



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 16, 2010

LICENSEE: FLORIDA POWER CORPORATION

FACILITY: Crystal River, Unit 3

SUBJECT: SUMMARY OF OCTOBER 13, 2010, PUBLIC MEETING WITH FLORIDA POWER CORPORATION REGARDING CRYSTAL RIVER'S PROPOSED LICENSE AMENDMENT REQUEST TO SUPPORT THE INDEPENDENT SPENT FUEL STORAGE FACILITY PROJECT

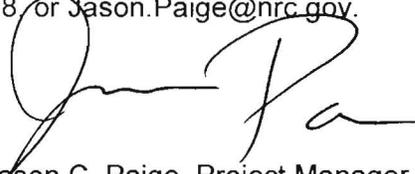
On October 13, 2010, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Florida Power Corporation (the licensee) at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss the Crystal River proposed license amendment request (LAR) to support implementation of the Independent Spent Fuel Storage Installation (ISFSI) project. A list of attendees is provided as Enclosure 1.

The licensee presented information (See Enclosure 2). The licensee presented its plans on submitting a LAR to support the ISFSI project including the ISFSI project scope, LAR scope, and milestone schedule. Specifically, the LAR will request approval of an upgrade for the use of a single failure Auxiliary Building crane. Also, the licensee stated that this LAR will eliminate the need of several commitments in the final safety analysis report after the completion of the upgrade. The licensee stated that it plans to submit the LAR by next month to support a review and approval by the NRC staff by November 2011.

Members of the public were in attendance. Public Meeting Feedback forms were received. Comments received included the following: the Office of Nuclear Material Safety and Safeguards should have been represented at the meeting, late attendees should have been asked to introduce themselves, and good command and control by Jason. These have been forwarded to the NRR Senior Communications Analyst who will forward them to the Office of the Executive Director for Operations.

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Please direct any inquiries to me at 301-415-5888 or [Jason.Paige@nrc.gov](mailto:Jason.Paige@nrc.gov).

A handwritten signature in black ink, appearing to read "Jason C. Paige". The signature is fluid and cursive, with the first name "Jason" and last name "Paige" clearly distinguishable.

Jason C. Paige, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosures:

1. List of Attendees
2. Licensee Handout

cc w/encls: Distribution via Listserv

LIST OF ATTENDEES

OCTOBER 13, 2010, MEETING WITH FLORIDA POWER CORPORATION

PRE-APPLICATION MEETING REGARDING CRYSTAL RIVER'S PROPOSED LICENSE

AMENDMENT REQUEST TO SUPPORT THE INDEPENDENT SPENT FUEL STORAGE

FACILITY PROJECT

U.S. Nuclear Regulatory Commission

F. Saba  
M. Norris  
J. Paige  
Y. Mabry  
J. Uribe  
S. Jones  
D. Hoang  
E. Davidson  
C. Taylor  
K. Jamerson  
D. Garren

Florida Power Corporation

G. Flavors  
K. Henshaw  
K. Wilson  
D. Westcott

ENERCON

K. Pak

ACI

B. Gutherman

Public

C. Greene  
M. Locks

**Crystal River Unit 3  
Independent Spent Fuel Storage  
Installation (ISFSI) Project**

**Cask Handling Crane Replacement LAR**  
Pre-Application Meeting  
October 13, 2010



# Attendees

Gene Flavors	PEF	CR3 ISFSI PM
Keith Henshaw	PEF	ISFSI Design Lead
Ken Wilson	PEF	CR3 Projects Licensing
Dan Westcott	PEF	CR3 Licensing
Brian Gutherman	ACI	Licensing Consultant
Jason Pak	ENERCON	ISFSI A/E

# Agenda

Introduction	Westcott
Independent Spent Fuel Storage Installation (ISFSI) Project	Flavors
ISFSI Project Scope	
Milestone Schedule	
License Amendment Request Scope	Wilson
Item #1: Tornado Design	
Item #2: Seismic Analysis	
Item #3: Revision to Existing Commitments	
Summary	Westcott

# Introduction

ISFSI project is being implemented under a Part 72 general license. No license application is required to authorize storage.

Providing a briefing on the ISFSI Project and Crane Replacement LAR should facilitate the scheduling of NRC resources

NRR

NMSS-SFST

RII

Like all pre-application meetings, our desire is an open dialogue to facilitate understanding and help assure LAR submittal focus and quality.

# ISFSI Project Support

Project is managed by Progress Energy employees supported by experienced contract staff

Major activities performed by experienced proven industry organizations

- Transnuclear – Dry storage system supplier (NUHOMS)

- Hitachi Zosen – Canister manufacturer

- Bayshore Products – HSM manufacturer

- Morris Material Handling – Cask Handling Crane vendor

- Enercon – ISFSI Design

- ACI – Licensing Support/Third-Party Reviews

# ISFSI Project Scope

Site development for ISFSI pad (PA Security Fence and berm expansion)

Substantial Storm Water Management Construction

Procurement of Long-Lead Equipment

- Dry Shielded Canisters

- Horizontal Storage Modules

Leased Loading Equipment

- Transfer Cask; Transfer Trailer; etc.

Auxiliary Building modifications

- FHCR-5 Crane Replacement, etc.

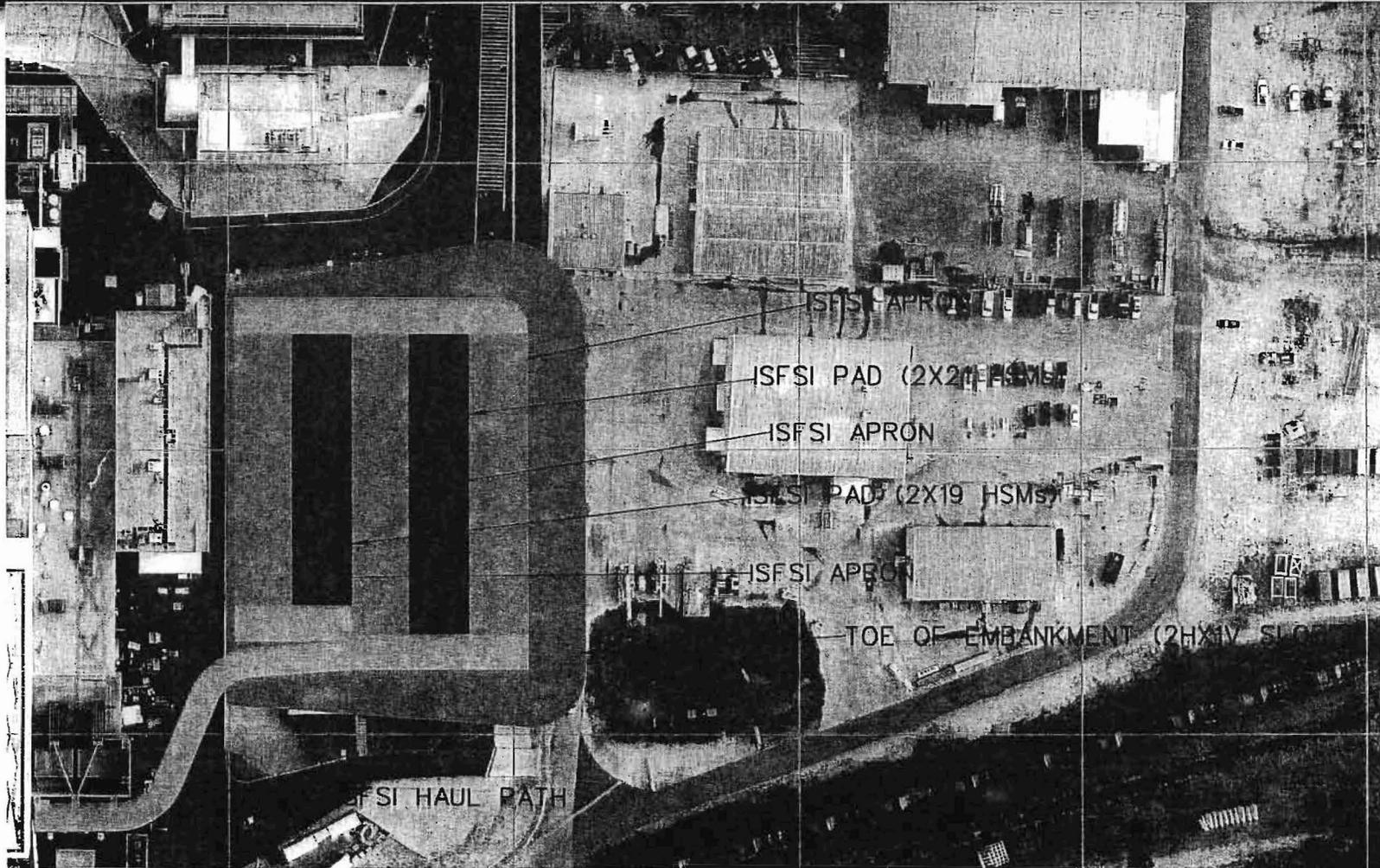
New/Relocated Buildings (due to berm expansion)

ISFSI Loading Campaign

# Site Layout



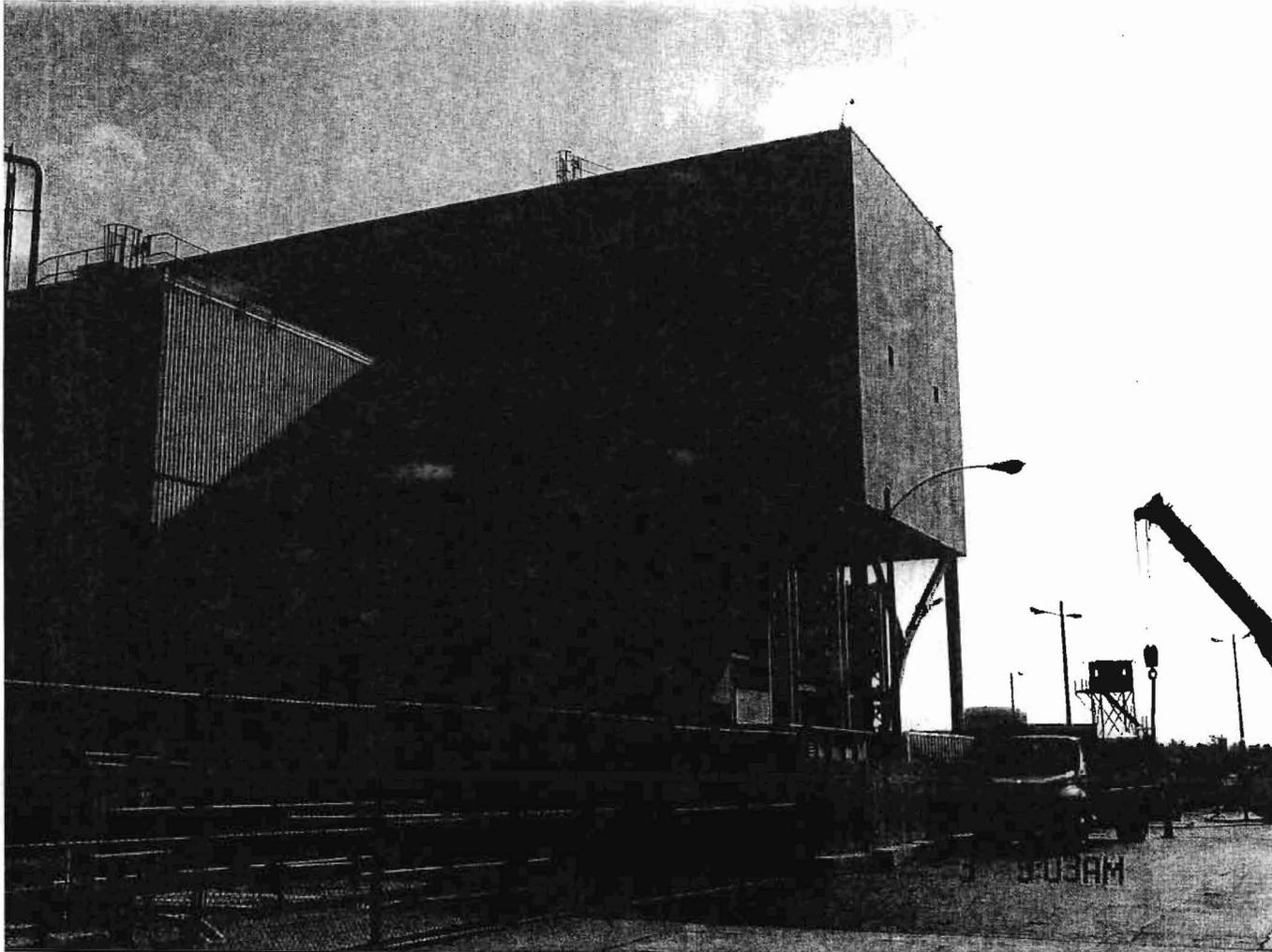
# Transfer Trailer Haul Path (from loading area to ISFSI Pad)



# PA Security Fence Expansion and ISFSI Pad Location (Current View)

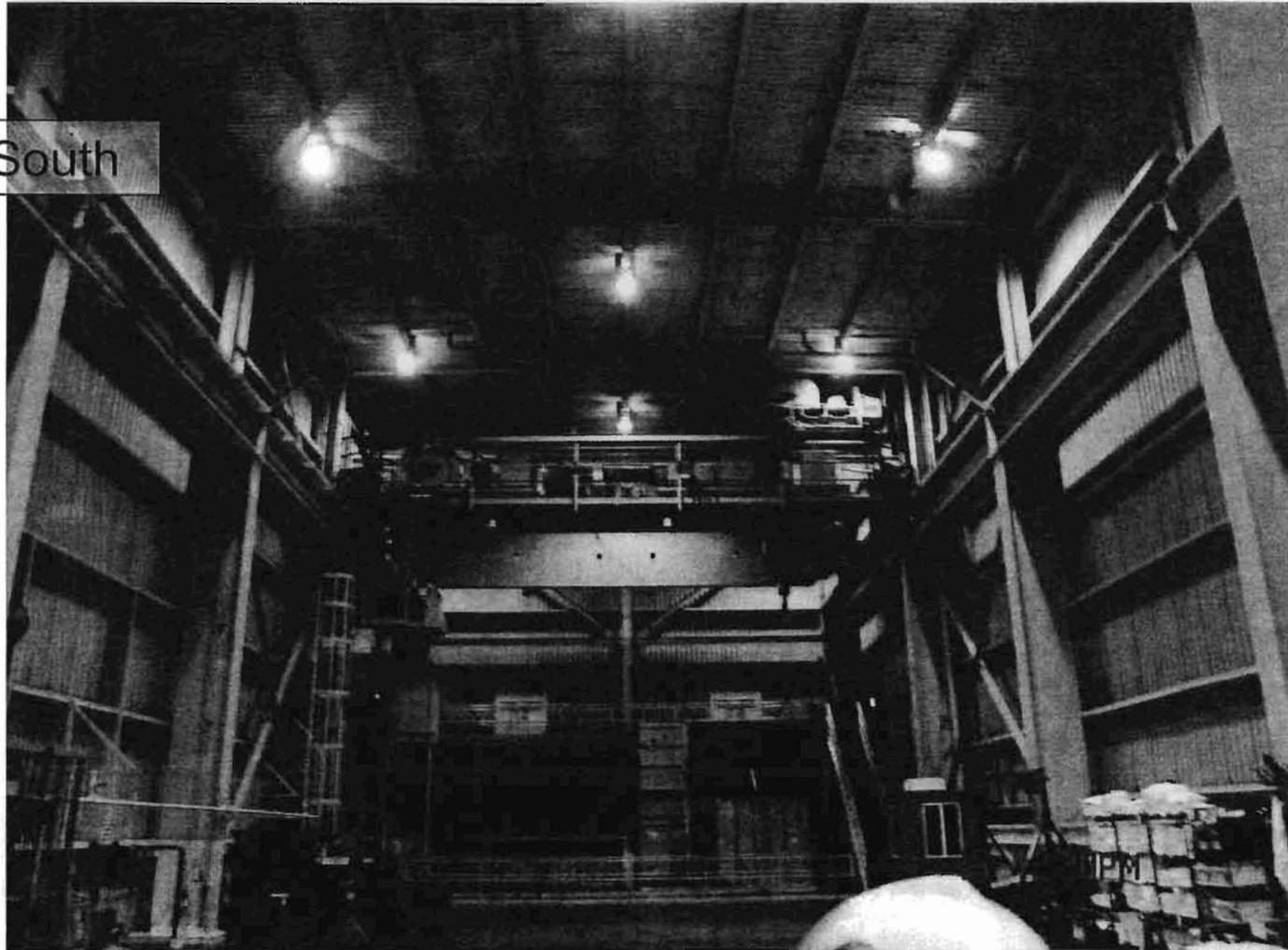


# Auxiliary Building Transfer Trailer Loading Area



# Auxiliary Building Cask Handling Crane (FHCR-5)

Facing South



# Auxiliary Building Cask Handling Crane (FHCR-5)

Facing North



# ISFSI Project Schedule

	Key Milestone	Schedule
1	Began Engineering Design of ISFSI	March 2009
2	Began ISFSI Construction and Plant Modifications	September 2009
3	Submit Crane Replacement License Amendment Request	November 2010
4	Obtain LAR Approval & Begin Crane Installation	November 2011
5	Complete ISFSI Construction and Plant Modifications	June 2012
6	Receive New Fuel for Cycle 18	June 2012
7	Refuel 17	Fall 2012
8	Begin USNRC Witnessed Dry Runs (after 2012 Fall Outage)	January 2013
9	Begin ISFSI Operation / First Campaign	March 2013
10	Lose Full Core Off-load Capability	Cycle 19 (2014-2016)

# LAR SCOPE

## **Tornado Design**

Crane and Crane Support Structure Not Designed for Tornado and Tornado Missile Loads

Departure from ASME NOG-1

## **Seismic Analysis**

Meets ASME NOG-1 Requirements

Supplements CR3 CLB

## **Revision to Existing Commitments**

- Revision to one of the existing commitments requires NRC approval since it was credited in the original CR3 Safety Evaluation Report.

# Tornado Design

RIS 2005-25, Supplement 1 endorses ASME NOG-1-2004 as an acceptable method for licensees to meet the guidance in NUREG-0554 for single-failure-proof cranes

Progress Energy is choosing to revise its licensing basis to adopt ASME NOG-1-2004 for the replacement CR-3 cask handling crane.

Interactions between NRC and other licensees indicate that if crane replacements are performed entirely in accordance with NOG-1-2004, the project may be implemented under 10 CFR 50.59

# Tornado Design (cont)

If a deviation from NOG-1-2004 is necessary, NRC considers this a “departure from a method of evaluation” per 10 CFR 50.59(c)(2)(viii).

The CR-3 replacement cask handling crane will not be designed for tornado loading per NOG-1 (explained on next slide). This is considered a departure from a method of evaluation that requires prior NRC approval.

Other elements of the replacement crane design that comply with NOG-1 are not “departures” and do not require NRC review and approval; they are not included in the LAR scope.

# Tornado Design (cont)

The CR3 Auxiliary Building (AB) concrete portion (up to 162 feet elevation) was designed to meet tornado loads.

AB steel support structure (from 162 feet elevation to 209) was and is not designed or licensed for tornado or tornado missile loads.

The FHCR-5 trolley is at an elevation of ~194 feet and supported by AB steel support structure.

Thus, FHCR-5 cannot be designed for tornado loads, without upgrading AB steel support structure.

NRC review and approval for a departure from a method of evaluation (for the design of new FHCR-5 crane) pertaining to the tornado loads is requested.

# Tornado Design Mitigation Commitment

The following new commitment is made as an alternative to meeting the design requirement of ASME NOG-1 Section 4134 (c):

*Heavy load movements using the Cask Handling crane (FHCR-5) are not permitted if a hurricane or tornado watch or warning has been declared for the site by the National Weather Service. If heavy load handling with FHCR-5 is in progress when any of these criteria are met, the load will be lowered to a safe location immediately and the crane secured.*

Similar approaches (commitments) have been used for outdoor cask handling by others and have been applied in other situations at CR3.

# Seismic Analysis

The damping coefficients specified in ASME NOG-1 differ from those specified in the CR-3 FSAR.

**1% Damping Coefficient** is specified in FSAR (for Seismic Class 1 Structures and Components) (for both OBE & SSE)

**4% Damping Coefficient** (for Operation Basis Earthquake (**OBE**)) is specified in ASME NOG-1.

**7% Damping Coefficient** (for Safe Shutdown Earthquake (**SSE**)) is specified in ASME NOG-1.

PE/Enercon obtained Floor Response Spectra using ASME NOG-1 damping coefficients and compared them with Current Licensing Basis Ground Response Spectra from FSAR (details are presented in next slide).

# Seismic Analysis

## CLB –vs- Envelope Response Spectra

	Current Licensing Basis (CLB)	ASME NOG-1-2004	Envelope Floor Response Spectra (FRS)
Operating Basis Earthquake (OBE)	(1967) FSAR OBE Ground Response Spectra with <b>1% damping</b>	Applicable OBE Floor Response Spectra at appropriate elevation with <b>4% damping</b> .	<b>OBE Spectra envelopes:</b> <ul style="list-style-type: none"> <li>• (1967) <b>Current Licensing Basis</b></li> <li>• (2010) OBE Floor Response Spectra (FRS) at 162 feet elevation with <b>4% damping</b></li> </ul>
Safe Shutdown Earthquake (SSE)	(1967) FSAR SSE Ground Response Spectra with <b>1% damping</b>	Applicable SSE Floor Response Spectra at appropriate elevation with <b>7% damping</b> .	<b>SSE Spectra envelopes:</b> <ul style="list-style-type: none"> <li>• (1967) <b>Current Licensing Basis</b></li> <li>• (2010) SSE Floor Response Spectra (FRS) at 162 feet elevation with <b>7% damping</b></li> </ul>

**NOTE:**

1. Envelope Floor Response Spectra refers to a composite comprised of the maximum responses from each of the contributing response spectra and therefore conservatively envelopes the CLB & NOG-1 requirements.

# Seismic Analysis

Envelope Response Spectra details will be presented in the detailed Design Criteria Document attached to the LAR

The new FHCR-5 crane and crane support structure will be seismically analyzed using OBE and SSE Envelope Response Spectra that are based on CLB, supplemented by NOG-1-2004 requirements.

NRC review and approval “for the deviation from the damping coefficients specified in FSAR” is requested.

# Existing Commitment

CR-3 FSAR Section 9.6.3.1 states:

*“When the Auxiliary Building Overhead Crane is operated in the cask removal mode, there is no spent fuel stored in spent fuel pool B and the gate between pools A and B is in place and sealed.”*

In effect, this commitment will be deleted, since single-failure-proof crane is being installed obviating the need for this commitment. Appropriate revised wording will be included in the LAR.

PE proposes to address elimination of this commitment in this LAR since it is credited in the original CR-3 Safety Evaluation Report.

## Existing Commitments (cont)

In 1996, a number of additional commitments were made in our response to NRC Bulletin 96-02 dealing with prohibitions on cask handling pending making the appropriate crane single failure proof, etc.

Those commitments will not be necessary after completion of this upgrade. We will eliminate them in accordance with our commitment management process at that time.

# Summary

No LAR is required for ISFSI design and operation which is being implemented under a Part 72 general license.

Certain aspects of the cask handling crane replacement require prior NRC review and approval.

This LAR contains three items:

- Tornado Design

- Seismic Analysis

- Revision to Existing Commitments

This LAR is on critical path for crane replacement.

NRC is requested to review and approve this LAR no later than November 2011.

Please direct any inquiries to me at 301-415-5888, or Jason.Paige@nrc.gov.

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Jason C. Paige, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-302

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**ADAMS Accession No. ML103480634**

OFFICE	DORL/LPL2-2/PM	DORL/LPL2-2/LA	DORL/LPL2-2/BC	DORL/LPL2-2/PM
NAME	JPaige	BClayton	DBroaddus (FSaba for)	JPaige
DATE	12/16/10	12/16/10	12/16/10	12/16/10

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