TECHNICAL SPECIFICATIONS

FOR

TROJAN

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF EFFECTIVE PAGES

Page	Amendment
ii	Renewed License
5.5-3	Renewed License
All other pages	Renewed License

1.0 USE AND APPLICATION

1.1 Definitions

----------NOTE----------
The defined terms of this section appear in capitalized type and are applicable throughout these Trojan Independent Spent Fuel Storage Installation (ISFSI) 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.
AIR PADS	The AIR PADS are commercially available lifting devices that are used to move the CONCRETE CASKS. The AIR PADS consist of four air bladders that are inserted into the CONCRETE CASK air inlets and are inflated to lift a CONCRETE CASK up to four inches off the surface which then allows it to be moved.
CONCRETE CASK	The CONCRETE CASK is the structure in which a MULTI-PURPOSE CANISTER (MPC) is stored.
DAMAGED FUEL ASSEMBLY	DAMAGED FUEL ASSEMBLIES are fuel assemblies which can be handled by normal means: (1) with known or suspected cladding defects greater than pinhole leaks or hairline cracks; or (2) with missing fuel rods that are not replaced with dummy fuel rods. Fuel assemblies which cannot be handled by normal means due to fuel cladding damage are considered to be FUEL DEBRIS. DAMAGED FUEL ASSEMBLIES are stored in FAILED FUEL CANS or DAMAGED FUEL CONTAINERS.
DAMAGED FUEL CONTAINER	DAMAGED FUEL CONTAINERS are specially designed enclosures for DAMAGED FUEL ASSEMBLIES and FUEL DEBRIS. DAMAGED FUEL CONTAINERS are stored in an MPC.
FAILED FUEL CAN	FAILED FUEL CANS are specially designed enclosures for DAMAGED FUEL ASSEMBLIES, FUEL DEBRIS, and

1.0 USE AND APPLICATION

1.1 Definitions

	PROCESS CAN CAPSULES. FAILED FUEL CANS are stored in an MPC.
FUEL DEBRIS	FUEL DEBRIS is fuel with known or suspected defects, such as ruptured fuel rods, severed rods, or loose fuel pellets and fuel pellet fragments. FUEL DEBRIS includes fuel assembly metal fragments such as portions of fuel rods and grid assemblies. Fuel assemblies which cannot be handled by normal means due to fuel cladding damage are considered to be FUEL DEBRIS. FUEL DEBRIS is stored in PROCESS CAN CAPSULES, which are stored in FAILED FUEL CANS, or directly in FAILED FUEL CANS or DAMAGED FUEL CONTAINERS depending upon the extent of damage.
INTACT FUEL ASSEMBLY	INTACT FUEL ASSEMBLIES are fuel assemblies which can be handled by normal means: (1) without known or suspected cladding defects greater than pinhole leaks or hairline cracks; or (2) with missing fuel rods which are replaced by dummy rods. Fuel assemblies from which fuel rods are missing shall not be classified as INTACT FUEL ASSEMBLIES unless dummy fuel rods are used to displace an amount of water equal to or greater than that displaced by the original fuel rod(s).
MULTI-PURPOSE CANISTER (MPC)	The MPC is the stainless steel welded container that is designed for storage and transportation of INTACT FUEL ASSEMBLIES and FAILED FUEL CANS and DAMAGED FUEL CONTAINERS that contain DAMAGED FUEL ASSEMBLIES and FUEL DEBRIS.
PROCESS CAN CAPSULE	PROCESS CAN CAPSULES are sealed, inerted canisters containing FUEL DEBRIS. PROCESS CAN CAPSULES are stored in FAILED FUEL CANS.

1.0 USE AND APPLICATION

1.1 Definitions

STORAGE OPERATIONS	STORAGE OPERATIONS include all licensed activities that are performed at the ISFSI while a CONCRETE CASK containing an MPC with INTACT FUEL ASSEMBLIES, DAMAGED FUEL ASSEMBLIES, or FUEL DEBRIS, is located within the ISFSI perimeter including movement of and use of the TRANSFER CASK or a Transport Cask.
TRANSFER CASK	The TRANSFER CASK is used to support an MPC at the TRANSFER STATION.
TRANSFER STATION	The TRANSFER STATION is a steel structure, located on the Transfer Pad, to the west of the Storage Pad, designed to safely facilitate loading the MPC into a Transport Cask.
TROJAN STORAGE SYSTEM	The TROJAN STORAGE SYSTEM is defined as the TranStor™ CONCRETE CASK containing a Holtec MPC-24E or MPC-24EF. The Holtec MPC-24E and MPC-24EF used at Trojan are modified to fit within the TranStor™ CONCRETE CASKS, as described in the Trojan ISFSI Safety Analysis Report.

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 may 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 indentations 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 Completion Time, Surveillance, or Frequency.

EXAMPLES

The following example illustrates the use of logical connectors. The only logical connector remaining in these TS is “AND.”

1.0 USE AND APPLICATION

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.

1.0 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 Operations (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 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 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.
EXAMPLES	The following example illustrates the use of Completion Times. The only Completion Time remaining in the LCOs is "Immediately."

1.0 USE AND APPLICATION

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Restore compliance with LCO.	Immediately

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 stated in 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 a SR satisfied, SR 3.0.4 imposes no restriction.

1.0 USE AND APPLICATION

1.4 Frequency

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

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify ambient air temperature within limit.	Every 4 hours

Example 1.4-1 contains the type of SR most often encountered in the TS. The Frequency specifies an interval (every 4 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 every 4 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 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.

1.0 USE AND APPLICATION

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify ambient air temperature is within limits.	Once within 1 hour prior to starting activity AND 4 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 1 hour 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 APPROVED CONTENTS

2.1 Approved Contents

2.1.1 Fuel Stored at the ISFSI

The spent nuclear fuel stored in CONCRETE CASKS at the Trojan ISFSI consists of the following:

a. INTACT FUEL ASSEMBLIES as characterized in Table 2-1,

b. DAMAGED FUEL ASSEMBLIES,

c. FUEL DEBRIS in a PROCESS CAN CAPSULE, which shall not exceed 7.5 kg of fissile material per MPC and 20 Curies of Plutonium per MPC, and other FUEL DEBRIS, which shall not exceed the fissile material of an INTACT FUEL ASSEMBLY, and

d. Fuel assembly inserts as characterized in Table 2-2.

2.1.2 Fuel Storage Configuration Limits

The spent nuclear fuel stored in the MPC is limited as follows:

a. Up to 24 INTACT FUEL ASSEMBLIES are stored in either the MPC-24E or the MPC-24EF.

b. DAMAGED FUEL ASSEMBLIES are stored in FAILED FUEL CANS or DAMAGED FUEL CONTAINERS and are stored in either the MPC-24E or the MPC-24EF. DAMAGED FUEL ASSEMBLIES are limited to four per MPC in the oversized corner fuel cell locations.

c. FUEL DEBRIS is stored in FAILED FUEL CANS or DAMAGED FUEL CONTAINERS in an MPC-24EF. Up to four FAILED FUEL CANS and/or DAMAGED FUEL CONTAINERS containing FUEL DEBRIS or DAMAGED FUEL ASSEMBLIES are stored in the MPC-24EF in the oversized corner fuel cell locations.

d. Contents of an MPC do not exceed 1,680 lbs in any cell, and the dry loaded MPC weight does not exceed 78,700 lbs.

2.0 APPROVED CONTENTS

2.2 Approved Contents Violations

2.2.1 Fuel Stored at the ISFSI and Fuel Storage Configuration Limits:

If the Approved Contents of 2.1 are violated, the following actions shall be completed:

a. Within 24 hours, notify the NRC Operations Center, and

b. 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
Spent Fuel Limits

CHARACTERISTIC	LIMIT
Clad	Zircaloy-4
Cooling Time After Discharge	≥9 years
Fuel Enrichment	≤ 3.7 weight % U^{235}
Decay Heat per MPC	≤ 17.4 kW_t
Fuel Design	B&W 17x17 (Mark-BW-17) and Westinghouse 17x17
Burnup	≤ 42,000 MWd/MTU
No. of Fuel Rod Locations	264
Fuel Rod Clad O.D.	≥ 0.372 in.
Fuel Rod Clad I.D.	≤ 0.331 in.
Fuel Pellet Diameter	≤ 0.3232 in.
Fuel Rod Pitch	≤ 0.496 in.
Active Fuel Length	≤ 150 in.
No. of Guide and/or Instrument Tubes	25
Guide/Instrument Tube thickness	≥ 0.014 in. (Nominal design)
Weight of MPC Cell Contents	≤ 1,680 lbs (including non-fuel hardware and FAILED FUEL CAN or DAMAGED FUEL CONTAINER)

Table 2-2
Fuel Assembly Inserts

CHARACTERISTIC	LIMIT
Rod Cluster Control Assemblies (RCCAs)	
Number of Assemblies	61
Neutron Absorber	Ag-In-Cd
Cladding Material	304 SS
Number of Rods per Assembly	24
Burnup	≤ 125,515 MWd/MTU
Cooling Time	≥ 9 years
Burnable Poison Rod Assemblies (BPRAs)	
Number of Assemblies	92
Poison Material	Borosilicate Glass Tubes
Cladding Material	304 SS
Burnup	≤ 15,998 MWd/MTU
Cooling Time	≥ 24 years
Thimble Plugs	
Number of Thimble Plugs	140
Material	304 SS
Burnup	≤ 118,674 MWd/MTU
Cooling Time	≥ 11 years
Sources	
Number of Source Assemblies	6
Secondary Sources/Material	4/Sb-Be
Burnup	≤ 88,547 MWd/MTU
Cooling Time	≥ 9 years
Primary Sources/Material	2/Californium
Burnup	≤ 15,998 MWd/MTU
Cooling Time	≥ 24 years
Cladding Material	304 SS

3.0 LIMITING CONDITIONS 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 Actions(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.
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 REQUIREMENTS (SR) APPLICABILITY

SR 3.0.1

SRs shall be met during specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a SR, 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 inoperable 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 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 SR is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

3.0 SURVEILLANCE REQUIREMENTS (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 SRs 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 establishing an inert atmosphere in the MPC.

3.1 DELETED

3.2 TRANSFER CASK INTEGRITY

3.2.1 TRANSFER CASK Ambient Air Temperature Limit

LCO 3.2.1 The TRANSFER CASK shall not be used to support a loaded MPC when the ambient air temperature is ≤ 0°F.

APPLICABILITY: STORAGE OPERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TRANSFER CASK ambient air temperature is ≤ 0°F.	A.1 Place the TRANSFER CASK in a safe condition. AND	Immediately
	A.2 Suspend all activities involving use of TRANSFER CASK until ambient air temperature has returned to > 0°F.	Immediately

3.2 TRANSFER CASK INTEGRITY

3.2.1 TRANSFER CASK Ambient Air Temperature Limit

SURVEILLANCE REQUIREMENTS

SURVEILLANCE			FREQUENCY
SR	3.2.1.1	Verify ambient air temperature does not exceed the specified limit.	Within one hour prior to use of the TRANSFER CASK with a loaded MPC.
SR	3.2.1.2	Verify ambient air temperature does not exceed the specified limit.	Every four hours during use of the TRANSFER CASK with a loaded MPC when ambient air temperature is < 5°F.

3.3 AIR PADS

3.3.1 AIR PAD Limits

LCO 3.3.1 The AIR PADS shall not be installed under a CONCRETE CASK containing a loaded MPC:

a. For more than 20 consecutive hours, or

b. When the ambient air temperature is > 100°F.

APPLICABILITY: STORAGE OPERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AIR PADS installed for more than 20 consecutive hours.	A.1 Remove the AIR PADS.	Immediately
B. AIR PADS installed and ambient air temperature > 100°F.	B.1 Remove the AIR PADS.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.1.1 Verify the AIR PADS are not installed for more than 20 consecutive hours.	Every 10 hours when the AIR PADS are installed.
SR 3.3.1.2 Verify ambient air temperature is ≤ 100°F.	Within one hour before installation and hourly when ambient air temperature is > 90°F and the AIR PADS are installed.

4.0 DESIGN FEATURES

4.1 Site Location

4.1 Site Location

The Trojan INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) facility is located at the Portland General Electric (PGE) Company site in Columbia County, Oregon, approximately 42 miles north of Portland, Oregon, and approximately 4-1/2 miles southeast of Rainier, Oregon, on the west bank of the Columbia River. The site is approximately 3 miles northwest of Kalama, Washington, and 6 miles southeast of Longview, Washington, which are across the Columbia River.

4.0 DESIGN FEATURES

4.2 Storage Features

4.2 Storage Features

4.2.1 Storage System

Portland General Electric Company is licensed to store spent fuel in the TROJAN STORAGE SYSTEM in a maximum of 34 CONCRETE CASKS at the Trojan ISFSI. Each CONCRETE CASK contains one MPC. The MPC accommodates up to 24 INTACT FUEL ASSEMBLIES with associated inserts. Up to four FAILED FUEL CANS and/or DAMAGED FUEL CONTAINERS may also be stored in each MPC as defined in Technical Specification 2.1.2, with the balance being INTACT FUEL ASSEMBLIES, up to a total of 24 assemblies per MPC. The MPC is backfilled with helium and pressurized between 29.3 and 39.3 psig at a reference temperature of 70°F.

4.2.2 Storage Capacity

The total storage capacity of the Trojan ISFSI is limited to 344.5 MTU as UO_2. This total capacity of UO_2 is categorized into the following Byproduct, Source, and/or Special Nuclear Material:

INTACT FUEL ASSEMBLIES (Clad with Zircaloy-4)
DAMAGED FUEL ASSEMBLIES (Clad with Zircaloy-4)
FUEL DEBRIS

4.2.2.a Design Features Important for Criticality Control
Flux trap size for oversized corner cells ≥ 0.526 in.
Flux trap size for other cells ≥ 1.076 in.
^{10}B loading in Boral absorbers: ≥ 0.0372 g/cm^2

4.2.3 Storage Pad and TRANSFER STATION

- Loaded CONCRETE CASKS must have a nominal center-to-center 15 feet spacing with a tolerance of ± 4 inches when stored in their assigned location on the ISFSI Storage Pad except for the 30 foot ± 4 inch center-to-center gap in the center of the ISFSI Storage Pad.

4.0 DESIGN FEATURES

4.2 Storage Features

- Operations at the TRANSFER STATION which involve lifts of a loaded MPC must be performed using a mobile crane, which shall meet the guidance of Section 5.1.1 of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," dated 1980, except that to assure defense in depth:

  1. The mobile crane in its lifting configuration (reeving, placement, boom length, angle, counterweight, etc.) shall have a rated capacity of at least two times the weight to be lifted (loaded MPC plus lifting hardware) in accordance with the guidance of NUREG-0612.

  2. In accordance with the guidance of NUREG-0612, the mobile crane must have the ability to safely stop and hold the MPC in the event of the Seismic Margin Earthquake (SME) applicable to the Trojan ISFSI.

  3. The mobile crane shall meet the requirements of ANSI B30.5, "Mobile and Locomotive Cranes," or equivalent, in lieu of the requirements of ANSI B30.2, "Overhead and Gantry Cranes."

  4. The MPC will be restricted to a lift height not to exceed 249 inches (bottom of raised MPC in the TRANSFER CASK to bottom of Transport Cask) when being lifted by the mobile crane in the TRANSFER STATION by the physical limitation of the bottom of the lid of the TRANSFER CASK. A load cell, or equivalent, on the mobile crane will indicate contact with the bottom of the lid of the TRANSFER CASK to limit the lift height of the MPC.

  5. Special Lifting Devices as defined in ANSI N14.6-1993 shall have two times the design safety factors of Section 4.2.1.1 in accordance with Section 7.2. These special lifting devices shall include the lifting cleats.

  6. Lifting Devices that are not specifically designed and that are used for handling heavy loads shall meet the requirements of ANSI B30.9, "Slings," except that the load to be used in selecting the slings is to be twice that specified in NUREG-0612, Section 5.1.1(5).

4.0 DESIGN FEATURES

4.2 Storage Features

- Movements of a CONCRETE CASK are performed using an AIR PAD System that restricts the lifting height of the CONCRETE CASK to four inches or less.

4.0 DESIGN FEATURES

4.3 Codes and Standards

4.3 Codes and Standards

4.3.1 MPC

The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III, 1995 Edition with Addenda through 1997, is the governing Code for the MPC Storage System used at Trojan.

4.3.1.1 Design Alternatives to Codes, Standards, and Criteria

Trojan ISFSI SAR Table 4.2-1a lists approved alternatives to codes, standards, and criteria governing the design of the MPC.

4.3.2 NOT USED

4.3.3 Construction/Fabrication Alternatives to Design Codes, Standards, and Criteria

Proposed construction/fabrication alternatives to the MPC design codes and standards, including alternatives of Specification 4.3.1, may be used when authorized by the Director of the Office of Nuclear Material Safety and Safeguards or designee. The licensee should demonstrate that:

1. The proposed alternatives would provide an acceptable level of quality and safety, or

2. Compliance with the specified requirements of ASME Code Section III, 1995 Edition with Addenda through 1997, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Requests for relief in accordance with this section shall be submitted in accordance with 10 CFR 72.4.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

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

The ISFSI Manager, or his designee, shall approve prior to implementation, each proposed test, experiment, or modification to systems or equipment that are important to safety as defined in 10 CFR 72.3.

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

5.2.1 Onsite and offsite organizations shall be established for facility operation and corporate management, respectively, as described in the ISFSI Safety Analysis Report or the Trojan Nuclear Quality Assurance Program Topical Report (PGE-8010).

5.0 ADMINISTRATIVE CONTROLS

5.3 ISFSI Staff Qualifications

5.3.1 Each member of the ISFSI Staff shall meet or exceed the minimum qualifications described in the ISFSI Safety Analysis Report.

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

5.4.1 Written procedures shall be established, implemented, and maintained covering the important to safety activities related to STORAGE OPERATIONS described in the ISFSI Safety Analysis Report.

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. The licensee may make changes to the Bases without prior NRC approval provided the changes do not require prior NRC approval pursuant to 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 do not 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.

5.5.2 Radioactive Effluent Control Program

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

a. The Trojan 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. The MPC Lid Weld Helium Leak Rate test that was conducted during cask loading provides assurance that there are essentially no measurable radioactive effluents from the ISFSI.

b. This program includes an environmental monitoring program. The environmental monitoring program ensures the annual dose equivalent to any real individual located outside the ISFSI Controlled Area does not exceed regulatory limits.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs

5.5.3 CONCRETE CASK Thermal Monitoring Program

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

a. The air outlet temperature and the ambient air temperature are measured daily. The temperature difference between the air outlet temperature and the ambient air temperature will be calculated and recorded. The air inlet vents will be inspected and verified free of blockage weekly. In the event of an environmental phenomenon occurring, the frequency of visual inspection will be increased in accordance with the severity and consequences of the event.

b. If any air outlet temperature or temperature difference between air outlet and ambient temperatures show an unexplained reading, a comparison with predicted and/or baseline data will be performed and appropriate actions taken to determine the cause and return the temperature to an acceptable value. One of the immediate actions will be to increase the frequency of temperature monitoring.

c. If any air outlet temperature reaches or exceeds the program limit, the NRC will be notified in accordance with 10 CFR 72.75(b), (e), and (f), and actions will be taken to evaluate the effects and impact of the high temperature on the CONCRETE CASK. Taking actions when air outlet temperature reaches the program limit should preclude reaching the short term bulk concrete temperature limit which is 350°F. Concrete temperatures in excess of 350°F could potentially weaken the concrete strength and tests may have to be performed to evaluate the concrete and to justify continued use of the CONCRETE CASK.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs

5.5.4 Radiation Protection Program

The Radiation Protection Program will establish administrative controls to limit personnel exposure to As Low As Reasonably Achievable (ALARA) levels in accordance with 10 CFR 20.

a. DELETED

b. A monitoring program to ensure the annual dose equivalent to any real individual located outside the ISFSI Controlled Area does not exceed regulatory limits is incorporated as part of the environmental monitoring program in the Radioactive Effluent Control Program of Specification 5.5.2.

c. DELETED

5.5.5 Aging Management Program

The Aging Management Program will establish the processes and procedures to manage the aging of ISFSI components into extended storage periods. This program will be implemented consistent with the ISFSI Safety Analysis Report.

The Aging Management Program will be implemented on or before 20 years from the date of the first canister loading.

5.0 ADMINISTRATIVE CONTROLS

5.6 High Radiation Areas

5.6.1 High Radiation Areas, as defined in 10 CFR 20, will be identified and access controlled in accordance with 10 CFR 20.1601 except for the tops of designated CONCRETE CASKS. Pursuant to 10 CFR 20, paragraph 20.1601 (c), in lieu of the requirements of 10 CFR 20.1601 (a), a CONCRETE CASK where the top is designated a high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto does not have to be locked but shall be controlled by the Radiation Protection Program of 5.5.4.