



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

December 14, 2010

LICENSEE: NextEra Energy Point Beach, LLC

FACILITY: Point Beach Nuclear Plant, Units 1 and 2

SUBJECT: SUMMARY OF OCTOBER 27, 2010, MEETING WITH NEXTERA ENERGY POINT BEACH, LLC, TO DISCUSS ISSUES RELATED TO THE NRC STAFF REVIEW OF THE LICENSE AMENDMENT REQUESTS ASSOCIATED WITH AUXILIARY FEEDWATER, ALTERNATE SOURCE TERM, AND EXTENDED POWER UPRATE (TAC NOS. ME1081, ME1082, ME1044, ME1045)

On October 27, 2010, a Category 1 public meeting was held between staff from the U.S. Nuclear Regulatory Commission (NRC) and representatives of NextEra Energy Point Beach, LLC, at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss issues related to the Auxiliary Feedwater (AFW), Alternate Source Term (AST), and Extended Power Uprate (EPU) amendments currently under review by the NRC staff.

A list of attendees is attached as Enclosure 1. The licensee's presentation is provided as Enclosure 2. The licensee indicated that the information provided in the presentation could be made publicly available.

Discussion

The licensee commenced its presentation by stating that the primary focus of the meeting was to resolve NRC staff concerns and solicit feedback on issues associated with the subject amendment requests. Specifically, the focus of the meeting was the emergency diesel generator (EDG) transient analysis and the impact on motor-operated valves (MOVs).

The initial focus of the discussion was associated with the EDG transient analysis. The NRC staff in the Electrical Engineering Branch (EEEB) of the Office of Nuclear Reactor Regulation determined that the primary focus of the meeting should be to address the transient response effects on the MOVs. As such, a significant amount of the meeting time was spent discussing the EDG transient analysis and the overall impact on the MOVs. The licensee appeared to address most of the NRC staff concerns related to the stroke time margins and valve stall concerns.

The following additional questions were developed as a result of the meeting:

1. In response to EEEB request for additional information (RAI) 1.a, transmitted via email dated May 19, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML101410232), NextEra presented the results of the "A" EDG transient voltage analysis performed utilizing the ETAP[®] dynamic model in NextEra letter dated August 9, 2010 (ADAMS Accession No. ML102220146).

The NRC staff requested that the licensee provide the basis for the large pump motor loads utilized in the ETAP[®] dynamic model. Specifically, to indicate if the large horsepower motors used in the model are conservative considering that initial pump flow rates may be higher than steady state flows due to the lower system resistance seen by the pump while piping fills with water.

2. During the meeting on October 27, 2010, NextEra indicated that the EDG output frequency is set monthly and assumed to be +/- .3 Hz.

The NRC staff requested that the licensee provide details of the calibration and loop accuracies for the EDG frequency loop and calculated loop uncertainties.

3. In response to EEEB RAI C transmitted via email dated September 16, 2010 (ADAMS Accession No. ML102600388), NextEra provided additional details regarding the evaluation for heating effect on the thermal protective devices in NextEra letter dated September 28, 2010 (ADAMS Accession No. ML102710364).

The NRC staff requested that the licensee correct the response to RAI C.1, Part 2, to address Limitorque 92-01 Maintenance Update.

4. In response to EEEB RAIs I, J, and K, transmitted via e-mail on September 16, 2010 (ADAMS Accession No. ML102600388), NextEra provided additional details regarding the evaluation for the limiting MOV in NextEra letter dated September 28, 2010 (ADAMS Accession No. ML102710364).

The NRC staff requested that the licensee clarify the stroke time margin of the limiting valve. NextEra letter dated September 28, 2010 indicated a stroke time margin of 3.47 seconds for the limiting valve versus a margin of 0.77 seconds provided in previous correspondence. The staff also requested that the licensee identify any additional margins (i.e., hydraulic margin-specifically valve opening margin to achieve flow and piping fill time, etc.) not included in the 3.47 second margin.

5. In response to EEEB RAI H, transmitted via e-mail dated September 16, 2010 (ADAMS Accession No. ML102600388), NextEra indicated that some MOVs experience voltages lower than their minimum evaluated, described as an MOV stall in NextEra letter dated September 28, 2010 (ADAMS Accession No. ML102710364).

The NRC staff requested that the licensee confirm that either the MOVs will complete their full stroke prior to stall, or that the MOV stall events occur sufficiently far along in the MOV stroke such that the MOV has sufficient excess torque capability to complete its stroke once voltage is restored. Additionally, if an MOV is predicted to stall prior to the contactor dropping out, confirm that the MOV motors will not be damaged or that no significant stall time exists prior to the contactor dropping out.

Question 2 was added based on NRC staff feedback from a November 5, 2010, discussion.

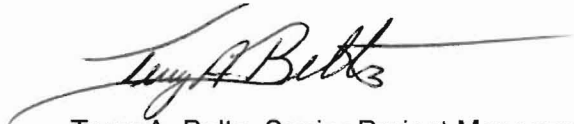
The NRC staff confirmed with the licensee that the proposed questions adequately reflected their concerns. The licensee informed the NRC staff that it would respond to the questions no later than November 12, 2010.

The licensee agreed to supplement its application with two additional license conditions to support proposed modifications, as described below:

- (1) Modifications will be implemented by the end of the spring 2011 Unit 2 refueling outage to ensure the motor-driven auxiliary feedwater and the turbine-driven auxiliary feedwater pump systems on each unit are powered from independent direct current power sources.
- (2) Modifications will be implemented by the end of the spring 2011 Unit 2 refueling outage to reduce EDG loading such that the maximum loading will not exceed the 2000 hour rating of the EDGs.

There were no members of the public in attendance. Public Meeting Feedback forms were not received.

Please direct any inquiries to me at 301-415-3049, or Terry.Beltz@nrc.gov.

A handwritten signature in black ink, reading "Terry A. Beltz", with a long horizontal flourish extending to the right.

Terry A. Beltz, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

Enclosures:

1. List of Attendees
2. Slide Presentation Handout Provided by the Licensee

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LIST OF ATTENDEES

OCTOBER 27, 2010, MEETING WITH NEXTERA ENERGY POINT BEACH, LLC

TO DISCUSS STATUS OF NRC STAFF REVIEWS RELATED TO THE

AST, AFW, AND EPU AMENDMENTS

FOR THE POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

NRC

Roy Mathew
Terry Beltz
Bob Wolfgang
Michael Farnan
Thomas Scarbrough
G. Singh Matharu
John Janovich (Region III)

NextEra Energy

Liz Abbott
Steve Hale
Jeff Roberts
Dan Tomaszewski
Timothy Lensmire
Chuck Richardson

Xcel Energy (Prairie Island)

Sam Chesnutt

MPR Associates

David Harris
Bob DeWeese

Enclosure 2

Meeting Handout



EDG Transient Analysis for AST, AFW and EPU Modifications

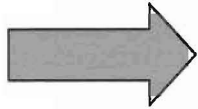
October 27, 2010

Agenda

- **Introduction**
- **Overview**
- **Emergency Diesel Generator (EDG) Transient Analysis**
- **Motor Operated Valve (MOV) Impact**
- **Conclusions**

Agenda

- Introduction
- **Overview**
- Emergency Diesel Generator Transient Analysis
- MOV Impact
- Conclusions

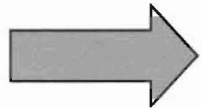


Overview

- **Point Beach EDGs meet AST, AFW, and EPU design requirements**
- **Calculations have been performed using conservative assumptions and methods of analysis**
- **AFW sequencing improves the EDG response and margin**
- **Testing verifies the EDG calculation reflects actual plant response**
- **MOV periodic verification testing and design control programs ensure that MOVs meet EDG transient analysis inputs**
- **The AFW modification improves the A train EDG response during a Design Basis Accident (DBA)**

Agenda

- Introduction
- Overview
- **Emergency Diesel Generator Transient Analysis**
- MOV Impact Assessment
- Conclusions



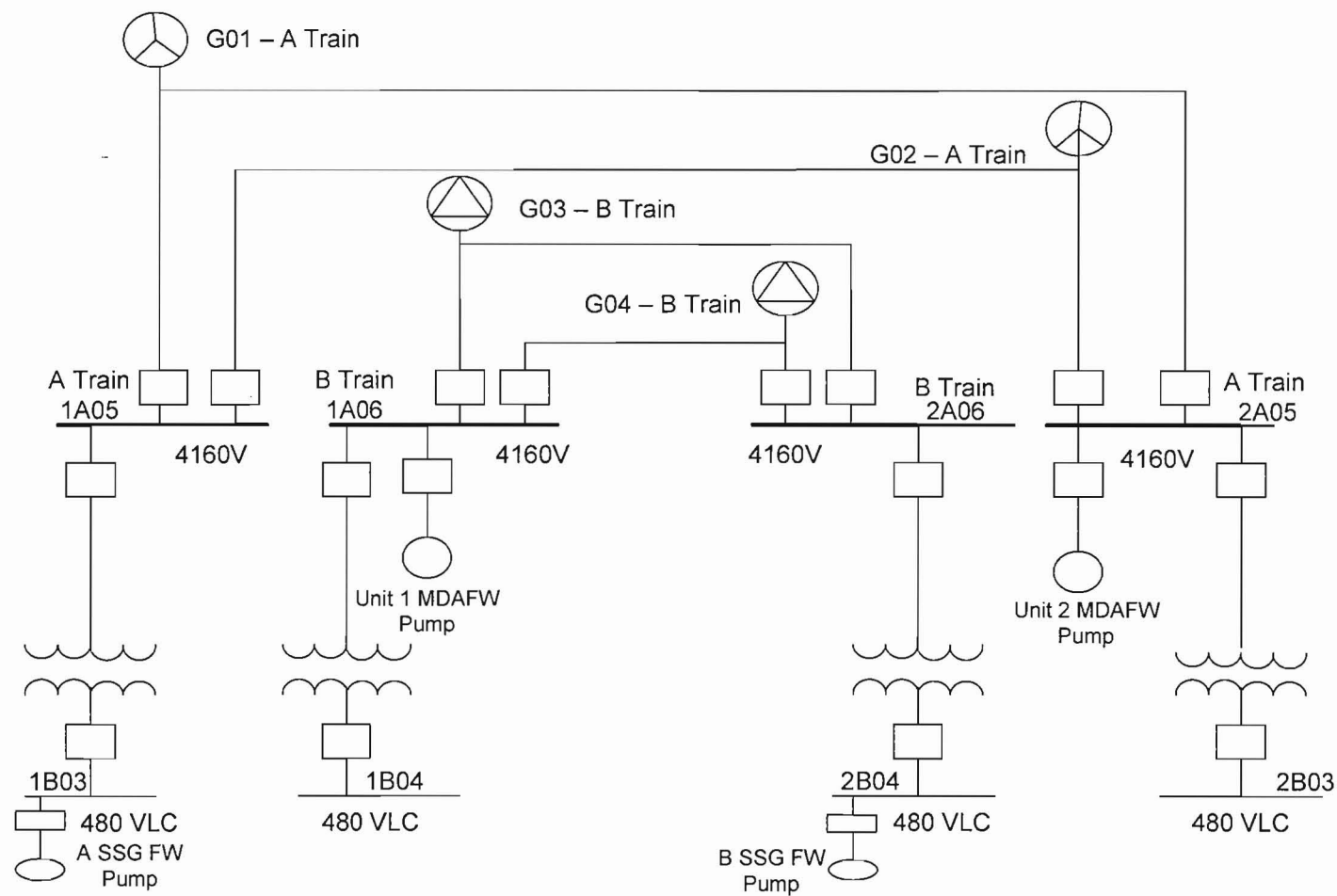
EDG Transient Analysis

- **Analysis demonstrates that EDGs and Safety Related (SR) equipment are capable of supporting design bases functions**
- **EDGs and Safety Related Equipment are conservatively modeled**
- **EDG response has been validated against testing**
- **MOV evaluation methodology is conservatively inputted into the model**
- **EDG transient analysis shows an overall improvement of the EDG response by the AFW upgrade design**

EDG Transient Calculation Model

- **Model inputs**
 - Equipment models
- **MOVs are conservatively modeled at locked rotor for the entire event**
- **EDG modeling inputs**
 - Governor
 - Excitation
 - Steady state parameters
- **Plant configurations**
 - Design bases versus normal lineup
 - Cold loading
 - New AFW timing
 - Random loads

EDG Configuration One Line



Impact of AST, AFW, and EPU Modifications

- **The AST Modifications**

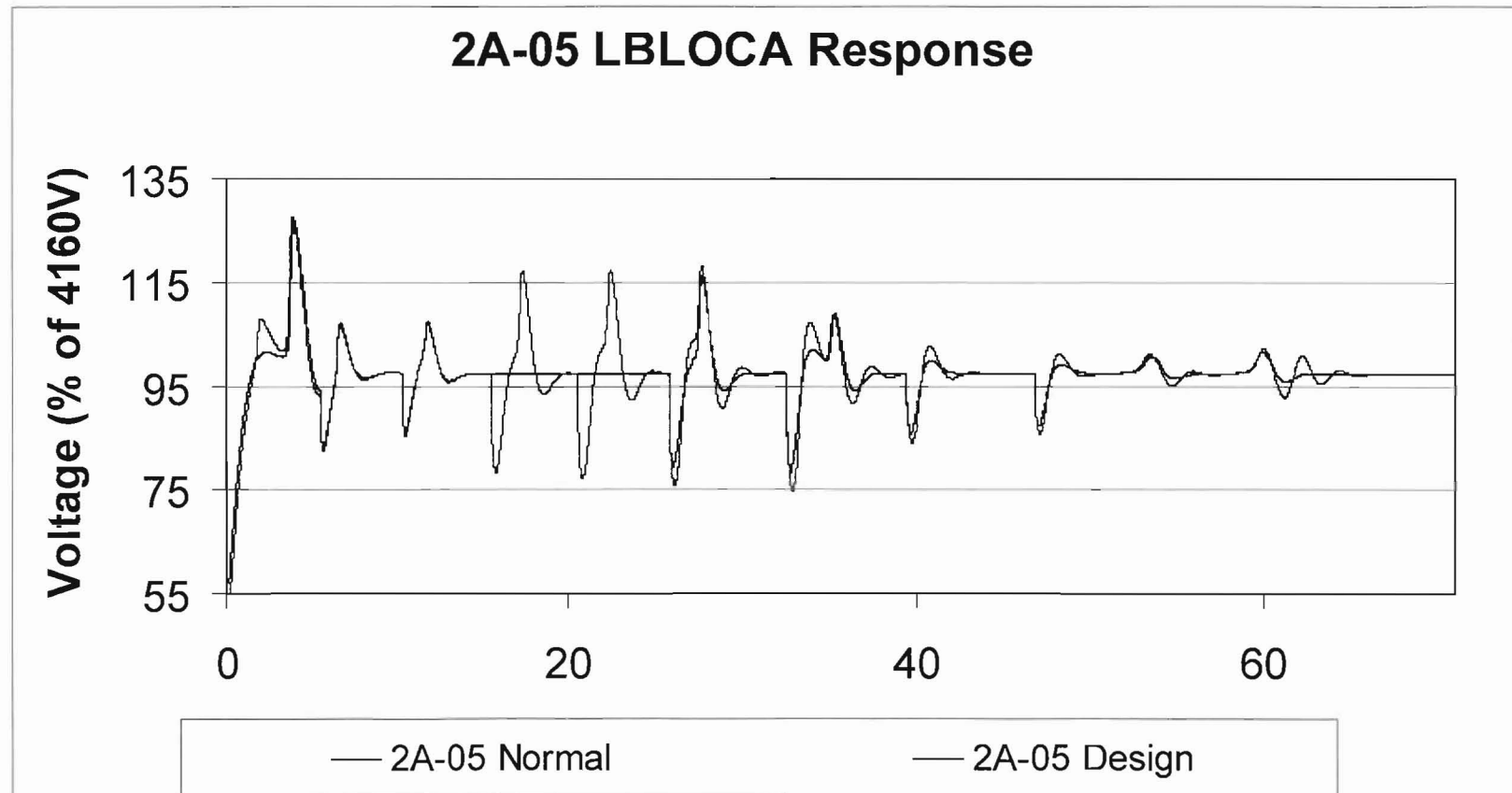
- Removing approximately 50 HP of non-essential load from automatically loading on the EDG
- Control Room Emergency Filtration automatically load onto the EDG

- **AFW Modifications**

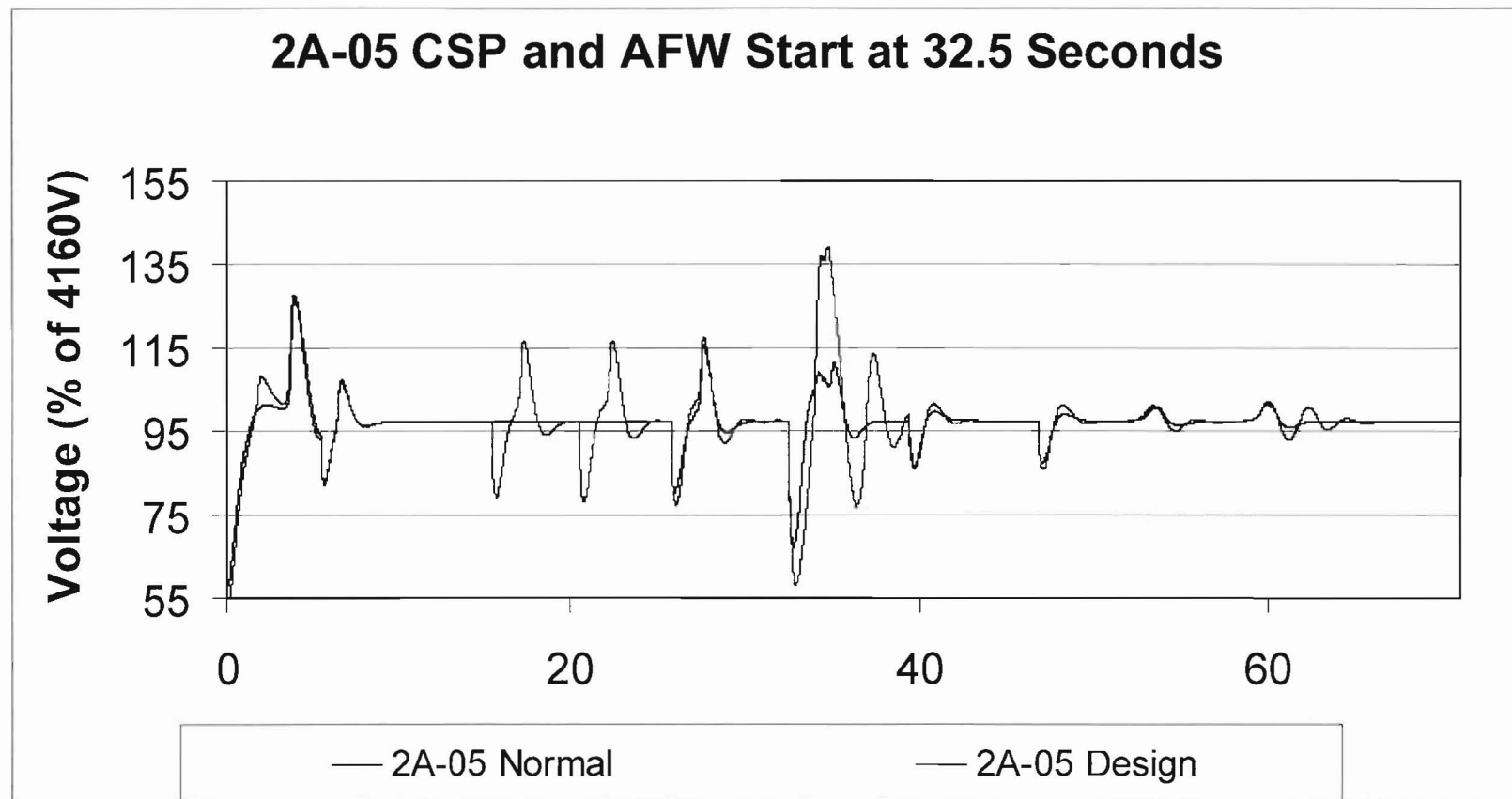
- Replaced 480 volt 250 HP motor with a 4160 volt 350 HP motor
- Changed DBA load sequence from 10.5 seconds to 32.5 seconds nominal to no longer start with the CS pump
- Loss of Voltage (LOV) relays

- **EPU Modifications have no significant impact**

System Voltage Response during a LBLOCA



System Voltage Response during Non LBLOCA



Equipment Evaluations

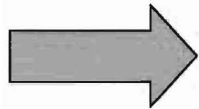
- **4160 Volt and 480 volt Switchgear loads**
 - All loads start and run properly
 - LOV setpoints are acceptable
 - No protective device trips
- **MCC loads**
 - Protective devices do not trip
 - Loads start and run to meet DBA
- **MOV loads**
 - MOV and delays are conservatively modeled
 - MOV program requirements are met
 - Containment Spray random load is considered
 - Protective Devices

Conclusions of Transient Analysis

- **EDGs and equipment are conservatively modeled in ETAP**
- **Voltage response during a LBLOCA supports design requirements**
- **Equipment evaluations have been based on the predicted EDG dynamic response and load sequence**
- **MOV evaluations are included in the EDG transient analysis**
- **The EDG transient analysis shows an overall improvement of the EDGs by the AFW upgrade design and AST modifications**

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MOV Evaluation

- **Stroke time evaluation**
- **Periodic verification**
- **MOV Margins**

Stroke Time Margins

- **Minimum voltage used has margin prior to valve stall point**
- **Stroke time calculation uses pullout torque.**
- **Assumed stem friction higher than actual tested stem friction**
- **Assumed valve seat friction higher than tested friction during MOV DP testing**
- **For lowest margin valve required Cv is achieved prior to full stroke of valve**

Periodic Verification

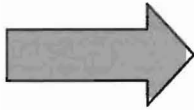
- **Valve seat friction is controlled by the GL 96-05 Periodic Verification program**
- **The packing friction is tested and procedurally controlled**
- **The stem to stem nut friction is tested**
 - PM for valve stem lubrication

Example MOV Margins

- **Electrical margin**
 - Voltage 30.7%
- **Mechanical margins**
 - Stem Friction 13%
 - Stem Load Profile 36.3%
 - Operator Efficiency 20%
- **Cumulative MOV margin**
 - Cumulative Motor Torque Margin 325%
- **Hydraulic margins**
 - Valve Position Margin 30%
 - A Header volume 20%

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Conclusions

- **Point Beach EDGs meet design bases requirements**
- **Calculations have been performed using conservative assumptions and methods of analysis**
- **ESF testing and evaluation of EDG response during testing is in alignment with the calculations**
- **MOV testing and design control programs ensure that MOVs meet design requirements**
- **A Train EDG response is improved by the AFW upgrade design**

The licensee agreed to supplement its application with two additional license conditions to support proposed modifications, as described below:

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/RA/

Terry A. Beltz, Senior Project Manager
Plant Licensing Branch III-1
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DATE	12/06/10	12/06/10	12/14/10	12/14/10

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