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

July 24, 2003

Garry L. Randolph, Senior Vice
President and Chief Nuclear Officer
Union Electric Company
P.O. Box 620
Fulton, Missouri 65251

SUBJECT: CALLAWAY PLANT - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000483/2003-010

Dear Mr. Randolph:

On June 6, 2003, the NRC completed a team inspection at your Callaway Plant. The enclosed report documents the inspection findings which were discussed with you and other members of your staff on June 6, 2003.

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

On the basis of the sample selected for review, the team concluded that in general, problems were adequately identified, evaluated, and corrected with some exceptions. One exception included a failure to promptly identify and correct an industry known deficient condition affecting the functionality of multiple safety-related circuit breakers. Another exception involved the failure to promptly identify and correct a voided condition affecting both trains of the containment spray system even though abnormal system response to surveillance testing was observed during several occasions dating back to 1995. These failures, reflected some isolated problems with problem identification, extent of condition reviews, root cause determinations, and corrective actions. One green finding was identified during this inspection associated with the safety-related circuit breaker issue discussed above and is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy, and is described in the subject inspection report. Additionally, a licensee-identified violation, which was of very low safety significance, is listed in Section 40A7 of this report. If you contest the violations or 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.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response 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/

Paul C. Gage, Chief
Operations Branch
Division of Reactor Safety

Docket: 50-483
License: NPF-30

Enclosure:
NRC Inspection Report
50-483/03-03

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-483
License:	NPF-30
Report:	05000483/2003-010
Licensee:	Union Electric Company
Facility:	Callaway Plant
Location:	Junction Highway CC and Highway O Fulton, Missouri
Dates:	June 2-6, 2003
Inspectors:	M.C. Hay, Senior Resident Inspector, Projects Branch B M. Haire, Operations Engineer, Operations Branch
Approved By:	Paul C. Gage, Chief Operations Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000483/2003-010; Union Electric Co; 06/02/03-06/06/03; Callaway Plant. Identification and Resolution of Problems, Mitigating Systems.

The inspection was conducted by a senior resident inspector and an operations engineer. One green finding of very low safety significance was identified during this inspection and was classified as a noncited violation. The finding was evaluated using the significance determination process.

Identification and Resolution of Problems

On the basis of the sample selected for review, the team concluded that problems were adequately identified, evaluated, and corrected. The team identified a number of examples pertaining to the failure to promptly identify and correct conditions adverse to quality. One long-standing issue involving a failure to promptly identify and correct voided conditions affecting both trains of the containment spray system suction piping following abnormal system response during surveillance testing on multiple occasions dating back to 1995 was identified by the team. Problem identification and resolution issues have affected Callaway historically and corrective actions have been put in place to improve performance. The team noted that engineering products reviewed effectively supported the corrective action process, were technically adequate, and provided sufficient justification to support operability for degraded conditions evaluated.

Cornerstone: Mitigating Systems

Green. The licensee failed to promptly identify, correct, or preclude recurrence of an industry known potential significant condition adverse to quality associated with failures of Magne-Blast 4160 volt circuit breakers. The breaker failures were the result of a defective contact block assembly used as control switches in the breaker control circuits.

The failure to promptly identify, correct, or preclude recurrence of the deficient condition from affecting multiple safety-related components due to failures of Magne-Blast 4160 volt circuit breakers was determined to be a violation of 10 CFR Part 50, Appendix B, Criterion XVI. This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This finding is greater than minor because if left uncorrected this condition impacts the reliability and availability of all safety-related loads supplied by Magne-Blast 4160 volt circuit breakers. This finding was determined to be of very low safety significance since all failures reviewed did not result in loss of a safety function for a single train for greater than its Technical Specification allowed outage time.

Licensee-Identified Violations.

Violations of very low safety significance, which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or panned by the licensee have been entered into the licensee's corrective action process.

- Technical Specification 5.4.1requires that the licensee establish, implement, and maintain written procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A recommends maintenance procedures. The failure to follow a maintenance procedure for installing a diesel generator fuel injector resulting in Diesel Generator B failing a surveillance test and spilling approximately 100 gallons of fuel oil on November 11, 2002, is being considered a violation of Technical Specification 5.4.1. This was identified in the licensee's corrective action program as Callaway Action Request 200207472. This finding is of very low safety significance because it did not result in loss of safety function of a single train for greater than the Technical Specification allowed outage time.

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors focused on reviewing items that were characterized in the licensee's corrective action process as requiring engineering evaluation for resolution. The purpose of selecting these items was to assess the licensee's efforts in response to an NRC identified cross cutting issue that was determined to exist during the 2002 mid-cycle plant performance review. The NRC noted that a major contributor to the cross cutting issue was inconsistent engineering evaluations that led to multiple examples of ineffective problem identification and resolution issues. The NRC had previously performed a Problem Identification and Resolution team inspection in December of 2002. The results of the inspection are contained in NRC Inspection Report 50-483/02-03.

The team reviewed approximately 80 items to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. Specifically the inspectors selected approximately 60 Callaway action requests that were entered into the licensee's corrective action process since April 2003. The inspectors also reviewed several licensee audits and self assessments, including one audit of the corrective action program. The effectiveness of the audits and assessments were evaluated by comparing the audit and assessment results against self-revealing and NRC-identified findings.

The inspectors evaluated the Callaway action requests to determine the licensee's threshold for identifying problems and entering them into the corrective action program. Also, the licensee's efforts in establishing the scope of problems were evaluated by reviewing pertinent control room logs, work requests, system health reports, action plans, and select engineering design calculations. The Callaway action requests and other documents listed in the attachment to this report were used to facilitate the review.

(2) Findings

The team determined that the licensee was generally effective at identifying problems and entering them into the corrective action system. This was evidenced by the relatively few deficiencies identified by external organizations that had not been previously identified by the licensee during the review period. Licensee audits and assessments were of good depth and identified issues similar to those that were self-revealing or raised during previous NRC inspections. Also, during this inspection there were no instances identified where conditions adverse to quality were being handled outside the corrective action program.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The team reviewed approximately 60 Callaway action requests and supporting documentation. This effort was accomplished to verify that licensee's evaluation of problems identified considered the full extent of conditions, operability of affected systems, reportability requirements, generic implications, common causes, and previous occurrences. In addition, the team reviewed the licensee's evaluation of select industry experience information to assess if issues applicable to the licensee's facility were appropriately addressed.

Specific documents reviewed during this inspection are listed in the attachment to this report.

(2) Issues

The issues reviewed by the team revealed that the proper categorization had been assigned to identified issues. In general, problems were adequately evaluated and corrected with some exceptions. One exception included a failure to promptly identify and correct an industry known deficient condition affecting the functionality of multiple safety-related circuit breakers. Another exception involved the failure to promptly identify and correct a voided condition affecting both trains of the containment spray system even though abnormal system response to surveillance testing was observed during several occasions dating back to 1995. These failures, reflected some isolated problems with problem identification, extent of condition reviews, root cause determinations, and corrective actions.

The team reviewed Callaway Action Request 200200694 pertaining to the licensee identifying an underlying problem associated with the effectiveness of past incident investigations and/or evaluations to determine the extent of condition for equipment problems. Although corrective actions to address this condition were still in progress the team noted that a significant effort was being taken by the licensee to improve performance in this area. Specifically, the licensee was in the process of developing clear roles and responsibilities for each layer of management to improve the level of oversight and guidance and increase the amount of communications between all levels of the staff. The licensee was also in the process of developing and implementing an equipment reliability improvement program that was projected to be fully implemented by June of 2004.

Circuit Breaker Failures

Introduction. The licensee failed to promptly identify, correct, or preclude recurrence of an industry known potential significant condition adverse to quality associated with failures of Magne-Blast 4160 volt circuit breakers. The breaker failures were the result of a defective contact block assembly used as control switches in the breaker control circuits. The team determined this condition was a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, and a finding of very low safety significance.

Description. The team reviewed Callaway Action Request 200207398 pertaining to failure of the motor driven auxiliary feedwater Pump A to start on November 8, 2002. The root cause of the event was attributed to failure of the supply breaker to close due to a faulty contact block. The team noted that this failure mechanism was also attributed to breaker failures that affected component cooling water Pump B on November 28, 2001, and safety injection Pump A on February 11, 1998. The licensee also stated that additional failures due to this failure mechanism were documented prior to 1998.

The team noted that contact block (CR2940 manufactured by GE) was identified as a component whose reliability was questionable. NRC Information Notices 95-02 and 97-08 both alerted licensees to the potential failure of GE Magne-Blast medium voltage breakers to properly operate because of defective GE Type CR2940 contact blocks. These information notices expected licensees to review this information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems.

The inspectors noted that these information notices addressed several acceptable corrective actions that licensee's had taken including jumpering out the susceptible contacts, modification of the circuit, and in cases were these actions were not taken, to verify continuity of the affected circuit immediately after each breaker closure. The inspectors noted that continuity of the affected Magne-Blast breakers at Callaway could be checked by ensuring a white indicating light was lit located in the switchgear rooms.

Callaway's corrective actions for this particular issue included replacement of the contact module every 12 years, and verification of function and contact resistance every 3 years. Also it was documented that equipment operators would verify the white lights were illuminated during their rounds as required by Operations Procedure ODP-ZZ-0016E. The inspectors reviewed this procedure and noted that these rounds were performed once every 8 hours. The inspectors noted no action was required to be taken immediately following breaker cycling and that failure of the contact module could go unidentified until an operator performed their routine rounds to the switchgear rooms. This could result in the potential for not promptly identifying a degraded condition in a timely manner. In review of the identified failures the team noted that on November 28, 2001, a condition existed where component cooling water pump "B" was secured at 10:47 am and failure of the contact module was not identified until 2:57pm. In this example a member of a maintenance team identified that the white light was out.

The team discussed their concerns with the licensee. In response the licensee initiated Callaway Action Request 200304247 to evaluate feasibility for modification of the circuit to remove the contact switch from the breaker closing circuit. The licensee also initiated a control room standing order to verify that the closing circuit light is illuminated immediately following each 4160 volt Magne-Blast breaker closure.

Analysis. The failure to promptly identify, correct, or preclude recurrence of the deficient condition from affecting multiple safety-related components due to failures of Magne-Blast 4160 volt circuit breakers was determined to be a violation of 10 CFR Part 50, Appendix B, Criterion XVI. This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This finding is greater than minor because if left uncorrected this condition could impact the reliability and

availability of all safety-related loads supplied by Magne-Blast 4160 volt circuit breakers. This finding was determined to be of very low safety significance since all failures reviewed did not result in loss of a safety function for a single train for greater than its Technical Specification Allowed Outage Time.

Enforcement. Title 10 of the Code of Federal Regulations, Part 50, appendix B, Criterion XVI, "Corrective Actions," requires that "Measures be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition." Contrary to the above, the licensee failed to promptly identify, correct, or preclude recurrence of the deficient condition from affecting multiple safety-related components due to failures of Magne-Blast 4160 volt circuit breakers. Because of the very low safety significance and the licensee's action to place the issue in their corrective action program (Callaway Action Request 200304247), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the NRC Enforcement Policy (05000483/2003010-01).

Containment Spray System Voiding

The team reviewed Callaway Action Request 200303918 pertaining to abnormal system response that was identified during surveillance testing of containment spray Pump B on May 22, 2003. This Callaway action request documented that following the start of the containment spray pump, low motor current, nonexistent discharge pressure and very little flow noise through the piping were observed for approximately 5 minutes. Following the initial 5 minutes all indications returned to normal. Operations then re-performed the surveillance, determined the problem was caused by a plugged sensing line, and declared the pump operable. The team noted that questioning by the NRC resident inspectors, who were concerned that voiding conditions could be affecting the containment spray system, resulted in the licensee declaring the system inoperable. The licensee subsequently determined that gas voiding of the suction piping had occurred.

The team noted that this condition had previously been identified by the licensee on four other occasions dating back to 1995, however they had failed to effectively determine the root cause and implement effective corrective actions to preclude recurrence. The team noted that the licensee was in the process of evaluating the root causes and extent of this condition during the inspection. This issue will be dispositioned in NRC Inspection Report 05000483/2003-004.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The team reviewed a variety of documentation to verify that the appropriate corrective actions had been identified and implemented in a timely manner commensurate with the safety significance of the issue, including corrective actions to address common-cause or generic concerns. The team also evaluated the timeliness and adequacy of

operability evaluations. The team reviewed corrective actions planned and implemented by the licensee and sampled technical issues to determine whether adequate decisions related to structure, system, and component operability were made by engineering. A listing of specific documents reviewed during this inspection is included in the attachment to this report.

(2) Issues

The team determined that the majority of conditions adverse to quality were effectively resolved in a timely manner. This conclusion was supported by the relatively few examples (described in previous section) of repetitive issues identified that were a result of ineffective corrective actions. The team determined that engineering products supporting the corrective action process were timely, technically adequate, and provided sufficient justification to support operability for degraded conditions.

4OA6 Exit Meeting

The team discussed the findings with Mr. Gary Randolf, Senior Vice President, Generation, and other members of the licensee's staff on June 6, 2003. Licensee management did not identify any materials examined during the inspection as proprietary.

4OA7 Licensee Identified Findings

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

- Technical Specification 5.4.1requires that the licensee establish, implement, and maintain written procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A recommends maintenance procedures. The failure to follow a maintenance procedure for installing a diesel generator fuel injector resulting in Diesel Generator B failing a surveillance test and spilling approximately 100 gallons of fuel oil on November 11, 2002, is being considered a violation of Technical Specification 5.4.1. This was identified in the licensee's corrective action program as Callaway Action Request 200207472. This finding is of very low safety significance because it did not result in loss of safety function of a single train for greater than the Technical Specification Allowed Outage Time.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

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M. Evans, Manager, Nuclear Engineering
B. Farnam, Superintendent, Health Physics
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G. Hughes, Supervising Engineer, Quality Assurance
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NRC

M. Peck, Senior Resident Inspector, Callaway
J. Hanna, Resident Inspector, Callaway
R. Wink, Supervising Engineer, System Engineering
W. Witt, Plant Manager

ITEMS OPENED AND CLOSED

Opened and Closed

50-483/0310-01	NCV	Failure to implement effective corrective actions

DOCUMENTS REVIEWED

Procedures

Administrative Procedure APA-ZZ-00107, “Review of Current Industry Operating Experience,” Revision 8

Administrative Procedure APA-ZZ-00320, “Processing Work Requests,” Revision 25

Work Management Procedure APA-ZZ-00322, “Integrated Work Management Process Description,” Revision 0

Administrative Procedure APA-ZZ-00500, “Corrective Action Program,” Revision 34

Administrative Procedure APA-ZZ-00520, “Reporting Requirements and Responsibilities,” Revision 17

Administrative Procedure APA-ZZ-00542, “Event Review,” Revision 5

Corrective Action Documents

CAR200206058	CAR200207806	CAR200302325	CAR200207602
CAR200206287	CAR200207844	CAR200303370	CAR200207742
CAR200206301	CAR200207933	CAR200206237	CAR200207751
CAR200206359	CAR200208044	CAR200206323	CAR200208017
CAR200206470	CAR200208066	CAR200206413	CAR200208392
CAR200206585	CAR200300053	CAR200206839	CAR200300810
CAR200206763	CAR200300824	CAR200206908	CAR200300954
CAR200206766	CAR200300935	CAR200206970	CAR200300984
CAR200206979	CAR200300943	CAR200207340	CAR200301515
CAR200207024	CAR200301276	CAR200207398	CAR200301779
CAR200207280	CAR200301690	CAR200207456	CAR200302450
CAR200207471	CAR200301933	CAR200207492	CAR200303110
CAR200207472	CAR200301941	CAR200207518	

Other Documents Reviewed
SEGR 02-10-005, “ITR of the operability process”
SPO3-004, QA audit, “Corrective action program”
SPO2-029, QA audit, “Material Qualification”
APO3-001, “Design Control”