



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

August 2, 2007

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

SUBJECT: CALLAWAY PLANT - NRC INTEGRATED INSPECTION
REPORT 05000483/2007003

Dear Mr. Naslund:

On June 23, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Callaway Plant. The enclosed report documents the inspection findings, which were discussed on June 22, 2007, with Mr. C. Naslund, Senior Vice President and Chief Nuclear Officer, and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

This report documents three findings that were evaluated under the risk Significance Determination Process as having very low safety significance (Green). The NRC has determined that violations are associated with these issues. Additionally, licensee identified violations which were determined to be of very low safety significance are listed in this report. These violations are being treated as noncited violations, consistent with Section VI.A of the Enforcement Policy. The noncited violations are described in the subject inspection report. If you contest these violations or the significance of these noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Callaway Plant facility.

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Vincent G. Gaddy, Chief
Project Branch B
Division of Reactor Projects

Docket: 50-483
License: NPF-30

Enclosure:
NRC Inspection Report 05000483/2007003
w/attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-483
License: NPF-30
Report Number: 05000483/2007003
Licensee: Union Electric Company
Facility: Callaway Plant
Location: Junction Highway CC and Highway O
Fulton, Missouri
Dates: March 25 through June 23, 2007
Inspectors: M. S. Peck, Senior Resident Inspector
D. E. Dumbacher, Resident Inspector
G. L. Guerra, CHP, Health Physicist, Plant Support Branch
D. P. Loveless, Senior Reactor Analyst
S. T. Makor, Reactor Inspector, Engineering Branch 1
J. M. Mateychick, Senior Reactor Inspector, Engineering Branch 2
J. P. Reynoso, Reactor Inspector, Engineering Branch 1
Accompanying Personnel: L. E. Ellershaw, PE, Consultant
Approved By: V. G. Gaddy, Chief, Project Branch B

SUMMARY OF FINDINGS

IR 05000483/2007003; 03/25/2007 - 06/23/2007; Callaway Plant: Equipment Alignment, Refueling and Outage Activities, and Identification and Resolution of Problems.

This report covered a 3-month inspection by resident inspectors. Three Green noncited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the Significance Determination Process does not apply may be Green or assigned a severity level after NRC management review. The NRC's program of overseeing the safe operation of commercial nuclear power reactors is described in NUREG 1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," after AmerenUE failed to implement effective corrective actions to correct discrepancies in the ultimate heat sink design basis. The system design basis required the ultimate heat sink automated temperature controller to align the cooling tower only when outside temperatures were above 80 degrees Fahrenheit. AmerenUE allowed manual operation of the system when temperatures were above 47 degrees Fahrenheit. The engineering staff and later the quality assurance staff independently identified that the design basis operating requirements had not been adequately evaluated. The inspectors identified that the corrective actions assigned had been closed out as complete without problem resolution and that the ultimate heat sink cooling towers were operated on April 3, 2007, when outside conditions were below 29 degrees Fahrenheit. The uncontrolled workaround resulted in AmerenUE subjecting the cooling tower fill material and fan to freezing conditions.

This finding is greater than minor because it is associated with the mitigating systems cornerstone equipment performance attribute and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was determined to have very low safety significance because it affected the mitigating systems cornerstone, which was both a performance and design deficiency that did not represent a loss of a safety function, and did not affect seismic, flooding or severe weather initiating events. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not thoroughly evaluate problems such that the resolution would address causes and extent of conditions, as necessary (P.1(c)). This issue was entered into the licensee's corrective action program as Callaway Action Request 200703584 (Section 1R04).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," after AmerenUE's past corrective actions were inadequate to identify and correct essential service water piping degradation due to corrosion. AmerenUE identified that nondestructive examinations were required to determine the extent of condition of microbiological influenced corrosion on the 30-inch and 8-inch essential service water piping. On May 3, 2007, operability determinations used to support Refueling Outage 15 restart stated that 100 percent of the low flow area accessible piping would be tested using nondestructive examination. On May 26, 2007, microbiological influenced corrosion caused a new through-wall leak in the control building low flow, accessible piping. The licensee's extent of condition review was not adequate to identify the corroded pipe prior to the through-wall leak.

This finding, associated with failure to implement corrective action, is greater than minor because, if left uncorrected, this finding would become a more significant safety concern. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was determined to have very low safety significance because it affected the mitigating systems cornerstone, was both a performance and design deficiency that did not represent a loss of a safety function, and did not affect seismic, flooding or severe weather initiating events. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not thoroughly evaluate problems such that the resolution would address causes and extent of conditions, as necessary (P.1(c)). This issue was entered into the licensee's corrective action program as Callaway Action Request 200705489 (Section 4OA2).

Cornerstone Barrier Integrity

- Green. The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," after refueling personnel did not maintain procedurally required foreign material exclusion barriers. AmerenUE's foreign material exclusion procedure specified attaching foreign material exclusion curtains to the plant north end of the reactor head missile shield to ensure no foreign material was introduced into the reactor vessel. On April 19, 2007, the inspectors observed the reactor refueling task and noted that there were no curtains acting as the north refueling cavity boundary.

This finding is greater than minor because, if left uncorrected, introduction of foreign material into the reactor cavity would become a more significant safety concern. The barrier integrity cornerstone human performance attribute is used to ensure foreign material and loose parts do not challenge fuel cladding. The inspectors determined this finding to be of very low safety significance using the significance determination process for at-power reactor situations. The inspectors used the at-power significance determination process because of the concern with foreign material impact on an operating reactor core. This finding is of very low safety significance per Inspection Manual Chapter 0609 because the condition was a fuel barrier issue. This finding had a crosscutting aspect in the area of human performance associated with the resources component because plant operators failed to follow procedures established to prevent

the introduction of foreign material into the reactor vessel (H.4(b)). This issue was entered into the licensee's corrective action program as Callaway Action Request 200704169 (Section 1R20).

B. Licensee-Identified Violations

Three violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and their corrective actions are listed in Section 4OA7 of this report.

1.44 inch dimension for nozzles 1-5, a 1.1 inch dimension for nozzles 6-21, and a 1.0 inch dimension for nozzles 22-78. These dimensions were based on the calculated elevations at which the operating stresses decayed to 20 ksi.

The inspectors further verified that the qualified procedures used by the contractor (AREVA) to perform the ultrasonic examinations (identified in the attachment) clearly accounted for the calculated dimensions. During observation of the examinations, the inspectors verified that the procedures were being implemented by qualified Level II personnel. No indications, other than manufacturing type indications (e.g., machining), were identified. This temporary instruction is closed.

b. Findings

No findings of significance were identified.

40A6 Management Meetings

Exit Meeting Summary

The inspectors presented the results of the inservice inspection, containment sump modifications, and the reactor vessel head inspection to Mr. T. Herrmann, Vice President, Engineering, and other members of licensee management on April 12, 2007. The licensee acknowledged the issues and observations presented. It was also communicated to the licensee's management staff that the containment sump modification inspection could not be completed, and a final exit will occur at a later date pending NRR's final acceptance of the licensee's commitments to Generic Letter 2004-02.

On April 27, 2007, the inspectors presented the occupational radiation safety inspection results to Mr. T. Herrmann, Vice President, Engineering, and other members of his staff who acknowledged the findings.

On June 22, 2007, the resident inspectors presented the results of their inspection to Mr. C. Naslund, Senior Vice President and Chief Nuclear Officer and other members of his staff who acknowledged the findings.

On July 23, 2007, the resident inspectors presented a change to the results of their inspection Mr. D. Neterer, Superintendent of Operations, who acknowledged the change.

40A7 Licensee-Identified Violations

The following violations of very low significance (Green) were identified by the licensee and are violations of NRC requirements, which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as noncited violations.

- The inspectors reviewed three examples of the failure to follow station procedures associated with access control to radiologically significant areas. Technical Specification 5.4.1 states that written procedures shall be established,

implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, "Quality Assurance Program Requirements," Revision 2, Appendix A, dated February 1978. Regulatory Guide 1.33, Appendix A, Section 7.e(1) stipulates procedures for access control to radiation areas. Procedure APA-ZZ-01004, "Radiological Work Standards," Revision 7, Section 4.3.1.a, states, "ENSURE you adhere to instructions on [radiological posting] sign and your radiation work permit." Section 4.3.1.c, states, "Do NOT defeat, remove or alter radiation protection boundaries, barricades, or radiological postings." Contrary to these requirements, on three occasions the licensee identified workers that did not adhere to the instructions on radiological posting signs and their radiation work permit. Specifically, on April 3, 2007, four contract workers did not adhere to the instructions when they were observed entering the posted radiation/contamination area in street clothing. On April 8, 2007, radiation protection personnel discovered four contract workers that did not adhere to the instructions in a radiation/contamination area when they entered the area without protective clothing. Additionally, on April 5, 2007, a worker was observed moving radiological boundaries. The inspectors determined that the finding was of very low safety significance because: (1) it was not an ALARA finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. These events are in the licensee's corrective action program as CARs 200703189, 200703333, and 200703492.

- Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion XVI, "Corrective Action," requires that measures be established to assure that conditions adverse to quality, such as deviations and nonconformances are promptly identified and corrected. Technical Specification 3.4.2 listed the minimum allowed reactor coolant system temperature while critical as 551 degrees Fahrenheit. On October 23, 2003, a plant transient resulted in reactor coolant system temperature decreasing approximately 2 degrees below 551 degrees Fahrenheit. The Technical Specification action statement allowed 30 minutes to be in Mode 2 with a subcritical reactor. The transient caused the reactor to become subcritical. The operators procedural guidance expected the operators to be able to control reactor coolant system temperature and maintain reactor power stable using control of steam loads to establish a reactor critical condition of about 5×10^{-6} amps. In a 20 minute period the reactor transitioned through five decades of power decrease due to the transient. No attempts were made to restore power and after two hours the procedural requirement to insert control rods was implemented. Thirty eight days later a corrective action document (CAR) identified the Technical Specification entry and unplanned power decrease.

Contrary to the above, identification in the form of an operator log entry and condition adverse to quality document (CAR) were not promptly generated to capture and correct the cause and impact of the transient. Training improvements associated with Mode 2 operations were delayed until 2007 when CAR 200702601 was initiated. This finding is of very low safety significance because the finding does not contribute to both the likelihood of a

reactor trip and the likelihood that mitigating equipment or functions will not be available. The licensee's corrective action program has now addressed the plant operation issues.

- Technical Specification 3.7.8 requires that the essential service water system be maintained operable. Contrary to this requirement, on February 7, 2007, the licensee identified that one essential service water train had been rendered inoperable for an extended duration due to a misadjusted limit switch on the valve operator for Valve EFHV0025. This adjustment, to ensure valve disk and valve seat are properly mated when a valve operator reaches the closed position, was not correctly controlled by the maintenance program. This finding is of very low safety significance because it did not represent an actual loss of safety function of a single train for greater than its allowed outage time and was not risk significant due to seismic, flooding, or a severe weather event. Corrective actions to address the maintenance program deficiency have been initiated. This finding was discussed in Section 4OA3 for LER closure.

ATTACHMENT: SUPPLEMENTAL INFORMATION