the Superintendent - Radiological Protection shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975. Additional exceptions are specified in the Virginia Electric and Power Company Operational Quality Assurance Program Topical Report.

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

5.4.1 Written procedures shall be established, implemented, and maintained covering the following activities:

a. Administrative controls;

b. Routine ISFSI operations;

c. Alarm and annunciator response;

d. Emergency operations;

e. Design control and facility change or modification;

f. Control of surveillances and tests;

g. Control of special processes;

h. Maintenance;

i. Health physics, including ALARA practices;

j. Special nuclear material accountability;

k. Quality assurance, inspection, and audits;

l. Physical security and safeguards;

m. Records management;

n. Reporting; and

o. All programs specified in Specification 5.5.

The above procedures may be common with the North Anna Power Station procedures provided that all ISFSI requirements are met.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs

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

5.5.1 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:

   1. A change in the TS incorporated in the license; or

   2. A change to the SAR or Bases that involves an unreviewed safety question, a significant increase in occupational exposure, or a significant unreviewed environmental impact as defined in 10 CFR 72.48.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the SAR.

d. Proposed changes that meet the criteria of 5.5.1.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 72.48(b)(2).

5.5 Programs

5.5.2 Radioactive Effluent Control Program

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

a. The North Anna ISFSI 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. Specifications 3.1.3, SSSC Helium Leak Rate, and 3.1.4, SSSC Seal Integrity, provide assurance that there are essentially no radioactive effluents from the ISFSI.

b. This program includes an environmental monitoring program. The North Anna ISFSI may be included in the environmental monitoring program for North Anna Power Station.

c. An annual report shall be submitted pursuant to 10 CFR 72.44(d)(3) specifying the quantity of each of the principal radionuclides released to the environment in liquid and in gaseous effluents during the previous calendar year of operation. A schedule exemption for submitting this report by May 1 of each year was granted in the license.

TECHNICAL SPECIFICATIONS BASES

FOR NORTH ANNA INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

TABLE OF CONTENTS

B 2.0 FUNCTIONAL AND OPERATING LIMITS

B 2.1.1 Fuel to be Stored at the ISFSI

BASES

BACKGROUND	The SSSC design requires specifications for the spent fuel to be stored in each type of SSSC such as type of spent fuel, maximum allowable enrichment prior to irradiation, maximum burnup, minimum acceptable cooling time prior to storage in the SSSC, maximum decay heat, and conditions of the spent fuel (i.e., intact assembly or consolidated fuel rods). Other important limitations are the radiological source terms for the fuel assemblies. These limitations are included in the thermal, structural, radiological, and criticality evaluations performed for each SSSC design and are specified in Table 2.1-1 for each SSSC design approved for use at the ISFSI.
APPLICABLE SAFETY ANALYSIS	An analysis of the storage of an unauthorized fuel assembly is presented in SAR Section 8.2.6 (Ref. 1). The analysis demonstrates that placement of an unauthorized fuel assembly in an SSSC has no adverse effects while the SSSC is located in the spent fuel pool. To ensure that the lid is not placed on an SSSC containing an unauthorized fuel assembly, facility procedures require verification of the loaded fuel assemblies to ensure that the correct fuel assemblies have been loaded in the SSSC.

BASES

FUNCTIONAL AND OPERATING LIMITS VIOLATIONS

The following Functional and Operating Limits violation responses are applicable.

2.2.1

If Functional and Operating Limit 2.1.1 is violated, the limitations on the fuel assemblies in the SSSC have not been met. Actions must be taken to place the affected fuel assemblies in a safe condition. This safe condition may be established by returning the affected fuel assemblies to the spent fuel pool. However, it is acceptable for the affected fuel assemblies to remain in the SSSC if that is determined to be a safe condition.

2.2.2 & 2.2.3

Notification of the violation of a Functional and Operating Limit to the NRC is required within 24 hours. Written reporting of the violation must be accomplished within 30 days. This notification and written report are independent of any reports and notification that may be required by 10 CFR 72.75.

REFERENCES

1. SAR, Section 8.2.6.

B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs	LCO 3.0.1, 3.0.2, 3.0.4 and 3.0.5 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the specified conditions of the Applicability statement of each Specification).
LCO 3.0.2	LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that: a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification; and b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified. There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore a system or component or to restore variables to within specified limits. Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS. The second type of Required Action specifies the remedial measures that permit continued operation that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation. (continued)

BASES

LCO 3.0.2 (continued)

Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of operational problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience.

LCO 3.0.3

This specification is not applicable to an ISFSI. The placeholder is retained for consistency with the power reactor technical specifications.

LCO 3.0.4

LCO 3.0.4 establishes limitations on changes in specified conditions in the Applicability when an LCO is not met. It precludes placing the unit in a specified condition stated in that Applicability (e.g., Applicability desired to be entered) when the following exist:

a. Facility conditions are such that the requirements of the LCO would not be met in the Applicability desired to be entered; and

b. Continued noncompliance with the LCO requirements, if the Applicability were entered, would result in the facility being required to exit the Applicability desired to be entered to comply with the Required Actions.

Compliance with Required Actions that permit continued operation of the facility for an unlimited period of time in a specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the facility. Therefore, in such cases, entry into a specified condition in the Applicability may be made in accordance with the provisions of the Required Actions. The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components before entering an associated specified condition in the Applicability.

(continued)

BASES

LCO 3.0.4 (continued)	The provisions of LCO 3.0.4 shall not prevent changes in specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in specified conditions in the Applicability that are related to the unloading of an SSSC. Exceptions to LCO 3.0.4 are stated in the individual Specifications. Exceptions may apply to all the ACTIONS or to a specific Required Action of a Specification.
LCO 3.0.5	LCO 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or determined to not meet the LCO to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of SRs to demonstrate: a. The equipment being returned to service meets the LCO; or b. Other equipment meets the applicable LCOs. The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the allowed testing. This Specification does not provide time to perform any other preventive or corrective maintenance.
LCO 3.0.6	This specification is not applicable to an ISFSI. The placeholder is retained for consistency with the power reactor technical specifications.
LCO 3.0.7	This specification is not applicable to an ISFSI. The placeholder is retained for consistency with the power reactor technical specifications.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs

SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.

SR 3.0.1

SR 3.0.1 establishes the requirement that SRs must be met during the specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the systems, components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO.

Systems and components are assumed to meet the LCO when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components meet the associated LCO when:

a. The systems or components are known to not meet the LCO, although still meeting the SRs; or

b. The requirements of the Surveillance(s) are known not to be met between required Surveillance performances.

Surveillances do not have to be performed when the facility is in a specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified.

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on equipment that has been determined to not meet the LCO because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to service. Upon completion of maintenance, appropriate post maintenance testing is required. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current specified conditions in the

(continued)

BASES

SR 3.0.1 (continued)

Applicability due to the necessary facility parameters not having been established. In these situations, the equipment may be considered to meet the LCO provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a specified condition where other necessary post maintenance tests can be completed.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per . . ." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications as a Note in the Frequency stating, "SR 3.0.2 is not applicable."

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or

(continued)

BASES

SR 3.0.2 (continued)

accomplishes the function of the affected equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment as not meeting the LCO or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is less, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of facility conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements. When a Surveillance with a Frequency based not on time intervals, but upon specified facility conditions or operational situations, is discovered not to have been performed when specified, SR 3.0.3 allows the full delay period of 24 hours to perform the Surveillance.

SR 3.0.3 also provides a time limit for completion of Surveillances that become applicable as a consequence of changes in the specified conditions in the Applicability imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay

(continued)

BASES

SR 3.0.3 (continued)

period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered to not meet the LCO or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment does not meet the LCO, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a specified condition in the Applicability.

This Specification ensures that system and component requirements and variable limits are met before entry into specified conditions in the Applicability for which these systems and components ensure safe operation of the facility.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components before entering an associated specified condition in the Applicability.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a change in specified condition. When a system, subsystem, component, device, or variable is outside its specified limits, the associated SR(s) are not required to be performed, per SR 3.0.1, which states that surveillances do not have to be performed on such equipment. When equipment does not meet the LCO, SR 3.0.4 does not apply to the associated SR(s)since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified

(continued)

BASES

SR 3.0.4 (continued)

Frequency does not result in an SR 3.0.4 restriction to changing specified conditions of the Applicability. However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to specified condition changes.

The provisions of SR 3.0.4 shall not prevent changes in specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in specified conditions in the Applicability that are related to the unloading of an SSSC.

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO Applicability, would have its Frequency specified such that it is not "due" until the specific conditions needed are met.

B 3.1 SSSC INTEGRITY

B 3.1.1 SSSC Cavity Vacuum Drying Pressure

BASES

BACKGROUND	An SSSC is placed in the spent fuel pool and loaded with fuel assemblies meeting the requirements of the Functional and Operating Limits. A lid is then placed on the SSSC. The SSSC is raised to the spent fuel pool surface and water is pumped from the SSSC fuel cavity. The SSSC is then moved into a cask bay and the lid is secured. Vacuum drying of the SSSC cavity is performed. The cavity is backfilled with helium and the SSSC seals are tested. The SSSC surfaces are decontaminated. Any additional lids are attached and any instrumentation used to monitor the SSSC for seal leakage is installed. Surface radiation dose measurements are completed prior to moving the SSSC to the ISFSI storage pad. Cavity vacuum drying is utilized to remove residual moisture from the SSSC fuel cavity after the SSSC has been drained of water. Any water which was not drained from the fuel cavity evaporates from fuel or basket surfaces due to the vacuum. This is aided by the temperature increase due to the heat generation of the fuel.
APPLICABLE SAFETY ANALYSIS	The confinement of radioactivity during the storage of spent fuel in a SSSC is ensured by the use of multiple confinement barriers and systems. The barriers relied upon are the uranium dioxide fuel pellet matrix, the metallic fuel cladding tubes in which the fuel pellets are contained, and the SSSC in which the fuel assemblies are stored. Long-term integrity of the fuel cladding depends on storage in an inert atmosphere. This is accomplished by removing water from the SSSC fuel cavity and backfilling the cavity with an inert gas. The failure of all confinement barriers is considered in the accident analysis (Ref. 1). In addition, the thermal analyses of the SSSC assume that the SSSC cavity is filled with dry helium.

BASES

LCO	A vacuum pressure of less than that specified in Table 3-1 indicates that all liquid water has evaporated and been removed from the SSSC cavity. Removing water from the SSSC fuel cavity helps to ensure the long-term maintenance of fuel clad integrity.
APPLICABILITY	Cavity vacuum drying is performed during LOADING OPERATIONS before the SSSC is transported to the ISFSI storage pad. Therefore, the vacuum requirements do not apply after the SSSC is backfilled with helium prior to TRANSPORT OPERATIONS and STORAGE OPERATIONS.
ACTIONS	A Note has been added to the ACTIONS which states that, for this LCO, separate Condition entry is allowed for each SSSC. This is acceptable since the Required Actions for each Condition provide appropriate compensatory measures for each SSSC not meeting the LCO. Subsequent SSSCs that don't meet the LCO are governed by subsequent Condition entry and application of associated Required Actions. A.1 If the cavity vacuum drying pressure limit cannot be met, actions must be taken to meet the LCO. Failure to successfully complete cavity vacuum drying could have many causes, such as failure of the vacuum drying system, inadequate draining, ice clogging of the drain lines, or leaking SSSC cavity seals. The provided Completion Time is sufficient to determine and correct most failure mechanisms. B.1 If the SSSC fuel cavity cannot be successfully vacuum dried, the fuel must be removed and placed in a safe and analyzed condition in the spent fuel pool. The Completion Time is reasonable based on the time required to move and unload an SSSC in an orderly manner and without challenging the operating personnel.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.1.1

The long-term integrity of the stored fuel is dependent on storage in a dry, inert environment. Cavity dryness is demonstrated by evacuating the cavity to a very low pressure and verifying that the pressure is held over a specified period of time. A low vacuum pressure is an indication that the cavity is dry.

This dryness test must be performed successfully on each SSSC before placing in storage. The test must be performed within 48 hours of removing the SSSC from the spent fuel pool. This allows sufficient time to prepare the SSSC and perform the test while minimizing the time the fuel is in the SSSC without an inert atmosphere.

REFERENCES

1. SAR, Section 8.2.10.

B 3.1 SSSC INTEGRITY

B 3.1.2 SSSC Helium Backfill Pressure

BASES

BACKGROUND	An SSSC is placed in the spent fuel pool and loaded with fuel assemblies meeting the requirements of the Functional and Operating Limits. A lid is then placed on the SSSC. The SSSC is raised to the spent fuel pool surface and water is pumped from the SSSC fuel cavity. The SSSC is then moved into a cask bay and the lid is secured. Vacuum drying of the SSSC cavity is performed. The cavity is backfilled with helium and the SSSC seals are tested. The SSSC surfaces are decontaminated. Any additional lids are attached and any instrumentation used to monitor the SSSC cavity pressure is installed. Surface radiation dose measurements are completed prior to moving the SSSC to the ISFSI storage pad. Backfilling the SSSC fuel cavity with helium promotes heat transfer from the fuel and the inert atmosphere protects the fuel cladding. Providing a helium pressure greater than atmospheric pressure ensures that there will be no in-leakage of air over the life of the SSSC, which might be harmful to the fuel.
APPLICABLE SAFETY ANALYSIS	The confinement of radioactivity during the storage of spent fuel in a SSSC is ensured by the use of multiple confinement barriers and systems. The barriers relied upon are the uranium dioxide fuel pellet matrix, the metallic fuel cladding tubes in which the fuel pellets are contained, and the SSSC in which the fuel assemblies are stored. Long-term integrity of the fuel cladding depends on storage in an inert atmosphere. This is accomplished by removing water from the SSSC fuel cavity and backfilling the cavity with helium, an inert gas. This confinement of radioactive material is assumed in the loss of confinement barrier accident analysis (Ref. 1). In addition, the thermal analysis performed for the SSSCs in the Topical Safety Analysis Report assumes the use of helium as a cover gas.

BASES

LCO	Backfilling the SSSC fuel cavity with helium at a pressure exceeding atmospheric pressure will ensure that there will be no air in-leakage into the cavity which could damage the fuel cladding over the licensed storage period. The helium pressure value specified in Table 3-1 was taken from the SSSC Topical Safety Analysis Report and was selected to ensure that the pressure within the SSSC remains within the design pressure limits over the life of the SSSC.
APPLICABILITY	Helium backfill is performed during LOADING OPERATIONS prior to transporting the SSSC to the ISFSI storage pad. The helium leak rate is then measured prior to TRANSPORT OPERATIONS and STORAGE OPERATIONS.
ACTIONS	A Note has been added to the ACTIONS which states that, for this LCO, separate Condition entry is allowed for each SSSC. This is acceptable since the Required Actions for each Condition provide appropriate compensatory measures for each SSSC not meeting the LCO. Subsequent SSSCs that don't meet the LCO are governed by subsequent Condition entry and application of associated Required Actions. A.1 If the helium backfill pressure cannot be obtained, actions must be taken to meet the LCO. The provided Completion Time is sufficient to determine and correct most failures which would prevent backfilling of the SSSC fuel cavity with helium. B.1 If the SSSC fuel cavity cannot be backfilled with helium to the specified pressure, the fuel must be removed and placed in a safe and analyzed condition in the spent fuel pool. The Completion Time is reasonable based on the time required to move and unload an SSSC in an orderly manner and without challenging the operating personnel.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.2.1

The long-term integrity of the stored fuel is dependent on storage in an inert environment. Filling the SSSC fuel cavity with helium at the pressure specified in Table 3-1 will ensure that there will be no air in-leakage, which could potentially damage the fuel, and that the SSSC fuel cavity internal pressure will remain within limits for the life of the SSSC.

Backfilling with helium must be performed successfully on each SSSC before placing it in storage. The Surveillance must be performed within 24 hours after verifying SSSC cavity vacuum drying pressure is within limit. This allows sufficient time to backfill the SSSC fuel cavity with helium while minimizing the time the fuel is in the SSSC without the assumed inert atmosphere.

REFERENCES

1. SAR, Section 8.2.10.

B 3.1 SSSC INTEGRITY

B 3.1.3 SSSC Helium Leak Rate

BASES

BACKGROUND	An SSSC is placed in the spent fuel pool and loaded with fuel assemblies meeting the requirements of the Functional and Operating Limits. A lid is then placed on the SSSC. The SSSC is raised to the spent fuel pool surface and water is pumped from the SSSC fuel cavity. The SSSC is then moved into a cask bay and the lid is secured. Vacuum drying of the SSSC cavity is performed. The cavity is backfilled with helium and the SSSC seals are tested. The SSSC surfaces are decontaminated. Any additional lids are attached and any instrumentation used to monitor the SSSC cavity pressure is installed. Surface radiation dose measurements are completed prior to moving the SSSC to the ISFSI storage pad. Backfilling the SSSC fuel cavity with helium promotes heat transfer from the fuel and the inert atmosphere protects the fuel cladding. Prior to moving the SSSC to the storage pad, the helium leak rate is determined to ensure that the fuel is confined.
APPLICABLE SAFETY ANALYSIS	The confinement of radioactivity during the storage of spent fuel in a SSSC is ensured by the use of multiple confinement barriers and systems. The barriers relied upon are the uranium dioxide fuel pellet matrix, the metallic fuel cladding tubes in which the fuel pellets are contained, and the SSSC in which the fuel assemblies are stored. This confinement of radioactive material is assumed in the analysis of accidents except for the loss of confinement barrier accident analysis (Ref. 1).

BASES

LCO	Verifying that the SSSC fuel cavity is sealed by measuring the helium leak rate will ensure that the assumptions in the accident analyses and radiological evaluations are maintained. The helium leak rate value specified in Table 3-1 was taken from the SSSC Topical Safety Analysis Report.
APPLICABILITY	The helium leak rate measurement is performed during LOADING OPERATIONS before the SSSC is transported to the ISFSI storage pad. Seal integrity is monitored during STORAGE OPERATIONS by LCO 3.1.4, Seal Integrity.
ACTIONS	A Note has been added to the ACTIONS which states that, for this LCO, separate Condition entry is allowed for each SSSC. This is acceptable since the Required Actions for each Condition provide appropriate compensatory measures for each SSSC not meeting the LCO. Subsequent SSSCs that don't meet the LCO are governed by subsequent Condition entry and application of associated Required Actions. A.1 If the helium leak rate limit is not met, actions must be taken to meet the LCO. The provided Completion Time is sufficient to determine and correct most failures which would cause a helium leak rate in excess of the limit. B.1 If the SSSC helium leak rate cannot be brought within the limit, the fuel must be removed and placed in a safe and analyzed condition in the spent fuel pool. The Completion Time is reasonable based on the time required to move and unload an SSSC in an orderly manner and without challenging the operating personnel.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.3.1

A primary design consideration of the SSSC is that it is essentially leak tight. Measuring the helium leak rate with a helium leak detector demonstrates that the SSSC confinement barrier is sealed.

Measuring the helium leak rate must be performed successfully on each SSSC prior to placing it in storage. The Surveillance must be performed within 48 hours after verifying SSSC helium backfill pressure is within limit. This allows sufficient time to perform the Surveillance while minimizing the time the fuel is in the SSSC without verifying that the SSSC is sealed.

REFERENCES

1. SAR, Section 8.2.10.

B 3.1 SSSC INTEGRITY

B 3.1.4 SSSC Seal Integrity

BASES

BACKGROUND

An SSSC is loaded, dried, and sealed prior to being transported to the ISFSI and placed on a storage pad. The SSSC is designed with redundant seals to contain the radioactive material. In addition, 10 CFR 72.122(h)(4) and 10 CFR 72.128(a)(1) state that the SSSCs must have the capability to be continuously monitored such that the licensee will be able to determine when corrective action needs to be taken to maintain safe storage conditions. The monitoring systems vary with SSSC design, but have several factors in common:

a. The ability to monitor a pressure that will indicate if SSSC seal integrity is compromised, such as inter-seal pressure or fuel cavity pressure; and

b. Local and remote alarms to notify the licensee that potential seal degradation has occurred.

Regardless of the method of monitoring used, it is necessary to verify SSSC seal integrity at a regular interval.

APPLICABLE SAFETY ANALYSIS

The confinement of radioactivity during the storage of spent fuel in a SSSC is ensured by the use of multiple confinement barriers and systems. The barriers relied upon are the uranium dioxide fuel pellet matrix, the metallic fuel cladding tubes in which the fuel pellets are contained, and the SSSC in which the fuel assemblies are stored. The failure of all confinement barriers is considered in the accident analysis (Ref. 1). In addition, the thermal analyses of the SSSC assume that the SSSC cavity is filled with dry helium.

BASES

LCO	Verifying SSSC seal integrity ensures that the assumptions in the accident analyses and radiological evaluations are maintained. The method of verifying seal integrity varies with SSSC design and is specified in Table 3-1 for each design.
APPLICABILITY	SSSC seal integrity verification is performed regularly during STORAGE OPERATIONS to confirm that the SSSC confinement barriers have not been compromised. During LOADING OPERATIONS, the seal integrity is verified prior to moving the SSSC to the ISFSI storage pads. Verification during TRANSPORT OPERATIONS is not possible as the SSSC is being moved. However, TRANSPORT OPERATIONS are brief and follow the verification performed during LOADING OPERATIONS and, therefore, does not represent a significant lapse in seal integrity monitoring.
ACTIONS	A Note has been added to the ACTIONS which states that, for this LCO, separate Condition entry is allowed for each SSSC. This is acceptable since the Required Actions for each Condition provide appropriate compensatory measures for each SSSC not meeting the LCO. Subsequent SSSCs that don't meet the LCO are governed by subsequent Condition entry and application of associated Required Actions. A.1 If the SSSC seal integrity is not maintained, actions must be taken to meet the LCO. The provided Completion Time considers the time required to diagnose and repair seal integrity problems, including the potential action of moving the SSSC into the power station protected area for repairs. B.1 If SSSC seal integrity cannot be established within the Completion Time provided in Action A.1, the fuel must be removed and placed in a safe and analyzed condition in the spent fuel pool. The Completion Time is reasonable based on the time required to move and unload an SSSC in an orderly manner and without challenging the operating personnel.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.4.1

SSSC seal integrity must be verified in accordance with 10 CFR 72.122(h)(4) and 10 CFR 72.128(a)(1). The method for verifying seal integrity varies with SSSC cask design and is specified in Table 3-1 for each design. Normally, SSSC seal integrity is verified using installed instrumentation that alarms at a central panel. If this system is not operating on one or more SSSCs, monitoring of seal integrity at each affected SSSC may be performed.

Monitoring of the SSSC seal integrity is performed once per 24 hours. The Frequency is based on maintaining cognizance of facility conditions.

REFERENCES

None.

B 3.1 SSSC INTEGRITY

B 3.1.5 SSSC Maximum Lifting Height

BASES

BACKGROUND	A loaded SSSC is transported between the power station protected area and the SSSC storage pad using a transporter. The height to which the SSSC is lifted by the transporter is limited to ensure that the structural integrity of the SSSC is not compromised should the SSSC be accidently dropped.
APPLICABLE SAFETY ANALYSIS	The structural analyses of the SSSCs demonstrate that a bottom-end drop of an SSSC from the Technical Specifications limit to an SSSC storage pad will not result in compromise of the SSSC integrity or physical damage to the contained fuel assemblies. The drop of an SSSC from a transporter at a greater height is not considered credible (Ref. 1).
LCO	Limiting the SSSC lifting height during TRANSPORT OPERATIONS maintains the operating conditions of the SSSC within the design basis. The maximum lifting height is a function of the SSSC design and is specified in Table 3-1 for each design.
APPLICABILITY	SSSC maximum lifting height applies during movement of the SSSC while suspended from the transporter. SSSC handling and drop events postulated to occur in the Fuel and Decontamination Buildings are addressed in the North Anna Power Station Updated Final Safety Analysis Report. SSSC drop events cannot occur during STORAGE OPERATIONS as the SSSC is sitting on the ISFSI storage pad.

BASES

ACTIONS

A Note has been added to the ACTIONS which states that, for this LCO, separate Condition entry is allowed for each SSSC. This is acceptable since the Required Actions for each Condition provide appropriate compensatory measures for each SSSC not meeting the LCO. Subsequent SSSCs that don't meet the LCO are governed by subsequent Condition entry and application of associated Required Actions.

A.1

If the SSSC lifting height is higher than the limit, immediate action must be taken to lower the SSSC to within the limit.

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1

SSSC lifting height must be measured prior to movement of the SSSC while it is suspended by the transporter.

REFERENCES

1. SAR, Section 8.2.9.

B 3.2 SSSC CRITICALITY CONTROL

B 3.2.1 Dissolved Boron Concentration

BASES

BACKGROUND	The SSSCs are designed to maintain the fuel subcritical under all credible conditions with a $K_{eff} \leq 0.95$. Criticality control of an SSSC drained of water is maintained by neutron absorbers contained in the fuel basket. While the SSSC is in the spent fuel pool or filled with water, additional neutron absorber is necessary to counteract neutron moderation by the water. As a result, the water must be borated to provide additional criticality control.
APPLICABLE SAFETY ANALYSIS	The SSSCs are designed to maintain the stored fuel in a subcritical condition assuming a single active or passive failure and an infinite number SSSCs stored together in close proximity (Ref. 1). The methods for criticality control vary by SSSC design, and some rely on borating the water used to fill the fuel cavity to counteract its neutron moderating effect. The effects on subcriticality from misloading a fuel assembly into an SSSC which is more reactive than the authorized assemblies has been analyzed (Ref. 2). Maintaining the boron concentration of the water in the SSSC cavity at or above the Technical Specification limit prevents violation of the criticality design criterion.
LCO	The water in the SSSC cavity must have a boron concentration ≥ the limit in Table 3-1. The limit is a function of the SSSC design, and Table 3-1 contains the appropriate limit for each SSSC design. Placing a lower limit on the boron concentration of the water in the spent fuel pool and of the SSSC fuel cavity ensures that the fuel in the SSSC remains subcritical.

BASES

APPLICABILITY

The boron concentration of the water in the SSSC fuel cavity must be within its limit whenever there is water in the fuel cavity. This occurs during LOADING OPERATIONS and UNLOADING OPERATIONS. During TRANSPORT OPERATIONS and STORAGE OPERATIONS, the SSSC fuel cavity is dry and fuel criticality control is provided by fixed neutron absorbers in the fuel cavity.

ACTIONS

A.1

If the dissolved boron concentration of the SSSC fuel cavity is not within limit, loading of any additional fuel assemblies into the SSSC fuel cavity must be stopped. Without the required concentration of dissolved boron in the water, maintaining the subcriticality limit in all conditions cannot be guaranteed. The immediate Completion Time reflects the importance of prohibiting the introduction of any potential positive reactivity addition into the SSSC fuel cavity without the required boron concentration. UNLOADING OPERATIONS can proceed, as the spent fuel pool criticality analysis does not assume the presence of dissolved boron to achieve the required subcriticality margin. In this case, moving fuel assemblies from the SSSC fuel cavity into the spent fuel pool racks is an acceptable compensatory measure.

A.2

If the dissolved boron concentration in the SSSC fuel cavity cannot be brought within the limit, all fuel assemblies must be removed from the SSSC. This restores the fuel assemblies to an analyzed condition in the spent fuel pool. The Completion Time takes into consideration the time to change the boron concentration of a large spent fuel pool and the time to unload a loaded SSSC.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.1.1

This SR ensures that the boron concentration in the SSSC fuel cavity is within limit by requiring that the boron concentration of the spent fuel pool and of any other source of water to be added to the SSSC fuel cavity is within the limits in Table 3-1 during LOADING OPERATIONS. The boron concentration is determined periodically using chemical analysis of two samples analyzed by different individuals to reduce the risk that a single error could lead to not meeting the LCO.

The requirement to verify the boron concentration with 4 hours prior to commencing LOADING OPERATIONS ensures that the water added to the SSSC fuel cavity is within the limit. The Frequency of every 48 hours thereafter while the SSSC is in the spent fuel pool is a reasonable amount of time to verify the boron concentration of representative samples. Once the SSSC has been removed from the Spent Fuel Pool, the boron concentration of the water in the SSSC fuel cavity is not expected to significantly change. The Frequency is based on operating experience that the boron concentration changes very slowly.

SR 3.2.1.2

This SR ensures that the boron concentration in the SSSC fuel cavity is within limit by requiring that the boron concentration of the spent fuel pool and of any other source of water to be added to the SSSC fuel cavity is within the limits in Table 3-1 during UNLOADING OPERATIONS. The boron concentration is determined periodically using chemical analysis of two samples analyzed by different individuals to reduce the risk that a single error could lead to not meeting the LCO.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.1.2 (continued)

The requirement to verify the boron concentration with 4 hours prior to commencing UNLOADING OPERATIONS ensures that the water added to the SSSC fuel cavity is within the limit. The Frequency of every 48 hours thereafter while the SSSC is in the Spent Fuel Pool is a reasonable amount of time to verify the boron concentration of representative samples. Once the SSSC has been removed from the Spent Fuel Pool, the boron concentration of the water in the SSSC fuel cavity is not expected to significantly change. The Frequency is based on operating experience that the boron concentration in the spent fuel pool changes very slowly.

REFERENCES

1. SAR, Section 3.3.4.

2. SAR, Section 8.2.6.

B 3.3 SSSC RADIATION PROTECTION

B 3.3.1 SSSC Average Surface Dose Rates

BASES

BACKGROUND	The regulations governing the operation of an ISFSI set limits on the control of occupational radiation exposure and radiation doses to the general public (Ref. 1). Occupational radiation exposure should be kept as low as reasonably achievable (ALARA) and within the limits of 10 CFR Part 20. Radiation doses to the public are limited for both normal and accident conditions. In addition, the sum of the SSSC average surface dose rates determines the ISFSI perimeter dose rates discussed in Specification 3.3.3, ISFSI Perimeter Radiation.
APPLICABLE SAFETY ANALYSIS	The SSSC average surface dose rates are not an assumption in any accident analysis, but are used to ensure compliance with regulatory limits on occupational dose and dose to the public.
LCO	The limits on SSSC average surface dose rates are based on the shielding analysis in the SAR (Ref. 1). The limits were selected to minimize radiation exposure to the general public and maintain occupational dose ALARA to personnel working in the vicinity of the SSSCs. Compliance with the SSSC surface dose rate limits also ensures compliance with LCO 3.3.3, ISFSI Perimeter Radiation during STORAGE OPERATIONS.
APPLICABILITY	The SSSC average surface dose rates apply during LOADING OPERATIONS. These limits ensure that the SSSC average surface dose rates during TRANSPORT OPERATIONS, STORAGE OPERATIONS, and UNLOADING OPERATIONS are within the estimates contained in the SAR. Radiation doses during STORAGE OPERATIONS are monitored by Specification 3.3.3, ISFSI Perimeter Radiation.

BASES

ACTIONS

A Note has been added to the ACTIONS which states that, for this LCO, separate Condition entry is allowed for each SSSC. This is acceptable since the Required Actions for each Condition provide appropriate compensatory measures for each SSSC not meeting the LCO. Subsequent SSSCs that don't meet the LCO are governed by subsequent Condition entry and application of associated Required Actions.

A.1

If the SSSC average surface dose rates are not within limits, it could be an indication that a fuel assembly was inadvertently loaded into the SSSC that did not meet the Function and Operating Limits in Section 2.0. Administrative verification of the SSSC fuel loading, by means such as review of video recordings and records of the loaded fuel assembly serial numbers, can establish whether a misloaded fuel assembly is the cause of the out of limit condition. The Completion Time is based on the time required to perform such a verification.

A.2

If the SSSC average surface dose rates are not within limits, and it is determined that the SSSC was loaded with the correct fuel assemblies, an analysis may be performed to determine if the SSSC, once located at the ISFSI, would result in the ISFSI offsite or occupational calculated doses exceeding the regulatory limits in 10 CFR Part 20 or 10 CFR 72. If it is determined that the out of limit average surface dose rates do not result in the regulatory limits being exceeded, TRANSPORT OPERATIONS may proceed.

B.1

If it is verified that the correct fuel was not loaded or that the ISFSI offsite radiation protection requirements of 10 CFR Part 20 and 10 CFR Part 72 will not be met with the SSSC average surface dose rates above the LCO limit, all fuel assemblies must be removed from the SSSC. The Completion Time is reasonable based on the time required to move and unload an SSSC in an orderly manner and without challenging the operating personnel.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1

This SR ensures that the SSSC average surface dose rates are within the LCO limits prior to transporting the SSSC to the ISFSI. The surface dose rates are measured following industry practices for determining average surface dose rates for large containers.

REFERENCES

1. 10 CFR Part 72.

B 3.3 SSSC RADIATION PROTECTION

B 3.3.2 SSSC Surface Contamination

BASES

BACKGROUND	An SSSC is immersed in the spent fuel pool in order to load the spent fuel assemblies. As a result, the surface of the SSSC may become contaminated with the radioactive material in the spent fuel pool water. This contamination is removed prior to moving the SSSC to the ISFSI in order to minimize radioactive contamination to personnel or the environment. This allows the ISFSI to be entered without additional radiological controls to prevent the spread of contamination and reduces personnel dose due to the spread of loose contamination or airborne contamination. This is consistent with ALARA practices.
APPLICABLE SAFETY ANALYSIS	The radiation protection measures implemented at the ISFSI are based on the assumption that the exterior surfaces of the SSSCs have been decontaminated (Ref. 1). Failure to decontaminate the surfaces of the SSSCs could lead to higher than projected occupational doses.
LCO	Removable surface contamination on the SSSC exterior surfaces is limited to 1000 dpm/100 cm^2 from beta and gamma sources and 20 dpm/100 cm^2 from alpha sources. These limits are taken from the guidance provided in IE Circular 81-07 (Ref. 2) and are based on the minimum level of activity that can be routinely detected under a surface contamination control program using direct survey methods. Only loose contamination is controlled, as fixed contamination will not result from the SSSC loading process. Experience has shown that these limits are low enough to prevent the spread of contamination to clean areas and are significantly less than the levels which would cause significant personnel skin dose.

BASES

APPLICABILITY

Verification that the SSSC surface contamination is less than the LCO limit is performed during LOADING OPERATIONS. This occurs before TRANSPORT OPERATIONS and STORAGE OPERATIONS. Measurement of the SSSC surface contamination is unnecessary during UNLOADING OPERATIONS as surface contamination would have been measured prior to moving the subject SSSC to the ISFSI.

ACTIONS

A Note has been added to the ACTIONS which states that, for this LCO, separate Condition entry is allowed for each SSSC. This is acceptable since the Required Actions for each Condition provide appropriate compensatory measures for each SSSC not meeting the LCO. Subsequent SSSCs that don't meet the LCO are governed by subsequent Condition entry and application of associated Required Actions.

A.1

If the removable surface contamination of an SSSC that has been loaded with spent fuel is not within the LCO limits, action must be initiated to decontaminate the SSSC and bring the removable surface contamination within limits. The Completion Time of "Prior to TRANSPORT OPERATIONS" is appropriate given that the time needed to complete the decontamination is indeterminate.

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1

This SR verifies that the removable surface contamination on the SSSC is less than the limits in the LCO. The Surveillance is performed using smear surveys to detect removable surface contamination. The Frequency requires performing the verification prior to initiating TRANSPORT OPERATIONS in order to confirm that the SSSC can be moved to the ISFSI without spreading loose contamination.

BASES

REFERENCES

1. SAR, Section 7.2.1.

2. IE Circular 81-07, Control of Radioactively Contaminated Material, May 15, 1981.

B 3.3 SSSC RADIATION PROTECTION

B 3.3.3 ISFSI Perimeter Radiation

BASES

BACKGROUND	The regulations governing the operation of an ISFSI set limits on radiation doses to the general public (Ref. 1). This specification provides conservative limits on the ISFSI's contribution to the radiation doses at the ISFSI perimeter fence in order to ensure that regulatory limits are met.
APPLICABLE SAFETY ANALYSIS	The ISFSI perimeter radiation levels are not an assumption in any accident analysis, but are used to ensure compliance with regulatory limits on dose to the public during normal conditions.
LCO	The limits on ISFSI perimeter radiation levels are based on analyses described in the SAR (Ref. 1). The limits were selected to maintain radiation doses to the general public within the limits provided in the regulations.
APPLICABILITY	The ISFSI perimeter radiation limits apply during STORAGE OPERATIONS when SSSCs are stored within the ISFSI perimeter. Average surface dose rate limits on individual SSSCs are provided in Specification 3.3.1, SSSC Average Surface Dose Rate, during LOADING OPERATIONS and these limits ensure that occupational doses during TRANSPORT OPERATIONS and UNLOADING OPERATIONS are within the estimates contained in the SAR.

BASES

ACTIONS

A.1

If the ISFSI perimeter radiation is not within limits, action must be initiated immediately to restore the perimeter radiation to within the LCO limits. Failure to meet the ISFSI perimeter limits could lead to exceeding the limits on dose to the general public. As a result, immediate action to correct the situation must be initiated.

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1

This SR ensures that the ISFSI's contribution to the radiation doses (both neutron and gamma) at the ISFSI perimeter fence are continuously monitored and are within limits. These doses are determined using thermoluminescent detectors (TLDs) located at the ISFSI perimeter. These TLDs are read every 92 days.

REFERENCES

1. SAR, Section 7.3.2.2.