



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

November 9, 2015

Mr. Fadi Diya
Senior Vice President and
Chief Nuclear Officer
Union Electric Company
P.O. Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - PLAN FOR THE ONSITE AUDIT REGARDING IMPLEMENTATION OF MITIGATING STRATEGIES AND RELIABLE SPENT FUEL POOL INSTRUMENTATION RELATED TO ORDERS EA-12-049 AND EA-12-051 (TAC NOS. MF0772 AND MF0773)

Dear Mr. Diya:

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design-Basis External Events" and Order EA-12-051, "Order to Modify Licenses With Regard To Reliable Spent Fuel Pool Instrumentation," (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML12054A736 and ML12054A679, respectively). The orders require holders of operating reactor licenses and construction permits issued under Title 10 of the *Code of Federal Regulations* Part 50 to submit for review, Overall Integrated Plans (OIPs) including descriptions of how compliance with the requirements of Attachment 2 of each order will be achieved.

By letter dated February 28, 2013 (ADAMS Accession No. ML13063A459), Union Electric Company (the licensee), doing business as Ameren Missouri, submitted its OIP for Callaway Plant, Unit 1 (Callaway) in response to Order EA-12-049. By letters dated August 29, 2013, February 26, 2014, August 28, 2014, February 26, 2015, and August 27, 2015 (ADAMS Accession Nos. ML13242A239, ML14057A770, ML14241A666, ML15057A301, and ML15239B402, respectively), the licensee submitted its first five six-month updates to the OIP. By letter dated August 28, 2013 (ADAMS Accession No. ML13234A503), the NRC notified all licensees and construction permit holders that the staff is conducting audits of their responses to Order EA-12-049 in accordance with NRC Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195). This audit process led to the issuance of the Callaway interim staff evaluation (ISE) dated December 19, 2013 (ADAMS Accession No. ML13224A195), and continues with in-office and onsite portions of this audit.

By letter dated February 28, 2013 (ADAMS Accession No. ML13063A449), the licensee submitted its OIP for Callaway, in response to Order EA-12-051. By letter dated June 7, 2013 (ADAMS Accession No. ML13121A187), the NRC staff sent a request for additional information (RAI) to the licensee. By letters dated August 29, 2013, July 3, 2013, February 26, 2014, August 28, 2014, February 26, 2015, and August 27, 2015 (ADAMS Accession Nos. ML13242A240, ML13190A048, ML14057A773, ML14241A669, ML15057A303, and ML15239B352, respectively), the licensee submitted its RAI responses and first five six-month

updates to the OIP. The NRC staff's review to date led to the issuance of the Callaway ISE and RAI dated November 25, 2013 (ADAMS Accession No. ML13323A111). By letter dated March 26, 2014 (ADAMS Accession No. ML14083A620), the NRC notified all licensees and construction permit holders that the staff is conducting in-office and onsite audits of their responses to Order EA-12-051 in accordance with NRC NRR Office Instruction LIC-111, as discussed above.

The ongoing audit process, to include the in-office and onsite portions, allows the staff to assess whether it has enough information to make a safety evaluation of the Integrated Plans. The audit allows the staff to review open and confirmatory items from the mitigation strategies ISE, RAI responses from the spent fuel pool instrumentation ISE, the licensee's integrated plans, and other audit questions. Additionally, the staff gains a better understanding of submitted information, identifies additional information necessary for the licensee to supplement its plan, and identifies any staff potential concerns. The audit's onsite portion will occur prior to declarations of compliance for the first unit at each site.

This document outlines the on-site audit process that occurs after ISE issuance as licensees provide new or updated information via periodic updates, update audit information on e-portals, provide preliminary Overall Program Documents/Final Integrated Plans, and continue in-office audit communications with staff while proceeding towards compliance with the orders.

The staff plans to conduct an onsite audit at Callaway in accordance with the enclosed audit plan from January 25 - 28, 2016.

If you have any questions, please contact me at 301-415-2833 or by e-mail at Peter.Bamford@nrc.gov.

Sincerely,



Peter Bamford, Senior Project Manager
Orders Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:
Audit Plan

cc w/encl: Distribution via Listserv

**Audit Plan
Callaway Plant, Unit 1**

BACKGROUND AND AUDIT BASIS

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design-Basis External Events" and Order EA-12-051, "Order to Modify Licenses With Regard To Reliable Spent Fuel Pool Instrumentation," (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML12054A736 and ML12054A679, respectively). Order EA-12-049 directs licensees to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool (SFP) cooling capabilities in the event of a beyond-design-basis external event (BDBEE). Order EA-12-051 requires, in part, that all operating reactor sites have a reliable means of remotely monitoring wide-range SFP levels to support effective prioritization of event mitigation and recovery actions in the event of a BDBEE. The orders require holders of operating reactor licenses and construction permits issued under Title 10 of the *Code of Federal Regulations* Part 50 to submit for review, Overall Integrated Plans (OIPs) including descriptions of how compliance with the requirements of Attachment 2 of each order will be achieved.

By letter dated February 28, 2013 (ADAMS Accession No. ML13063A459), the licensee (Union Electric Company, doing business as Ameren Missouri) submitted its Overall Integrated Plan for Callaway Plant, Unit 1 (Callaway) in response to Order EA-12-049. By letters dated August 29, 2013, February 26, 2014, August 28, 2014, February 26, 2015, and August 27, 2015 (ADAMS Accession Nos. ML13242A239, ML14057A770, ML14241A666, ML15057A301, and ML15239B402, respectively), the licensee submitted its first five six-month updates to the OIP. By letter dated August 28, 2013 (ADAMS Accession No. ML13234A503), the NRC notified all licensees and construction permit holders that the staff is conducting audits of their responses to Order EA-12-049 in accordance with NRC Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195). This audit process led to the issuance of the Callaway interim staff evaluation (ISE) dated December 19, 2013 (ADAMS Accession No. ML13224A195), and continues with in-office and onsite portions of this audit.

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Enclosure

of their responses to Order EA-12-051 in accordance with NRC NRR Office Instruction LIC-111, as discussed above.

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This document outlines the onsite audit process that occurs after ISE issuance as licensees provide new or updated information via periodic updates, update audit information on e-portals, provide preliminary Overall Program Documents (OPDs)/Final Integrated Plans (FIPs), and continue in-office audit communications with staff while proceeding towards compliance with the orders.

Following the licensee's declarations of order compliance, the NRC staff will evaluate the OIPs, as supplemented, the resulting site-specific OPDs/FIPs, and, as appropriate, other licensee submittals based on the requirements in the orders. For Order EA-12-049, the staff will make a safety determination regarding order compliance using the Nuclear Energy Institute (NEI) guidance document NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide" issued in August, 2012 (ADAMS Accession No. ML12242A378), as endorsed, by NRC Japan Lessons-Learned Directorate (JLD) interim staff guidance (ISG) 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'" (ADAMS Accession No. ML12229A174) as providing one acceptable means of meeting the order requirements. For Order EA-12-051, the staff will make a safety determination regarding order compliance using the NEI guidance document NEI 12-02, "Industry Guidance for Compliance with NRC Order EA-12-051, 'To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation'" (ADAMS Accession No. ML12240A307), as endorsed, with exceptions and clarifications, by NRC ISG JLD-ISG-2012-03 "Compliance with Order EA-12-051, 'Reliable Spent Fuel Pool Instrumentation'" (ADAMS Accession No. ML12221A339), as providing one acceptable means of meeting the order requirements. Should the licensee propose an alternative strategy or other method deviating from the guidance, additional staff review will be required to evaluate if the alternative strategy complies with the applicable order.

AUDIT SCOPE

As discussed, onsite audits will be performed per NRR Office Instruction LIC-111, to support the development of the safety evaluations.

The purpose of the audits is to (1) obtain and review information responsive to the Callaway OIPs, as supplemented, (2) review open and confirmatory items from the mitigation strategies ISE, (3) review RAI responses from the SFPI ISE, and (4) to observe and gain a better understanding of the basis for the site's overall programs to ensure the licensee is on the

correct path for compliance with the Mitigation Strategies and SFPI orders. These may include, but are not limited to:

- Onsite review and discussion for the basis and approach for detailed analysis and calculations (Orders EA-12-049, EA-12-051);
- Walk-throughs of strategies and laydown of equipment to assess feasibility, timing, and effectiveness of a given mitigating strategy or integration of several strategies (Order EA-12-049);
- Storage, protection, access, and deployment feasibility and practicality for onsite portable equipment (Order EA-12-049);
- Evaluation of staging, access, and deployment of offsite resources to include National SAFER Response Center (NSRC) provided equipment (Order EA-12-049); and
- Review dimensions and sizing of the SFP area, placement of the SFP level instrumentation, and applicable mounting methods and design criteria (Order EA-12-051).

NRC AUDIT TEAM

Title	Team Member
Team Lead and Project Manager	Peter Bamford
Technical Support	Joshua Miller
Technical Support	Khoi Nguyen
Technical Support	Kevin Roche
Technical Support	Prem Sahay

LOGISTICS

The audit will be conducted onsite at Callaway on January 25 - 28, 2016. Entrance and exit briefings will be held with the licensee at the beginning and end of the audit, respectively, as well as daily briefings of team activities. Additional details will be addressed over the phone prior to the onsite audit. A more detailed schedule is provided below.

A private conference room is requested for NRC audit team use with access to audit documentation upon arrival and as needed.

DELIVERABLES

An audit report/summary will be issued to the licensee within 90 days from the end of the audit.

INFORMATION NEEDS

- Materials/documentation provided in responses to open or confirmatory items and RAIs in the ISEs;
- OPD/FIP (current version), operator procedures, FLEX Support Guidelines (FSGs), operator training plans, NSRC (SAFER) Callaway Response Plan; and
- Materials/documentation for staff audit questions

To provide supplemental input to the ongoing audit of documents submitted to the NRC and made available via e-portal, the onsite audit will have three components: 1) a review of the overall mitigating strategies for the site, including, if needed, walk-throughs of strategies and equipment laydown of select portions; 2) a review of material relating to open or confirmatory items and RAIs from the ISEs, and staff audit questions; and 3) additional specific issues requested by NRC technical reviewers related to preparation of a safety evaluation. Each part is described in more detail below:

Part 1 - Overall Mitigating Strategies and Program Review:

During the onsite audit, please be prepared to conduct a tabletop discussion of the site's integrated mitigating strategies and SFPI compliance program. This discussion should address the individual components of the plans, as well as the integrated implementation of the strategies, including a timeline. The licensee team presenting this information should include necessary representatives from site management, engineering, training, and operations that were responsible for program development, and will be responsible for training and execution.

Following the tabletop discussion, please be prepared to conduct walk-throughs of procedures and demonstrations of equipment as deemed necessary by NRC audit team members. Include representatives from engineering and operations that will be responsible for training and execution. At this time we expect, at a minimum, to walk-through the items below. Based on the tabletop presentations and audit activities, this list may change.

WALK-THROUGH LIST:

1. Walk-through a sample of strategies that will be delineated by specific NRC technical staff audit team members.
2. Walk-through of portable (FLEX) diesel generator (DG) procedures, to include power supply pathways, areas where manual actions are required, and electrical isolation.
3. Walk-through of building access procedures, to include any unique access control devices.
4. Strategy walk-through of transfer routes from staging and storage areas to deployment locations for both onsite and offsite equipment.
5. Strategy walk-through for core cooling and reactor coolant system (RCS) inventory, to include portable pumping equipment, flow paths, and water storage locations and the related reactor systems analysis and calculations.
6. Walk-through of communications enhancements.
7. Walk-through of SFP area, SFPI locations, main control room (MCR), and related equipment mounting areas.

Part 2 – Specific Technical Review Items:

During the visit, audit items will be addressed from the licensee's ISE open items, confirmatory items, and SFPI RAIs; audit question list; licensee OIP, as supplemented, open items; and draft safety evaluation additional questions. Please provide documents or demonstrations as needed to respond to each item.

Part 3 – Specific Topics for Discussion:

1. Draft of Callaway OPD/FIP
2. Training
3. Portable (FLEX) equipment maintenance and testing
4. SAFER Response Plan for Callaway

Proposed Schedule

Onsite Day 1, Monday, January 25, 2016

0730 Check in at site, badging

0900 Entrance meeting

0915 Licensee presentation of strategies (follows entrance meeting)

1200 Lunch

1300 NRC Audit Team Activities:

- Technical area break-out discussions between NRC and licensee staff in the areas of reactor systems, electrical, balance-of-plant/structures, SFPI, and others
- Review documents relating to open or confirmatory items, RAIs, codes, analyses, etc.

1530 NRC Audit Team meeting

1600 Team lead daily debrief/next day planning with licensee

Onsite Day 2, Tuesday January 26, 2016

0800 NRC Audit Team Activities

1200 Lunch

1300 NRC Audit Team Activities

1530 NRC Audit Team meeting

1600 Team lead daily debrief/next day planning with licensee

Onsite Day 3, Wednesday, January 27, 2016

0800 Continue NRC Audit Team Activities - Mitigating Strategies/SFPI walk-throughs with licensee (times may vary)

1200 Lunch

1300 Continue NRC Audit Team Activities

1530 NRC Audit Team meeting

1600 Team lead daily debrief/next day planning with licensee

Onsite Day 4, Thursday, January 28, 2016

0800 Continue NRC Audit Team Activities

1200 Lunch

1300 Continue NRC Audit Team Activities

1400 NRC Audit Team meeting

1500 Pre-exit meeting (tentative)

1600 NRC/Licensee exit meeting

1630 Audit closeout/departure

updates to the OIP. The NRC staff's review to date led to the issuance of the Callaway ISE and RAI dated November 25, 2013 (ADAMS Accession No. ML13323A111). By letter dated March 26, 2014 (ADAMS Accession No. ML14083A620), the NRC notified all licensees and construction permit holders that the staff is conducting in-office and onsite audits of their responses to Order EA-12-051 in accordance with NRC NRR Office Instruction LIC-111, as discussed above.

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If you have any questions, please contact me at 301-415-2833 or by e-mail at Peter.Bamford@nrc.gov.

Sincerely,

/RA/

Peter Bamford, Senior Project Manager
Orders Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:
Audit Plan

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ADAMS Accession No. ML15309A326

OFFICE	NRR/JLD/JOMB/PM	NRR/JLD/LA	NRR/JLD/JOMB/BC(A)	NRR/JLD/JOMB/PM
NAME	PBamford	SLent	MHalter	PBamford
DATE	11/4/2015	11/5/2015	11/9/2015	11/9/2015

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