



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

March 17, 2003

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

**SUBJECT: NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION  
REPORT 50-483/02-03**

Dear Mr. Randolph:

On December 18, 2002, the NRC completed an inspection at your Callaway plant. The enclosed report documents the inspection findings, which were discussed on December 18, 2002, with Mr. Ron Affolter, Vice President - Nuclear, and other members of your staff. An additional exit was conducted via telephone with Mark Reidmeyer, on January 30, 2003, to clarify the status of issues pending from the initial exit meeting.

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 included selected examination of procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected, the team concluded that, in general, problems were properly identified, evaluated, and corrected. However, the results of the safety conscious work environment survey you conducted identified that approximately 20 percent of the individuals responding felt that they had received negative repercussions for identifying an issue. The Commission's Policy Statement for nuclear employees raising safety concerns without fear of retaliation was published in the *Federal Register* 61 FR 94 on May 14, 1996. The Policy Statement indicated that the NRC expects that licensees and other employers subject to NRC authority will establish and maintain safety-conscious environments in which employees feel free to raise safety concerns, both to their management and to the NRC, without fear of retaliation. We understand that your actions related to this area are under development at this time. We will continue to monitor this area in future inspections.

Based on the results of this inspection, the NRC has identified an issue that was evaluated under the risk significance determination process as having very low safety significance (Green). The issue involved a failure to properly post a high radiation area and is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy. If you contest the violation or significance of the noncited violation, 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

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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.

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 (PARS) 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/

Anthony T. Gody, Chief  
Operations Branch  
Division of Reactor Safety

Docket: 50-483  
License: NPF-30

Enclosure:  
NRC Inspection Report  
50-483/02-03

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 50-483  
License: NPF-30  
Report: 50-483/02-03  
Licensee: Union Electric Company  
Facility: Callaway Plant  
Location: Junction Highway CC and Highway O  
Fulton, Missouri  
Dates: December 2-18, 2002  
Inspectors: P. Harrell, Chief, Technical Support Staff  
R. Bywater, Senior Resident Inspector, Projects Branch D  
J. Hanna, Resident Inspector, Projects Branch B  
J. Dodson, Regional Operations Officer  
Accompanying Personnel: S. Green, Reactor Engineer  
Approved By: Anthony T. Gody, Chief  
Operations Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

IR 05000483-02-03; Union Electric Company; 12/2/2002-12/18/2002; Callaway Plant; biennial inspection of the identification and resolution of problems.

The inspection was conducted by a staff chief, and a senior resident, resident, and region-based inspector, with a reactor engineer accompaniment. One Green noncited violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red), using NRC Manual Chapter 0609, "Significance Determination Process (SDP)." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### **Identification and Resolution of Problems**

Issues associated with a failure to identify and adequately evaluate an operability issue associated with the auxiliary feedwater system and two examples of inadequate corrective actions for conditions adverse to quality provided indications that the licensee had weaknesses in their problem identification and resolution program. The team found the licensee effectively implemented changes to address these problem identification and resolution program weaknesses. Problems were identified at the proper threshold and entered into the corrective action program. Risk information was effectively used to prioritize the extent of evaluation and to determine the schedule for implementation of corrective actions. Corrective actions, when specified, were typically implemented in a timely manner. During interviews workers indicated no reluctance to place safety issues into the problem identification and resolution program. However, a licensee survey indicated that some employees felt that they had received negative repercussions for raising issues (Section 4OA2).

### **Cornerstone: Occupational Radiation Safety**

Green. The licensee failed to maintain a high radiation area properly posted. This was identified as a violation of Technical Specification 5.7.1.a. This violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. The licensee documented this issue in their corrective action process.

This finding involves the radiation safety cornerstone, the program and process attribute was affected, and is more than minor because failing to maintain a high radiation area properly posted could result in unnecessary personnel exposure. The finding is characterized under the significance determination process as having very low safety significance because this violation did not involve ALARA (as-low-as-reasonably-achievable) planning and controls, no personnel overexposure occurred, substantial potential for personnel overexposure did not exist, and the finding did not compromise the licensee's ability to assess dose (Section 4OA7).

## Report Details

### 4. OTHER ACTIVITIES

#### 4OA2 Identification and Resolution of Problems

##### a. Effectiveness of Problem Identification

##### (1) Inspection Scope

The team reviewed selected items across the seven cornerstones of safety to determine if problems were being properly identified, characterized, entered into the corrective action request (CAR) system, and appropriately resolved. The team reviewed reports of events, conditions, problems, deficiencies, and industry problems, as documented in NRC Bulletins and Information Notices. The team also reviewed approximately 150 CARs, dated January-December 2002, to verify that the licensee was identifying concerns/problems and the identified concerns/problems were being properly resolved. The selection of the CARs reviewed was based on the inclusion of concerns/problems from each performance area contained in the Reactor Oversight Process. The specific items reviewed are provided in an attachment to this report.

The team performed numerous plant tours in an effort to identify deficient conditions existing in the plant. This effort was conducted to determine if conditions existed that the licensee had not identified and entered into the CAR system for appropriate resolution. Plant walkdowns focused on three risk-significant systems: (1) emergency diesel generators, (2) auxiliary feedwater system, and (3) essential service water system.

The team also interviewed personnel involved with the wide variety of aspects related to implementing and maintaining a fully functional problem identification and resolution program. These interviews were conducted to assess each individual's working knowledge of the CAR system and to ensure that each individual utilized the CAR system as proscribed in the licensee's Procedure APA-ZZ-00500, "Corrective Action Program," and the applicable NRC requirements.

##### (2) Issues and Findings

During the performance of the inspection attributes discussed above, no findings of significance were identified. During plant tours, the team did not identify any safety-significant issues. The team did identify a small number of minor non-conforming or degraded conditions that did not affect the functionality or operability of the safety systems reviewed. Once the licensee was informed by the team, each of these issues were entered into the licensee's corrective action program in a timely manner. Even though these minor issues were identified by the team and not the licensee, given the small number and minor nature of these issues, the team concluded the licensee's threshold for identification of problems could be improved but was satisfactory.



a. Prioritization and Evaluation of Issues

(1) Inspection Scope

The team reviewed approximately 150 CARs and supporting documentation, including an appropriate analysis of the cause of the problem. This effort was accomplished to verify that licensee's evaluation of the problems identified, considered the full extent of conditions, generic implications, common causes, and previous occurrences. In addition, the team reviewed the licensee's evaluation of selected 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 and Findings

The issues reviewed by the team revealed that the proper categorization had been assigned and the identified issue appropriately evaluated. Although some minor concerns were identified with the evaluation of identified problems, these concerns were not risk- or safety-significant, generally indicating a minor attention-to-detail tendency. Overall, the licensee's program for prioritization and evaluation of issues was found by the team to be satisfactory.

The team also reviewed a sampling of noncited violations issued in 2002, to confirm that the licensee appropriately implemented actions to prevent recurrence. The team did not identify any subsequent problems that occurred as a result of inadequate corrective actions, except as discussed below.

During review of the corrective action effectiveness for Noncited Violation 2001005-02, the team determined that corrective actions were not effective in resolving the problem, in that the same concern occurred again after completion of the implementation of the corrective actions. See Section 4OA7 for additional discussion on this issue.

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 safety significance of the issue, including corrective actions to address common-cause or generic concerns. A listing of specific documents reviewed during the inspection is included as the attachment to this report.

The team also reviewed the issues related to Violation 2002007-01, which was issued in NRC Inspection Report 50-483/2002-07. This violation was related to the licensee's discovery of foreign materials in the auxiliary cooling water system.

(2) Issues and Findings

One example of ineffective corrective actions was identified, which involved the failure to properly post a high radiation area. This issue is described in Section 4OA2b above. Based on a review of the licensee's records, the team identified no further examples of ineffective licensee corrective actions.

Based on review of the actions taken by the licensee, and the reviews documented in NRC Inspection Report 50-483/2002-09, the team determined that the licensee had implemented effective corrective actions to address the identified issues related to Violation 2002007-01. As a result, this violation is considered to be closed. See Section 4OA3 for additional discussion.

d. Assessment of Safety Conscious Work Environment

(1) Inspection Scope

The team interviewed 10 individuals from the licensee's staff. These interviews assessed whether conditions existed that could potentially challenge the establishment of a safety conscious work environment.

Corrective actions associated with CAR 200202966 were reviewed to determine if the licensee was responsive to the concerns identified in a survey they had conducted of their staff. The survey was conducted to determine if the licensee's staff believed they received negative repercussions for writing CARs.

(2) Issues and Findings

Licensee employee's interviewed by the team demonstrated a willingness to identify issues and enter them into the corrective action program. Nevertheless, a review of CAR 200202966 identified that approximately 20 percent of the individuals responding to the licensee's survey felt that they had received negative repercussions for identifying an issue. At the time of the inspection, licensee management had not taken actions to address the survey results. Subsequent to the inspection, licensee management stated that an additional survey of their staff would be conducted by an outside firm. Once completed, licensee management indicated that an action plan to address the identified issues would be formulated.

4OA3 Event Followup

(Closed) Licensee Event Report 50-483/2002-001 and 50-483/2002-001-001: Manual Auxiliary Feedwater Feedwater (AFW) Pump Actuation and Subsequent Gas Binding of the A Motor-Driven Auxiliary Feedwater Pump. In December 2001, AFW Pump A failed to provide sufficient flow and pressure to the steam generators following an on-demand start. The failure of the pump to perform its intended safety function occurred as a result of foreign material blocking the suction of the pump. The foreign material was identified as having originated in the condensate storage tank.

A special inspection was performed to review the details of the failure of AFW Pump A. The details of this inspection are documented in NRC Inspection Report 50-483/2002-007. This inspection identified a violation for the failure to promptly identify and correct a significant condition adverse to quality. During a followup inspection, as documented in NRC Inspection Report 50-483/2002-09, the actions taken to correct and prevent recurrence of this significant condition were reviewed. Since the licensee had not completed the corrective actions, a final review of the actions was completed during this inspection. Based on the review, and the reviews completed previously, this event report is considered closed.

#### 4OA6 Meetings including Exit

##### Exit Meeting

The inspectors discussed these findings with Mr. Ron Affolter, Vice President - Nuclear, and members of the licensee's staff in a meeting on December 18, 2002. Licensee management acknowledged the findings presented. An additional exit was conducted via telephone with Mark Reidmeyer, on January 30, 2003, to clarify the status of issues pending from the initial exit meeting.

#### 4OA7 Licensee-Identified Violations

The team identified an example of where a high radiation area was not posted in accordance with regulatory requirements. Review of this CAR revealed that, on November 19, 2002, an iron worker removed the cavity access cage, on which the high radiation area posting was attached. By removal of the cage, the radiation area posting was removed, and as a result, the entrance to a high radiation area was not properly posted. The team considered this an isolated performance deficiency.

Technical Specification 5.7.1.a requires, in part, that each entryway to such an area [high radiation area] be barricaded and conspicuously posted as a high radiation area. The removal of the access cage with the posting attached is a violation of Technical Specification 5.7.1.a, in that, the area was no longer conspicuously posted as a high radiation area. Since this violation did not involve ALARA (as-low-as-reasonably-achievable) planning and controls, no personnel overexposure occurred, substantial potential for personnel overexposure did not exist, and the finding did not compromise the licensee's ability to assess dose; this violation is not more than very low significance, and is being treated as a noncited violation.

ATTACHMENT

KEY POINTS OF CONTACT

Licensee

PARTIAL LIST OF PERSONS CONTACTED

C. Smith, Supervisor, Health Physics - Dosimetry  
K. Gilliam, Supervisor, Health Physics - ALARA  
F. Rosser, Supervisor, Radiation Protection  
M. Reidmeyer, Supervisor, Regional Regulatory Affairs  
R. Roselius, Superintendent, Radiation Protection and Chemistry  
D. Trokey, Coordinator, Emergency Preparedness  
G. Pendergraff, Performance Coordinator, Protective Services Department  
L. Graessle, Superintendent, Protective Services  
S. Batten, Supervisor, Security Shift  
M. Dunbar, Manager, Security  
V. McGaffic, Superintendent, Performance Improvement  
R. Wink, Supervising Engineer, Safety Related Mechanical Systems  
K. Duncan, Senior Reactor Operator  
G. Kremer, Engineer  
C. Dale, Safety Analysis Engineer  
K. Mills, Supervising Engineer, Safety Analysis

NRC

M. Peck, Senior Resident Inspector, Callaway

**ITEMS OPENED AND CLOSED**

Opened

2002003-01	NCV	Failure to Maintain a High Radiation Area Properly Posted
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Closed

2002003-01	NCV	Failure to Maintain a High Radiation Area Properly Posted
2002007-01	VIO	Failure to Promptly Identify and Correct a Significant Condition Adverse to Quality
2002-001 and 2002-001-001	LER	Manual Auxiliary Feedwater Feedwater (AFW) Pump Actuation and Subsequent Gas Binding of the A Motor-Driven Auxiliary Feedwater Pump

**DOCUMENTS REVIEWED**

The following documents were reviewed by the team to accomplish the objectives and scope of this inspection:

1. CARs

200001969	200201601	200203616	200205200	200206900
200100166	200201614	200203655	200205234	200206903
200100168	200201661	200203737	200205364	200207022
200102148	200201779	200203830	200205365	200207047
200102390	200201828	200203867	200205539	200207131
200103509	200202154	200203983	200205651	200207215
200104974	200202241	200203996	200205698	200207277
200200069	200202298	200204065	200205710	200207283
200200085	200202469	200204095	200205714	200207231
200200121	200202496	200204125	200205808	200207297
200200123	200202887	200204127	200205816	200207360
200200178	200202921	200204162	200205820	200207363
200200299	200202978	200204163	200205826	200207371
200200402	200202994	200204228	200205840	200207473
200200369	200203018	200204238	200205883	200207475
200200509	200203023	200204425	200206003	200207522
200200584	200203049	200204538	200206086	200207636
200200671	200203050	200204547	200206107	200207707
200200683	200203056	200204598	200206134	200207674
200200704	200203108	200204624	200206207	200207694
200200811	200203142	200204626	200206213	200207805
200201038	200203216	200204669	200206218	200207816
200201101	200203240	200204719	200206271	200207854
200201232	200203245	200204803	200206276	200207872
200201266	200203249	200204820	200206510	200207876

200201271	200203304	200204889	200206567	200207968
200201374	200203437	200204987	200206620	200208045
200201378	200203567	200205077	200206664	200103053
200201493	200203594	200205097	200206711	200103262
200201517	200203612	200205121	200206894	200103722
200103939	200204566	200104044	199903524	200107296
200208280	200106307	200102270	200200281	200200669
200200881	200201211	200202204	200202342	200202507
200203057	200203080	200203262	200203412	200203694
200203939	200204210	200204398	200205319	200207398
200208280	200203615	200205150	200206895	200000669
200203017	200204041	200202678	200200485	200100515
200201591	200107423			

2. Calculations

HPCI - 92 - 005, Rev 0	HPCI - 93 - 0003, Rev 0	HPCI - 0102, Rev 1
HPCI - 02 - 05, Rev 0	HPCI - 02 - 06, Rev 0	AL-16
AL-16 ADD1, Rev 3	AL-16 ADD3, Rev 3	AL-30, Rev 1

3. Procedures

Number	Title	Revision
HDP - ZZ - 01300	Internal Dosimetry Program	20
HDP - ZZ - 01500	Radiological Posting	16
HTP - ZZ - 04175	Eberline Model PM-7 Portal Monitor Operation	0
APA - ZZ - 01102	Security Threats, Sabotage, Tampering, or Loss of Company Property	13
APA - ZZ - 00204	Safeguards Information	24
EIP - ZZ - SK001	Response to Security Events	0

Number	Title	Revision
EIP - ZZ - 00102	Emergency Implementing Actions	30
HTP - ZZ - 01203	RWP Access Control	28
HTP - ZZ - 01101	Administrative Controls for Radiation Shielding	9
HDP - ZZ - 03000	Radiological Survey Program	21
APA-ZZ-00143	10CFR50.59 Reviews	0
EDP-ZZ-03000	Containment Coatings	6
OSP-SA-00003	Emergency Core Cooling System Flow Path Verification and Venting	15
OTN-EM-00001	Safety Injection System	20
MSE-NK-QB011	Refueling Outage Inspection and Surveillance of NK11 Battery and Battery Charger NK21/NK25	11
APA-ZZ-00140	Environmental and Other Licensing Evaluations	29
OSP-AL-P0002	Turbine Driven Aux Feedwater Pump Operability Inservice Test	36
OSP-NE-00001B	Standby Diesel Generator 'B' Periodic Tests	12
OSP-AL-P001A	Motor Driven Aux Feedwater Pump 'A' Inservice Test	32
APA-ZZ-0500	Corrective Action Program	33

4. Drawings

M-22EJ01(Q), "Residual Heat Removal System," Rev 44

M-22EM01(Q), "High Pressure Coolant Injection System," Rev 28

M-22EM02(Q), "High Pressure Coolant Injection System," Rev 18

M-22EM03, "High Pressure Coolant Injection System Test Line," Rev 11

M-22EP01(Q), "Accumulator Safety Injection," Rev 11

M-22KJOSQ, "Piping and Instrumentation Diagram Standby Diesel Generator "B"  
Exhaust, FO & Starting Air System," Rev 12

5. Other Documents

Emergency Preparedness Performance Indicator Details and Data (3Q01 - 2Q02)

Plant Security Engineering System Health Report (2Q01 - 2Q02)

Request for Resolution, Request for Resolution (RFR) 21157, Rev A

10CFR50.59 Reference Manual, Rev 0

Unqualified Containment Coatings Log - December 5, 2002

RFR 08600A, "Evaluation of Perma-Shield Storage in Reactor Building"

RFR 16628A, "Evaluation of Temporary Power Cart Storage in Reactor Building"

RFR 19268, "ECCS Flowpath Verification"

RFR 19275B, "ECCS Flowpath Verification"

RFR 19278, "ECCS Flowpath Verification"

Centralized Action Tracking System (CATS) 46906, "Review of NRC Information Notice 1995-21."

CATS Action 55273, "Review of NRC Information Notice 1997-33."

CATS Action 55505, "Review of NRC Information Notice 1997-40."

CATS Action 57527, "Review of NRC Information Notice 1997-78."

Letter ULNRC-03916, "Response to Generic Letter 98-04"

S687083 - Surveillance Task Sheet for TDAFP Inservice Test

S693437 - Surveillance Task Sheet for TDAFP Inservice Test

TCN 97-0452 - Temporary Change Notice (TCN)

TCN 02-0765 Temporary Change Notice Form

TSB CN 02-055 - Callaway Plant Primary Licensing Document Change Form

CWCM035A - Callaway Work Control - Inquiry List

Centralized Action Tracking System (CATS) Action 46906, "Review of NRC Information Notice 1995-21."

Equipment Out-of-Service List 9798 - Operability Determination