

December 28, 2007

Mr. Charles D. Naslund
Senior Vice President and Chief Nuclear Officer
Union Electric Company
Post Office Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - GENERIC LETTER 2004-02, "POTENTIAL
IMPACT OF DEBRIS BLOCKAGE ON EMERGENCY RECIRCULATION
DURING DESIGN BASIS ACCIDENTS AT PRESSURIZED WATER
REACTORS," EXTENSION REQUEST APPROVAL (TAC NO. MC4671)

Dear Mr. Naslund:

By letters dated December 10 and 20, 2007 (ULNRC 05461 and -5465), Union Electric Company (the licensee) submitted a request for the extension of the sump clogging corrective actions due date for Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors," for Callaway Plant, Unit 1 (Callaway). The request is to extend the corrective actions due date from December 31, 2007, stated in GL 2004-02, to June 30, 2008.

In its letters, the licensee stated that the schedule to complete certain plant-specific technical and experimental plans in support of GL 2004-02 does not allow these plans to be completed by the December 31, 2007, date. The schedule to complete these plans by the requested June 30, 2008, date was addressed in the letter. The licensee also provided the mitigative measures that have been or will be put in place by December 31, 2007.

The Nuclear Regulatory Commission (NRC) staff has reviewed the information provided by the licensee and determined that it is acceptable to extend the due date to June 30, 2008, for completion of corrective actions for GL 2004-02 at Callaway. The NRC evaluation supporting acceptance of the licensee's request is enclosed. While accepting this date as reasonable

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allowance regarding completion of the remaining plant-specific technical and experimental plans to address GL 2004-02, the NRC staff expects the licensee to place a high priority on completing the remaining actions and updating the Callaway licensing basis as soon as possible.

Sincerely,

/RA by Bhalchandra Vaidya for/

Jack N. Donohew, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:
NRC Evaluation

cc w/encl: See next page

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ADAMS Accession Nos.: ML073610243

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DATE	12/28/07	12/27/07	12/21/07	12/28/07

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Callaway Plant, Unit 1

(November 2007)

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Callaway Plant, Unit 1

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EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO APPROVAL OF EXTENSION REQUEST FOR GSI-191/GL 2004-02
UNION ELECTRIC COMPANY
CALLAWAY PLANT, UNIT 1
DOCKET NO. 50-483

1.0 INTRODUCTION

In letters dated December 10 and 20, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML07xxxxxxx¹ and ML07xxxxxxx¹, respectively), Union Electric Company (the licensee) submitted a request for the extension of the sump clogging corrective actions due date for Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors," for Callaway Plant, Unit 1 (Callaway). The request is to extend the corrective actions due date from December 31, 2007, stated in GL 2004-02, to June 30, 2008.

The licensee stated that it has taken actions, as described in its letters dated December 12, 2005 (ADAMS Accession No. ML073540259), and May 1, 2007 (ADAMS Accession No. ML071280478), toward bringing Callaway into compliance with GL 2004-02, including replacing the sump screens with substantially larger sump strainers and the installation of debris barriers in the "A" and "D" loop entrances to reduce the potential debris quantity at the strainers. Further, the licensee is continuing the evaluation of the adequacy of the replacement strainers. To support these evaluations, additional strainer head-loss testing is scheduled for mid-January 2008. Final results from the strainer testing are expected to be incorporated into the necessary calculations and analyses by June 30, 2008. The licensee stated that, based on preliminary prototype test results, they anticipate that the strainers designed for Callaway will perform their required functions under the chemical effects design conditions.

The license also stated that it has completed all of the modifications currently projected to be required to resolve issues associated with GL 2004-02. Further, it stated that although their list of commitments to complete corrective actions for GL 2004-02 includes the potential for modifications due to the results of the ex-vessel downstream analysis (removal of containment spray pump cyclone separators), the need for these modifications is not anticipated.

In a December 14, 2007, teleconference, the licensee stated that it, along with the industry, is working on a downstream effects evaluation to determine whether components downstream of the sump strainers could be adversely affected by chemical effects. It is anticipated that this

1 There are no ADAMS Accession numbers for these letters at this time

work will be completed by June 30, 2008. This evaluation will be in accordance with WCAP-16406-P, "Evaluation of Downstream Sump Debris Effects In Support of GSI-191," Revision 1, dated August 2007, which includes the NRC staff's Safety Evaluation.

2.0 REGULATORY EVALUATION

As stated in SECY-06-0078, proposed extensions to permit changes at the next outage of opportunity after December 2007 may be granted if, based on the licensee's request, the NRC staff concludes that:

1. the licensee has a plant-specific technical/experimental plan with milestones and schedules to address outstanding technical issues with enough margin to account for uncertainties, and
2. the licensee identifies mitigative measures to be put in place prior to December 31, 2007, and adequately describes how these mitigative measures will minimize the risk of degraded emergency core cooling system (ECCS) and containment spray system (CSS) functions during the extension period.

The SECY also states that for proposed extensions beyond several months, a licensee's request will more likely be accepted if the proposed mitigative measures include temporary physical improvements to the ECCS sump or materials inside containment to better ensure a high level of ECCS sump performance.

3.0 TECHNICAL EVALUATION

In regard to the first extension criterion, Callaway has a plant-specific technical/experimental plan, with milestones and schedules, to complete the GL 2004-02 corrective actions and modifications in order to provide a final GL 2004-02 submittal by June 30, 2008. Specifically, the licensee has stated that it will:

1. Complete the chemical effects testing by the end of January 2008, and prepare the final test report, and incorporate the results into the Callaway sump strainer analysis by June 30, 2008,
2. Evaluate downstream in-vessel and ex-vessel effects by June 30, 2008, and
3. Implement permanent programmatic controls to limit debris within containment by December 31, 2007. (Actions to account for and limit containment debris have been taken, but not yet captured in plant procedures.)

In regard to the second extension criterion, the licensee stated that several modifications, mitigative measures, compensatory measures, and/or favorable conditions are in effect at Callaway, minimizing the risk of degraded ECCS and CSS functions during the extension period. Specifically:

1. the licensee has installed at Callaway new modular ECCS sump strainers. The redundant strainers were increased from their original size to approximately 3300 square feet, each.
2. the licensee has implemented at Callaway the plant administrative procedures and processes described in their May 1, 2007, letter, including programmatic controls for design change processes and containment material controls, implementation of a containment coating assessment program and a containment latent debris assessment program.
3. the licensee has maintained in effect at Callaway the interim compensatory measures implemented in accordance with NRC Bulletin 2003-01 to minimize the risk associated with post-accident debris blockage.
4. the licensee administratively increased at Callaway the volume of water stored in the refueling water storage tank from the Technical Specification minimum required volume of 394,000 gallons to 400,674 gallons.

4.0 CONCLUSION

The NRC staff believes that the licensee has a reasonable plan for Callaway that should result in the completion of final GSI-191 evaluations that ensure acceptable strainer function with adequate margin for uncertainties. Further, the NRC has concluded that the licensee has put mitigation measures in place at Callaway to adequately reduce risk for the requested 6-month extension period. It is, therefore, acceptable to extend the completion date for certain corrective actions for the issues discussed in GL 2004-02 (specifically, strainer chemical effects testing and evaluation and in-vessel and ex-vessel downstream effects evaluations, as discussed above), until June 30, 2008. While the NRC staff accepts this date as reasonable allowance for contingencies regarding completion of remaining activities to address GL 2004-02, the NRC staff expects the licensee to place a high priority on completing the remaining actions and updating the plant's licensing bases as soon as possible.

Principal Contributor: Evin Geiger

Date: December 28, 2007