
August 29, 2013

ULNRC-06024

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

10 CFR 2.202

Ladies and Gentlemen:

**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
FIRST SIX-MONTH STATUS REPORT
IN RESPONSE TO MARCH 12, 2012 COMMISSION ORDER
MODIFYING LICENSES WITH REGARD TO REQUIREMENTS
FOR MITIGATION STRATEGIES FOR BEYOND-DESIGN-BASIS
EXTERNAL EVENTS (ORDER NUMBER EA-12-049)**

- References:
1. Letter dated March 12, 2012 from E. J. Leeds and M. R. Johnson, USNRC, to Adam C. Heflin, Callaway Plant, Union Electric Company, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (ADAMS Accession Number ML12054A736)
 2. NRC Interim Staff Guidance JLD-ISG-2012-01, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, Revision 0, August 29, 2012 (ADAMS Accession Number ML12229A174)
 3. ULNRC-05924, "Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated October 29, 2012
 4. ULNRC-05962, "Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated February 28, 2013

On March 12, 2012, the U. S. Nuclear Regulatory Commission (NRC) issued the order identified above as Reference 1 to Union Electric Company (dba Ameren Missouri) for Callaway Plant. Reference 1 was immediately effective and directs Ameren Missouri to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an initial status report 60 days following issuance of final interim staff guidance from the NRC (Reference 2) and an Overall Integrated Plan pursuant to Section IV, Condition C. Reference 3 provided Ameren Missouri's initial status report regarding mitigation strategies. Reference 4 provided Ameren Missouri's Overall Integrated Plan.

Section IV, Condition C.2 of Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," provides direction regarding the content of the status reports. The enclosure to this letter provides Ameren Missouri's first six-month status report pursuant to Section IV, Condition C.2 of Reference 1.

This letter does not contain new commitments.

If you have any questions concerning the content of this letter, please contact Scott Maglio, Regulatory Affairs Manager, at 573-676-8719.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Executed on: 8/29/2013



Scott Maglio
Regulatory Affairs Manager

Enclosure: Ameren Missouri's First Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

cc: Mr. Steven A. Reynolds
Acting Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
1600 East Lamar Boulevard
Arlington, TX 76011-4511

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. Fred Lyon
Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O-8B1
Washington, DC 20555-2738

Mr. Eric Leeds
Director, Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O-13H16M
Washington, DC 20555-0001

Mr. Jack Davis
Director, Mitigation Strategies Directorate
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Index and send hardcopy to QA File A160.0761

Hardcopy:

Certrec Corporation
4150 International Plaza Suite 820
Fort Worth, TX 76109
(Certrec receives ALL attachments as long as they are non-safeguards and may be publicly disclosed.)

Electronic distribution for the following can be made via Responses and Reports ULNRC Distribution:

A. C. Heflin
F. M. Diya
C. O. Reasoner III
D.W. Neterer
L. H. Graessle
S. A. Maglio
T. B. Elwood
J. L. Fortman
J.T. Patterson
Corporate Communications
NSRB Secretary
STARS Regulatory Affairs
Mr. John O'Neill (Pillsbury Winthrop Shaw Pittman LLP)
Missouri Public Service Commission

Ameren Missouri's First Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

1 Introduction

Ameren Missouri developed an Overall Integrated Plan (OIP) (Reference 1) for the Callaway Plant, documenting the diverse and flexible strategies (FLEX), in response to NRC Order Number EA-12-049 (Reference 2). This enclosure provides an update of milestone accomplishments since submittal of the OIP (Reference 1), including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any. Refer to Section 8 of this enclosure for a list of References.

2 Milestone Accomplishments

The following milestones have been completed since the development of the OIP (Reference 1), and are current as of July 31, 2013.

- PWROG has issued the NSSS-specific guidance
 - ECA-0.0, Rev 2+, Loss of all AC Power
 - NSSS Specific FLEX Support Guidelines (FSG), Rev 0
- Submittal of six-month status report for implementation of order EA-12-049 (this document)

3 Milestone Schedule Status

The following table provides an update to Attachment 2 of the OIP (Reference 1). The table provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed. The revised milestone target completion dates do not impact the Order EA-12-049 (Reference 2) implementation date.

| Callaway Milestone Schedule | | | |
|--|-----------------------------|--|---------------------------------------|
| Activity | Original Target Date | Status (Will be updated every 6 months) | Revised Target Completion Date |
| Submit Overall Integrated Implementation Plan | February-2013 | Complete | |
| 6 Month Status Updates | February-2015 | Started | |
| Update 1 | August-2013 | Complete | |
| Update 2 | February-2014 | Not Started | |
| Update 3 | August-2014 | Not Started | |
| Update 4 | February-2015 | Not Started | |
| FLEX Strategy Evaluation | April-2013 | Complete | |
| Perform Staffing Analysis | December-2013 | Not Started | June 2014 |
| Modifications | November-2014 | Started | |
| Modifications Evaluation | April-2013 | Started | October 2013 |
| Engineering and Implementation | November-2014 | Started | |
| N-1 Walkdown | April-2013 | Started | December-2013 |
| Design Engineering | March-2014 | Started | |
| Unit 1 Implementation Outage | November-2014 | Not Started | |
| On-site FLEX Equipment | December-2013 | Started | April 2014 |
| Purchase | June-2013 | Started | March 2014 |
| Procure | December-2013 | Started | April 2014 |
| Off-site FLEX Equipment | September-2014 | Started | |
| Develop Strategies with RRC | November-2013 | Started | |
| Install Off-site Delivery Station (if necessary) | September-2014 | Started | |
| Procedures | June-2014 | Started | |
| PWROG issues NSSS-specific guidelines | June-2013 | Complete | |
| Create Callaway FSG | April-2014 | Started | |
| Create Maintenance Procedures | June-2014 | Not Started | |
| Training | November-2014 | Started | |
| Develop Training Plan | April-2014 | Started | |
| Implement Training | May-2014 | Not Started | November-2014 |
| Submit Completion Report | November-2014 | Not Started | |

4 Changes to Compliance Method

The following changes have been made to Ameren Missouri's FLEX response documented in Reference 1.

4.1 Nitrogen Backup Capacity

The Ameren Missouri FLEX response (Reference 1) identified that Callaway Plant is designing a modification that will supplement the existing backup nitrogen capacity. The concept was to provide sufficient nitrogen bottle capacity to provide nitrogen for 72 hours of operation. In lieu of this modification, Ameren Missouri is revising its Phase 1 FLEX Strategy to provide a portable air compressor to supply the Atmospheric Relief Valves (ARVs) and the Turbine Driven Auxiliary Feedwater Pump (TDAFP) Flow Control Valves with compressed air. The installed nitrogen backup supply has sufficient capacity for approximately 8 hours of operation. The portable air compressor is planned to be connected to test connections upstream of the nitrogen accumulator tanks that supply the back-up nitrogen to these valves. The portable air compressors will be powered from a Phase 2 portable generator.

4.2 NK Battery Load Shed

The Ameren Missouri FLEX response (Reference 1) indicated that after NK (Class 1E 125-VDC) load shedding, only ARVs ABPV0001 and ABPV0002 would have DC power available for operation and the Control Room would only be able to remotely control Auxiliary Feedwater (AFW) to Steam Generator (SG) A and D. The original strategy was to open the disconnects to Class 1E 125 VDC Batteries NK13 and NK14 to preserve these batteries until after Class 1E 125-VDC Batteries NK11 and NK12 were depleted. However, to preserve symmetrical cooldown Class 1E 125-VDC Batteries NK13 and NK14 will be load shed except for the power to ARVs ABPV0003 and ABPV0004, as well as power to the TDAFP Flow Control Valves for SG B and SG D. Preliminary evaluation by Engineering indicates that this load is a low power draw from the batteries and would not cause a significant reduction in the amount of time NK13 and NK14 are able to supply 125-VDC power.

4.3 Storage/Protection of Equipment

The Ameren Missouri FLEX response (Reference 1) identified two locations for storage of Callaway Plant FLEX equipment. Callaway Plant is evaluating the use of one (1) storage location meeting the requirements of NEI 12-06, Sections 4 through 9.

4.4 Deployment of Phase 2 480 VAC Diesel Generators

The Ameren Missouri FLEX response (Reference 1) identified that FLEX connection panels would be installed in Corridor 1301 of the Auxiliary Building 2000 elevation and the plant west wall of the Control Building. Permanent sealed penetrations with grommets will be made in the walls of these buildings to provide access to the FLEX panels. Further evaluation has determined that it is not necessary to install the permanent sealed penetrations to the outside walls. In lieu of the wall penetrations, the cables from the Phase 2 portable 480-VAC diesel generators will be run through existing doorways.

4.5 Deployment of Phase 3 4160 VAC Diesel Generators

The Ameren Missouri FLEX response (Reference 1) identified that to facilitate connection of the generator cables to the Class 1E 4160-VAC switchgear, two new sealed penetrations will be installed in the west wall of the control building. Further evaluation has determined that it is not necessary to install the permanent sealed penetrations to the outside walls. In lieu of the wall penetrations, the cables from the Phase 3 portable 4160-VAC diesel generators will be run through existing doorways.

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

As described in Reference 1, Ameren Missouri is evaluating seismically qualifying the Condensate Storage Tank (CST) or installing a 670,000 gallon seismically qualified and missile protected CST. Ameren Missouri is evaluating the need for relaxation of Section IV.A.2 of Order EA-12-049 regarding full implementation no later than two (2) refueling cycles after submittal of the OIP, so that the option to install a new seismically qualified and missile protected CST may be pursued. Refer to Open Item 5 in Section 6 below. If an extension is requested, the specific details will be provided to the NRC in a separate submittal.

The Ameren Missouri FLEX response (Reference 1) also stated that Ameren Missouri is crediting use of the RCP SHIELD® Seal in our FLEX Strategies. There is an industry identified issue, documented under 10CFR50 Part 21, with the current performance of this seal. The vendor (Westinghouse) has developed a plan to improve the RCP SHIELD® Seal performance. Ameren Missouri is evaluating the need for relaxation from the requirement of Section IV.A.2 of Order EA-12-049 regarding full implementation no later than two (2) refueling cycles after submittal of the OIP, so that the option to credit the RCP SHIELD® Seals may be pursued. The current required implementation date for Callaway Plant is the Fall 2014 refueling outage. An extension of one additional refueling cycle may be requested which would move the implementation date to the spring of 2016, still within the maximum allowed time frame of December 2016. The extension would provide additional time to resolve the RCP Seal performance issue and to fully design and safely implement modifications to the Callaway Plant. A new Open Item, OI8 has been created to track resolution of this issue and is included in Section 6 below. If an extension is requested, the specific details will be provided to the NRC in a separate submittal.

6 Open Items from Overall Integrated Plan and Draft Safety Evaluation

The following tables provide a summary of the open items documented in the OIP or the Draft Safety Evaluation (SE) and the status of each item.

| Overall Integrated Plan Open Item | Status |
|--|---------------|
| OI1 The RWST will need to be missile protected to credit its use in FLEX strategies. | Started |

| Overall Integrated Plan Open Item | | Status |
|--|---|---|
| OI2 | GOTHIC analysis needs to be performed to demonstrate that Containment pressure and temperature remain at acceptable levels and that instrumentation EQ requirements will be maintained. | Not started |
| OI3 | An analysis will need to be performed to demonstrate acceptable SFP cooling pump performance with the SFP in boil-off. | Not started |
| OI4 | For non-Class 1E instrumentation that will be repowered using a temporary battery, an analysis will need to be performed to determine battery life and frequency of replacing battery | Not started |
| OI5 | The current CST and CST pipe chase are non-seismic. Callaway may pursue the construction of a new seismically qualified and missile protected CST. Current FLEX strategies rely on the existing CST tank. Future evaluation is required to determine the impact on FLEX strategies should the new CST be constructed. | Started. Relaxation of Order requirements regarding the date of full implementation may be needed to pursue the option to install a new CST. |
| OI6 | The method for isolating accumulators during RCS inventory control has not been finalized | Started |
| OI7 | The method for repowering the SFP cooling pumps has not been finalized. | Started |
| OI8 | The Westinghouse RCP SHIELD® Seal issue has not been resolved. | Started. Relaxation of Order requirements regarding the date of full implementation may be needed to pursue the option to credit the Westinghouse RCP SHIELD® Seal as part of the Callaway Energy Center FLEX Strategies. |

| Draft Safety Evaluation Open Item | Status |
|--|---------------|
| Draft NRC Safety Evaluation has not been received. | N/A |

7 Potential Draft Safety Evaluation Impacts

There are no potential impacts to the Draft Safety Evaluation identified at this time.

8 References

The following references support the updates to the OIP described in this enclosure.

1. ULNRC-05962, "Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated February 28, 2013
2. NRC Order Number EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012