



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

June 27, 2012

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

SUBJECT: CALLAWAY PLANT, UNIT 1 – CLOSEOUT OF NRC BULLETIN 2011-01,  
"MITIGATING STRATEGIES" (TAC NO. ME6411)

Dear Mr. Heflin:

On May 11, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 2011-01, "Mitigating Strategies" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111250360), to all holders of operating licenses for nuclear power reactors, except those that have permanently ceased operation and have certified that fuel has been removed from the reactor vessel. The purpose of the bulletin was to obtain a comprehensive verification that licensees' mitigating strategies to maintain or restore core cooling, spent fuel cooling, and containment following a large explosion or fire were compliant with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(hh)(2).

The bulletin required two sets of responses pursuant to the provisions of 10 CFR 50.54(f). Callaway Plant, Unit 1, provided its responses to the bulletin by letters dated June 10 and July 11, 2011 (ADAMS Accession Nos. ML111640447 and ML111930161, respectively). By letter dated December 7, 2011 (ADAMS Accession No. ML113390281), the NRC sent the licensee a request for additional information (RAI) on its July 11, 2011, response. The licensee responded to the RAI by letter dated January 5, 2012 (ADAMS Accession No. ML120060481). Portions of the letters dated July 11, 2011, and January 5, 2012, contain sensitive unclassified non-safeguards information and, accordingly, have been withheld from public disclosure.

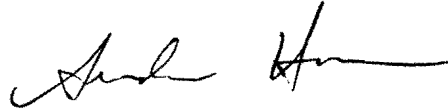
The NRC has reviewed the information submitted by the licensee and concludes that the response to the bulletin is acceptable. As summarized in the enclosure, the NRC staff verified that the licensee provided the information requested in the bulletin. No further information or actions under the bulletin are requested.

A. Heflin

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If you have any questions, please contact me at 301-415-8480 or via e-mail at [andrew.hon@nrc.gov](mailto:andrew.hon@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'Andrew Hon', with a stylized flourish at the end.

Andrew Hon, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:  
As stated

cc w/encl: Distribution via Listserv

## SUMMARY OF NRC REVIEW OF LICENSEE'S RESPONSES

### TO NRC BULLETIN 2011-01, "MITIGATING STRATEGIES"

#### UNION ELECTRIC COMPANY

#### CALLAWAY PLANT, UNIT 1

#### DOCKET NO. 50-483

### 1.0 INTRODUCTION

On May 11, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 2011-01, "Mitigating Strategies," (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111250360) to all holders of operating licenses for nuclear power reactors, except those that have permanently ceased operation and have certified that fuel has been removed from the reactor vessel. The bulletin required two sets of responses pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(f). The first responses were due 30 days after issuance of the bulletin. By letter dated June 10, 2011 (ADAMS Accession No. ML111640447), Union Electric Company, the licensee for Callaway Plant, Unit 1, provided its response to this first set of questions (first response). The second responses were due 60 days after issuance of the bulletin. By letter dated July 11, 2011 (ADAMS Accession No. ML111930161), the licensee provided its response to this second set of questions (second response). By letter dated December 7, 2011 (ADAMS Accession No. ML113390281), the NRC sent a request for additional information (RAI) on the second response. The licensee responded to the RAI by letter dated January 5, 2012 (ADAMS Accession No. ML120060481). Portions of the letters dated July 11, 2011, and January 5, 2012, contain sensitive unclassified non-safeguards information and, accordingly, have been withheld from public disclosure.

As summarized below, the NRC staff has verified that the licensee provided the information requested in the bulletin.

### 2.0 BACKGROUND

On February 25, 2002, the NRC issued EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (ICM Order). Section B.5.b of the ICM Order required licensees to develop specific guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities using readily available resources (equipment and personnel) that can be effectively implemented under the circumstances associated with the loss of large areas of the plant due to explosions or fire.

By letter dated June 27, 2007 (ADAMS Accession No. ML071270287), the NRC staff issued its safety evaluation (SE) to document the final disposition of information submitted by the licensee regarding Section B.5.b of the ICM Order. Along with the SE, the staff issued a conforming license condition to incorporate the B.5.b mitigating strategies into the licensing basis.

Enclosure

On March 27, 2009, the NRC issued 10 CFR 50.54(hh)(2) as a new rule, in order to capture the B.5.b mitigating strategies and related license conditions as regulatory requirements for both current and future licensees. At that time, licensee compliance with the conforming license conditions was sufficient to demonstrate compliance with 10 CFR 50.54(hh)(2) (74 FR 13926; March 27, 2009) so no further actions were required on the part of current licensees.

### 3.0 30-DAY REQUEST

In order to confirm continued compliance with 10 CFR 50.54(hh)(2), the bulletin requested that licensees address the following two questions within 30 days of issuing the bulletin:

1. Is the equipment necessary to execute the mitigating strategies, as described in your submittals to the NRC, available and capable of performing its intended function?
2. Are the guidance and strategies implemented capable of being executed considering the current configuration of your facility and current staffing and skill levels of the staff?

The NRC staff reviewed the licensee's first response to determine if it had adequately addressed these questions.

#### 3.1 Question 1: Availability and Capability of Equipment

In its first response, the licensee confirmed that equipment it needs to execute the 10 CFR 50.54(hh)(2) mitigating strategies is available and capable of performing its intended function. The NRC staff verified that this confirmation covered equipment needed for each of the three phases of B.5.b mitigation strategies. Therefore, the NRC staff concludes that the licensee has adequately responded to Question 1.

#### 3.2 Question 2: Guidance and Strategies Can Be Executed

In its first response, the licensee confirmed that the guidance and strategies it has implemented for 10 CFR 50.54(hh)(2) are capable of being executed considering the current facility configuration, staffing levels, and staff skills. Since the licensee has considered its current facility configuration, staffing levels, and staff skills, and confirmed that it can execute its implemented guidance and strategies, the NRC staff concludes that the licensee has adequately responded to Question 2.

### 4.0 60-DAY REQUEST

The bulletin required a response to the following five questions within 60 days of issuing the bulletin:

1. Describe in detail the maintenance of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2) in order to ensure that it is functional when needed.

2. Describe in detail the testing of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2) in order to ensure that it will function when needed.
3. Describe in detail the controls for ensuring that the equipment is available when needed.
4. Describe in detail how configuration and guidance management is ensured so that strategies remain feasible.
5. Describe in detail how you ensure availability of offsite support.

The NRC staff reviewed the licensee's submittals to determine if it had adequately addressed these questions. This was accomplished by verifying that the submittals listed equipment, training, and offsite resources which were relied upon to make conclusions in the June 27, 2007, SE or are commonly needed to implement the mitigating strategies.

#### 4.1 Questions 1 and 2: Maintenance and Testing of Equipment

Questions 1 and 2 of the 60-day request required licensees to describe in detail the maintenance and testing of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2) in order to ensure that it is functional when needed. In its second response, the licensee listed the equipment used to support the 10 CFR 50.54(hh)(2) mitigating strategies which receives maintenance or testing. For each item, the licensee described the maintenance and testing performed, including the frequency and basis for the maintenance or testing activity.

The NRC staff verified that the licensee listed equipment that typically requires maintenance or testing which was relied upon to make conclusions in the SE or commonly needed to implement the mitigating strategies. In its second response, the licensee stated that the fire truck, portable power supply, hoses, spray nozzles, and communications equipment receive maintenance or testing. In its RAI response, the licensee described how it ensures sufficient fuel for the fire truck. The licensee also identified other items that support the mitigating strategies that receive maintenance or testing.

The NRC staff verified that the licensee described the process used for corrective actions and listed the testing performed to ensure that the strategies were initially feasible. The licensee stated in its second response that its 10 CFR Part 50, Appendix B, corrective action program is used to document equipment failure, establish priorities, and perform trending.

Based on the above, the NRC staff concludes that the licensee has provided the information requested by Questions 1 and 2.

#### 4.2 Question 3: Controls on Equipment

Question 3 of the 60-day request required licensees to describe in detail the controls on equipment, such as inventory requirements, to ensure that the equipment is available when needed. A list of inventory deficiencies and associated corrective actions to prevent loss was also requested.

The NRC staff verified that the licensee described its process for ensuring that B.5.b equipment will be available when needed. In its second response, the licensee identified equipment included in its inventory, the inventory frequency, storage requirements, and items verified. Items verified include proper quantity, location, and accessibility of equipment; equipment shelf lives; and controls on storage locations. The licensee states that at the time of its second response there were no outstanding inventory deficiencies that would render the strategies not viable.

The NRC staff verified that the licensee inventoried equipment which was relied upon to make conclusions in the SE or commonly needed to implement the mitigating strategies. In its second response, the licensee stated that procured non-permanently installed B.5.b equipment is inventoried at least quarterly in accordance with station procedures. The second response specifically states that the following items are included in the inventory: fire truck, portable power supplies, hoses, communications equipment, nozzles, connectors, and firefighter turnout gear. The licensee also identified other items that support the mitigating strategies that are inventoried.

Based on the above, the NRC staff concludes that the licensee has provided the information requested by Question 3.

#### 4.3 Question 4: Configuration and Guidance Management

Question 4 of the 60-day request required licensees to describe in detail how configuration and guidance management is assured so that the strategies remain feasible.

The NRC staff verified that the licensee described its measures to evaluate plant configuration changes for their effects on the mitigating strategies and to ensure its procedures are current. In its second response, the licensee stated that plant configuration changes are procedurally evaluated against the licensing basis, which includes the B.5.b mitigating strategies. The licensee stated that the design change process requires affected program owners to be notified of impending modifications. The mitigating strategies are controlled consistent with procedural controls.

The NRC staff verified that the licensee described measures it has taken to validate the procedures or guidelines developed to support the mitigating strategies. In its second response, the licensee identified testing in response to Question 2 that demonstrated the ability to execute some strategies. The licensee also stated that "initially, mitigating strategies were validated by walkdowns, engineering evaluations and/or table top reviews" and they were similarly revalidated in 2011.

The NRC staff verified that the licensee described the training program implemented in support of the mitigating strategies and how its effectiveness is evaluated. In its second response, the licensee identified the training provided to its operations personnel, emergency response organization, including key decision makers, security personnel, fire brigade, and other personnel. The licensee also identified the frequency with which each type of training is provided and the methods for training evaluating.

Based on the above, the NRC staff concludes that the licensee has provided the information requested by Question 4.

#### 4.4 Question 5: Offsite Support

Question 5 of the 60-day request required licensees to describe in detail how offsite support availability is assured.

The NRC staff verified that the licensee listed the offsite organizations it relies upon for emergency response, including a description of agreements and related training. The NRC staff compared the list of offsite organizations that the licensee provided in its second response with the information relied upon to make conclusions in the SE. The licensee stated that it maintains memoranda of understanding or other types of agreements with these offsite organizations, which are reviewed annually, and that these agreements were revalidated in 2011. The licensee also described the training and site familiarization it provides to these offsite organizations.

Based on the above, the NRC staff concludes that the licensee has provided the information requested by Question 5.

#### 5.0 CONCLUSION

As described above, the NRC staff has verified that the licensee has provided the information requested in Bulletin 2011-01. Specifically, the licensee responded to each of the questions in the bulletin as requested. The NRC staff concludes that the licensee has completed all of the requirements of the bulletin and no further information or actions under the bulletin are needed.

A. Heflin

- 2 -

If you have any questions, please contact me at 301-415-8480 or via e-mail at [andrew.hon@nrc.gov](mailto:andrew.hon@nrc.gov).

Sincerely,

/RA/

Andrew Hon, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:  
As stated

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**ADAMS Accession No. ML12178A060**

\* via Memo dated

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