



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064

January 9, 2001

EA-00-208

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

SUBJECT: FINAL SIGNIFICANCE DETERMINATION FOR THREE WHITE FINDINGS AND  
NOTICE OF VIOLATION (NRC INSPECTION REPORT 50-483/00-17,  
CALLAWAY PLANT)

Dear Mr. Randolph:

The purpose of this letter is to provide you with the final results of our significance determination of the preliminary White findings identified in the subject inspection report. The inspection findings were assessed using the significance determination process and were preliminarily characterized as three White findings (i.e., issues with low to moderate increased importance to safety, which may require additional NRC inspections).

The findings involved performance deficiencies in your ALARA (As Low As is Reasonably Achievable) planning and controls program. We emphasize that, although there were no exposures in excess of regulatory limits, the performance deficiencies resulted in unnecessary doses to workers during Refueling Outage 10. As documented in the subject inspection report, these deficiencies involved: 1) planning and conducting maintenance activities in the vicinity of the reactor coolant system (RCS), during a time period soon after shutdown, when area dose rates were temporarily elevated by a chemical cleaning process designed to remove radioactive particulate from RCS internal surfaces, without commensurate compensatory measures; 2) planning and conducting maintenance activities in the vicinity of the steam generators before the steam generator bowl drains were flushed, resulting in higher than normal area dose rates without commensurate compensatory measures; 3) conducting maintenance activities on the reactor coolant pumps and steam generators without the steam generator secondary sides filled with water, resulting in higher than normal area dose rates without commensurate compensatory measures; 4) conducting maintenance activities without sufficient mock-up training to familiarize contract workers with plant equipment, use of tools, and techniques to effectively reduce the dose that they would receive; and 5) performing maintenance activities with ineffective communications between radiation protection personnel and the primary contractor, which resulted in additional worker exposure due to ineffective planning and sequencing of work activities. Your staff originally estimated that plant workers would receive exposures totaling 165 person-rem during Refueling Outage 10. The actual value was 305 person-rem. Your staff discussed a number of factors to explain the differences between the actual and estimated values. Notwithstanding, the NRC concluded that a significant portion of this increase was the result of poor ALARA practices.

At your request, a regulatory conference was held on November 9, 2000, to discuss your views on this issue. During the meeting, your staff described your assessment of the significance of

the findings, corrective actions, and the root cause evaluations for the issues. You provided supplemental information in a letter dated November 16, 2000, in which you took issue with the NRC's determination of the process control level at which a work activity should be defined as a "job." The job classification is used for the purpose of calculating the amount of excess dose accumulated and consequently characterizing the significance of a finding in accordance with the Occupational Radiation Safety Significance Determination Process (SDP). Based on your interpretation of Callaway Plant procedures, you asserted that the Work Authorizing Document (WAD) is the appropriate process control level that should be used to classify a particular activity as a job for ALARA purposes, and that, utilizing this approach, the findings appeared to constitute one White finding, rather than the three White findings which were identified by the NRC in the subject inspection report.

Notwithstanding that assertion, after considering the information developed during the inspection, the additional information you provided at the regulatory conference, and the information provided in your November 16, 2000, letter, the NRC has concluded that the inspection findings are appropriately characterized as three White findings. We recognize that the term "job" is not formally defined by the SDP and its supporting guidance. However, as discussed in the November 9, 2000, regulatory conference, the term "jobs" in the Occupational Radiation Safety SDP clearly corresponds to those work activities for which distinct ALARA planning and controls are implemented. From our review of your procedure PDP-ZZ-00003, "Work Document Planning," Rev. 28, and your conduct of in-progress job and post-job reviews required by procedure HTP-ZZ-01102, "Pre-Job ALARA Planning and Briefing," Rev. 14, we conclude that your ALARA planning and controls were primarily implemented at the Radiation Work Permit (RWP) level rather than at the WAD level for the work activities in question. For ALARA purposes, Callaway Plant procedures allow multiple WADs to be grouped and controlled under one RWP. Consequently, the bases for the three White findings described in the inspection report remain valid.

The first White finding involved scaffolding activities (RWP-50903). We noted that for scaffolding activities, dose projections were made for the RWP, in-progress reviews were conducted for the RWP, and post-job reviews were conducted for the RWP. None of these activities occurred for the associated scaffold permits or the associated WAD. Since this RWP accrued more than 25 person-rem and exceeded its dose projection by greater than 50 percent, it constituted a single White finding.

The second White finding involved steam generator eddy current/robotic plugging/stabilizing/electrosleeving activities (RWP-53323). Although dose projections were made for the associated WADs, there were no work process information sheets completed for each WAD. Similarly, an in-progress job review was done for the RWP, not the individual WADs, and post-job reviews were performed for the RWP, and not the individual WADs. Again, since this RWP accrued more than 25 person-rem and exceeded its dose projection by greater than 50 percent, it constituted a second White finding.

The third White finding occurred because there were four jobs with actual doses greater than 5 person-rem and exceeded their dose projections by more than 50 percent. These jobs included steam generator manway covers and inserts removal and installation (RWP 99-53321), health physics support for primary and secondary steam generator activities (RWP 99-53324), foreign object search and retrieval (RWP 99-53022), and reactor coolant pump seal removal and

replacement (RWP 99-52520). ALARA planning and controls were instituted for these four RWPs, and not their associated WADs.

We acknowledge that the performance associated with these findings occurred before April 1, 2000, the implementation date of the revised reactor oversight program (ROP). However, we are assessing these findings in a manner consistent with the ROP initial year implementation guidance which directs that findings identified in inspection reports completed after April 1, 2000, will be assessed under the ROP regardless of when the performance deficiency occurred.

You have 10 business days from the date of this letter to appeal the staff's determination of significance for the identified White findings. Such appeals will be considered to have merit if they meet the criteria given in NRC Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 0609.03.

The NRC has also determined that these demonstrated performance deficiencies constitute a violation of 10 CFR 20.1101(b). Specifically, you did not use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses ALARA. The violation is cited in the attached Notice of Violation (Notice), and the circumstances surrounding the violation are summarized in this letter and described in detail in the subject inspection report. In accordance with the NRC Enforcement Policy, NUREG-1600, the Notice of Violation is considered an escalated enforcement action because it is associated with White findings.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Because plant performance for these findings has been determined to be in the degraded cornerstone column of the operating reactor assessment Action Matrix, we will notify you, by separate correspondence, of our determination of the appropriate NRC response.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

Ellis W. Merschoff  
Regional Administrator

Docket No.: 50-483  
License No.: NPF-30

Union Electric Company

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Enclosure: Notice of Violation

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## NOTICE OF VIOLATION

Union Electric Company  
Callaway Plant

Docket No. 50-483  
License No. NPF-30  
EA-00-208

During an NRC inspection conducted on August 7-11, 2000, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

10 CFR 20.1101(b) requires that the licensee use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA).

Contrary to the above, during Refueling Outage 10, conducted between October and November 1999, the licensee did not use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses ALARA. Specifically, although the original dose estimate for Refueling Outage 10 indicated that plant workers would receive exposures totaling 165 person-rem, the actual dose received was 305 person-rem and a significant portion of this increase was attributable to poor ALARA work practices. For example:

- a. the licensee planned and conducted maintenance activities in the vicinity of the reactor coolant system (RCS), during a time period soon after shutdown, when area dose rates were temporarily elevated by a chemical cleaning process designed to remove radioactive particulate from RCS internal surfaces, without commensurate compensatory measures, resulting in doses that were not ALARA.
- b. the licensee planned and conducted maintenance activities in the vicinity of the steam generators before the steam generator bowl drains were flushed, resulting in higher than normal area dose rates without commensurate compensatory measures, resulting in doses that were not ALARA.
- c. the licensee conducted maintenance activities on the reactor coolant pumps and steam generators without the steam generator secondary sides filled with water, resulting in higher than normal area dose rates without commensurate compensatory measures, resulting in doses that were not ALARA.
- d. the licensee conducted maintenance activities without sufficient mock-up training to familiarize contract workers with plant equipment, use of tools, and techniques to effectively reduce the dose that they would receive.
- e. the licensee performed maintenance activities with ineffective communications between radiation protection personnel and the primary contractor, which resulted in additional worker exposure due to ineffective planning and sequencing of work activities.

This violation is associated with three White SDP findings.

Pursuant to the provisions of 10 CFR 2.201, Union Electric Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region IV, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available to the Public, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you are required to post this Notice within two working days.

Dated this 9th day of January 2001

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