



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

July 3, 2001

MEMORANDUM TO: William D. Travers  
Executive Director of Operations

FROM: Ellis W. Merschoff **/RA/ Thomas P. Gwynn for**  
Regional Administrator

SUBJECT: RESULTS OF CALLAWAY PLANT BACKFIT CLAIM

In accordance with Management Directive 8.4, NRC Program for Management of Plant-Specific Backfitting of Nuclear Power Plants, I am forwarding the results of the Callaway backfit panel to you. The panel was convened on March 2, 2001, and included participants from Region IV, Office of Enforcement, Office of General Counsel, and Office of Nuclear Reactor Regulation. See the attached list of attendees. The purpose of the panel was to review the licensee's position and determine if the NRC had imposed a regulatory staff position interpreting a Commission rule that was either new or different from a previously applicable staff position when we applied the Occupational Radiation Safety Significance Determination Process. The application of the process resulted in three White findings in conjunction with the violation of 10 CFR 20.1101(b). In summary, the panel determined that the Agency did not impose a new or different regulatory staff position and there was no backfit. This determination applied to both the three White findings and the violation.

Should you have any questions concerning this matter, please contact me at 817/860-8225, or Arthur T. Howell at 817/860-8180.

Attachments: As stated

William D. Travers

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## ATTACHMENT 1

### Callaway Backfit Panel Attendees

#### Region IV Backfit Panel Members

Karla Smith, Regional Counsel, Chairman  
Michael Vasquez, Enforcement Specialist  
Dwight Chamberlain, Director, DNMS  
Kenneth Brockman, Director, DRP  
Art Howell, Director, DRS

#### Other Attendees:

Ellis Merschhoff, Regional Administrator  
Susan Chidakel, OGC  
William Dean, NRR  
Kathy Gibson, NRR  
Gail Good, RIV, DRS  
Charles Hinson, NRR  
James Isom, NRR  
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Geary Mizuno, OGC  
Chris Nolan, OE  
Roger Pedersen, NRR  
Larry Ricketson, RIV, DRS  
Glenn Tracy, NRR  
James Wigginton, NRR

## ATTACHMENT 2

### BACKFIT ANALYSIS

#### Response to Ameren/Union Electric's (UE's) Backfit Claims

In its appeal of the final significance determination and its response to the Notice of Violation (NOV), UE contends that the as low as is reasonably achievable (ALARA) portion of the Occupational Radiation Safety significance determination process (SDP), as it was applied to Callaway, and the NOV constitute backfits. In support of its contention, UE asserts that the SDP and NOV: (1) create a new regulatory requirement – dose estimates for radiation work permits must be accurate, (2) create a new and different duty on licensees for their exposure control programs, and (3) are new and different from a previously applicable staff position.

The Backfit Rule, 10 CFR 50.109, defines backfitting “as the modification of or addition to systems, structures, components, or design of a facility; or the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct or operate a facility; any of which may result from a new or amended provision in the Commission rules or the imposition of a regulatory staff position interpreting the Commission rules that is either new or different from a previously applicable staff position . . . .”

#### The SDP as a Backfit

The ALARA portion of the Occupational Radiation Safety SDP that was applied at Callaway does not result in backfitting as defined in the Backfit Rule. The SDP branch for ALARA does not impose a substantive regulatory requirement on the licensee, i.e., it does not constitute a modification of, or addition to the procedures necessary to operate the Callaway plant. In this case, the SDP determination did not change, alter, or modify the NRC's requirements for implementation of an ALARA program at the Callaway plant - specifically with respect to the violation identified and described in the NOV. The NRC's determination that the ALARA requirements in 10 CFR 20.1101 were violated with five specific performance deficiencies would exist even if there was no SDP evaluation. Contrary to UE's assertion that the SDP establishes a new licensee requirement for accurate dose assessments, the Occupational Radiation Safety SDP is an internal NRC tool that was developed by NRC (with significant input from the nuclear power industry) to aid the staff in consistently determining the safety significance of inspection findings and in assessing the performance of licensees. As such, significance determinations are separate from NRC determinations of licensee violations of NRC requirements. The staff can and has made significance determinations under the SDP which are unaccompanied by violations. The licensee's assertion that the NRC established a new requirement for accurate dose assessments when assessing the NOV is a separate issue discussed below.

While the NRC acknowledges that a licensee may be adversely affected by an SDP determination, the SDP determination does not affect the determination that the licensee has violated an NRC requirement. In the Reactor Oversight Program (ROP), dose estimates are used as a screening tool to help the inspector select the jobs that need to be reviewed in detail. While there is no requirement for the dose estimates to be accurate, the NRC staff expects ALARA programs to provide “reasonably accurate” dose estimates, consistent with the guidance in Regulatory Guide 8.8, “Information Relevant to Ensuring that Occupational

Radiation Exposures at Nuclear Power Stations Will be as Low as is Reasonably Achievable,” Revision 3, dated June 1978, If the actual dose exceeds the projected dose by greater than 50 percent of the projected dose and the job dose is greater than 5 rem, the job will be considered as a candidate for the SDP if the licensee has exceeded the 3-year rolling average collective dose contained in the ALARA Group 2 Question in NRC Manual Chapter 0610\*, Appendix B. However, the fact that actual doses may exceed projected doses by greater than 50 percent of the projected dose does not provide the basis for a violation; rather, this fact is used only to determine whether the NRC should increase its oversight of the licensee’s radiation protection activities. In summary, because SDP determinations do not establish new, legally-binding requirements on licensees, it follows that SDP determinations are not regulatory actions which are within the purview of the Backfit Rule, and do not constitute backfits.

Apart from the strict legal definition of backfitting in the Backfit Rule, the NRC believes that SDP determinations were not intended by the Commission to be within the scope of regulatory actions for which the Backfit Rule was adopted to protect licensees. The Backfit Rule was adopted by the Commission to protect the licensee against unwarranted changes in regulatory requirements and staff positions after the NRC has given regulatory approval for licensed activity. As stated above, the SDP does not change the NRC’s regulatory requirements applicable to any nuclear power plant facility, or the staff interpretation of those regulatory requirements. Since the SDP in no way changes the NRC’s regulatory requirements and the staff’s interpretation of these requirements, it follows that the underlying policies of the backfit rule were not implicated when the NRC adopted the SDP. Therefore, the NRC rejects the claim that the Occupational Radiation Safety SDP constitutes a backfit for the Callaway plant.

#### The NOV as a Backfit

The NOV for Callaway does not result in backfitting as defined in the Backfit Rule. The NOV was not based upon a new staff position involving dose assessment accuracy which was first articulated in the NOV. Also, the NOV was not based upon any change in relevant staff guidance with respect to dose assessment accuracy. The Callaway dose estimates (and their accuracy) were not a factor in determining the violation. The basis for the Callaway NOV was that there were programmatic performance deficiencies as identified and described in paragraphs a.-e. of the violation. None of the five listed examples refers to inaccuracy in licensee dose estimates. The mention of dose estimates in the “Contrary to” paragraph of the violation was merely a means of conveying the extent of the difference between the management-developed dose goal and the actual dose received. Indeed, an ALARA violation may be cited without any reference to dose estimates. It was not intended to suggest that the difference between the estimated and actual doses was a fundamental aspect of the violation. Rather, the violation was premised on the fact that the difference between the estimated and actual doses was due, in part, to the five identified matters within the licensee’s control. In the NRC’s view, a fair reading of the “Contrary to” paragraph reflects the staff’s position on the nature and basis of the NOV. Therefore, the NRC does not agree that any alleged change in staff position with respect to dose estimate accuracy in any way forms the basis for a backfitting claim.

The NRC does not agree that the need for accurate dose estimates constitutes either a new staff interpretation of the ALARA requirement in Section 20.1101(b), or a change in previous interpretations of the necessary components of an acceptable ALARA program with respect to

dose estimates. Dose estimates have always been an important aspect of ALARA programs. For example, Regulatory Guide 8.8, in outlining an acceptable ALARA program, discusses the following organizational responsibilities: "Ensuring that an effective [dose] measurement system is established and used to determine the degree of success achieved by station operations with regard to the program goals and specific objectives, and ensuring that the measurement system results are reviewed on a periodic basis and that corrective actions are taken when attainment of the specific objectives appears to be jeopardized." Regulatory Guide 8.8 also states, in part: "Before entering radiation areas where significant doses could be received, station personnel should have the benefit of preparations and plans that can ensure the exposures are ALARA while personnel are performing the services. Preparations and plans should reflect . . . estimated exposure time required to complete the tasks and the estimated doses anticipated from the exposure." Further, Inspection Procedures 83729, "Occupational Exposure During Extended Outages," and 83750, "Occupational Radiation Exposure," both dated December 1998, and in use prior to the ROP, specify reviews of pre-job ALARA reviews of planned work, active review of on-going work, and post-job ALARA reviews. The procedures specify that licensees "should have an appropriate basis for establishing goals and objectives. Goals should be continuously monitored and actions taken as necessary when goals are exceeded." Moreover, inspectors are instructed to "Compare, as a minimum, the licensee's total annual collective dose (person-rem) against their goals."

Accordingly, while dose estimates are used as a point of reference, they are not required to be precisely accurate nor do they constitute limits that, when exceeded, represent violations of ALARA per se. As discussed above, the Callaway NOV was based upon the fact that part of the dose in excess of the estimated dose resulting from specific jobs could have been avoided if the licensee had properly designed and implemented appropriate work procedures and engineering controls based upon sound radiation protection principles, including sufficient ALARA planning and controls. In summary, the specific examples cited in the NOV were clearly inconsistent with ALARA principles long espoused by the staff, and there was no backfitting with respect to the citation of the Callaway violation.

Notwithstanding the above position, the NRC acknowledges that the close proximity of the discussion of SDP significance to the discussion of the inspection findings which formed the basis for the NOV can be confusing. The NRC will consider whether additional guidance should be provided to inspectors to segregate SDP significance discussions in a discrete, separately subtitled section or paragraph devoted solely to SDP significance determinations. If UE wishes, the NRC will apprise it of our final determination with respect to the desirability of such additional guidance.