



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

July 9, 2004

Randall K. Edington, Vice
President-Nuclear and CNO
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

**SUBJECT: CONTESTED FINDING DOCUMENTED IN NRC INSPECTION
REPORT 50-298/03-07 (05000298/2003007)**

Dear Mr. Edington:

Thank you for your letter dated February 26, 2004, which contested an inspection finding documented in NRC Inspection Report 50-298/03-07. This finding was associated with a fire on the crossarm of a wooden 345 kV transmission tower adjacent to the 345 kV switchyard that occurred on October 28, 2003. The tower supported the main generator output lines and was located between the main transformers and the main generator disconnect switches. In response to the fire, operators manually scrammed the reactor when the crossarm of the tower failed, allowing one phase of the main generator output lines to fall. In addition, the Emergency Response Organization was activated as a precautionary measure. The finding was characterized as having very low safety significance (Green), and was determined not to be a violation of regulatory requirements. A similar fire occurred on the Booneville 345 kV transmission line tower, located adjacent to the generator output line tower, in 1997.

In your letter, you concluded that linking a nonviolation performance deficiency that occurred 6 years ago as evidence of a crosscutting finding and performance deficiency in 2003 is not in accordance with NRC guidance. Further clarification of the basis for NPPD contesting the finding was obtained during a phone call between Mr. P. Fleming, NPPD, and Mr. K. Kennedy, NRC. Mr. Fleming stated that it was NPPD's position that there was not a performance deficiency associated with this issue; therefore, the issue should not have been documented as an inspection finding.

In reviewing your letter, the NRC considered the information in our guidance documents pertaining to the definitions of a finding and a performance deficiency. NRC Manual Chapter 0612, "Power Reactor Inspection Reports," defines a finding as:

An issue of concern that is related to a licensee performance deficiency. Findings may or may not be related to regulatory requirements and, therefore, may or may not be related to a violation.

NRC Manual Chapter 0612 also defines a performance deficiency as:

An issue that is the result of a licensee not meeting a requirement or standard where the cause was reasonably within the licensee's ability to foresee and correct, and which should have been prevented. Issues related to crosscutting areas are generally considered an underlying cause of a performance deficiency rather than an independent issue. Issues of problem identification and resolution, human performance, or establishment of a safety-conscious work environment, in and of themselves, do not provide the basis for a performance deficiency.

Nebraska Public Power District's (NPPD) root cause investigation, documented in SCR 2003-1844, identified two root causes for the October 28, 2003 fire:

Root Cause 1: Physical - Failure to properly ground insulator strings on 345kv wooden crossarms

Root Cause 2: Organizational - Missed an opportunity to identify the physical cause of the 1997 Booneville Fire and the extent of condition of the similar structure for the 3311L Disconnect

For Root Cause 1, NPPD found that crossarm fires on 345 kv wooden structures have been prevented elsewhere in the NPPD transmission system by properly grounding the insulators to provide a preferable path for stray currents. The insulators on the tower that burned on October 28, 2003, were not grounded. The root cause investigation report documented the existence of "significant age-related cracks" in the wooden tower crossarm that were filled with moisture and dust/fiber particles. In addition, the pressure treated wood preservative no longer existed on the surface of the arms, as evidenced by the existence of moss clusters growing on top of the crossarm. These factors, combined with light rain several hours prior to the event, established a high resistance current path across one of the insulators, through the wooden crossarm, and across the tower poles to ground. This high resistance current path eventually heated the wood sufficiently to ignite the crossarm.

SCR 2003-1844 documented a similar fire that occurred on the Booneville 345 kV transmission line tower in 1997. This tower was located adjacent to the tower that caught fire on October 28, 2003. Although NPPD entered this fire into their corrective action program, no root cause investigation or extent of condition evaluation was performed and the only corrective action implemented was to repair the damaged crossarm. Root Cause 2 identified that NPPD "Missed an opportunity to identify the physical cause of the 1997 Booneville Fire and the extent of condition of the similar structure for the 3311L Disconnect." SCR 2003-1844 also identified that external operating experience revealed that crossarm fires have occurred at other utilities in the United States as well as Australia.

The "Interface Operating Agreement Between Nebraska Public Power District Energy Delivery Business Unit and Nebraska Public Power District Nuclear Power Group Business Unit," Revision 1, dated June 5, 2003, describes a Cooper Nuclear Station Area Grid Predictive Maintenance/Preventive Maintenance Program that included visual inspection to identify potentially degraded equipment conditions. In addition, industry standards, such as IEEE Std 751-1991, "IEEE Trial - Use Design Guide for Wood Transmission Structures," provides

information on the prevention of wood structure fires, including the bonding of insulator hangers located at the end of the crossarm to the structure down lead on the pole. The guidance noted above, as well as both plant-specific and industry operating experience constitute suitable standards by which to assess this issue. Accordingly, we believe that the cause of the 2003 fire was reasonably within your ability to foresee and correct; therefore, the fire should have been prevented.

As a result, the NRC continues to believe that the failure to properly maintain components whose failure could result in a plant transient constitutes a performance deficiency in this instance, consistent with the definition in NRC Manual Chapter 0612. Specifically, the failure to identify and correct degradation of the tower, including the failure to identify and correct the inadequate grounding of the tower, which resulted in a fire on the tower and subsequent manual reactor trip, constitutes a performance deficiency and, therefore, is a finding.

The NRC has also concluded that this finding had a crosscutting aspect associated with problem identification and resolution. The NRC concluded that the fire in the Booneville tower in 1997 served as an opportunity to identify and correct the issues on the adjacent tower, specifically the inadequate grounding of the tower and the lack of an adequate inspection and maintenance schedule to identify and correct degradation of the tower. In addition, NPPD has had other opportunities to identify the transmission tower degradation and inadequate grounding such that corrective actions could have been implemented to prevent the October 2003 event. These opportunities included NPPD's assessment of historical plant issues conducted to develop The Strategic Improvement Plan, Revision 1, dated June 10, 2002; and NPPD's completion of The Strategic Improvement Plan, Revision 2, Action Plan 5.3.1.2.c, "Offsite Power/Switchyard Reliability Improvement," step 3, which required a third-party assessment of equipment condition for critical switchyard components.

In summary, based on our review of the information provided in your February 26, 2004, letter, we have determined that a performance deficiency (finding) occurred which had crosscutting aspects as stated in our January 27, 2004, integrated report, and that the information you provided in response did not provide a sufficient basis for changing our assessment of the issue as documented in NRC Inspection Report 50-298/03-07.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be 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).

Should you have any questions concerning this matter, please contact Mr. Kriss Kennedy at 817-860-8144.

Sincerely,

/RA/

Arthur T. Howell III, Director
Division of Reactor Projects

Docket: 50-298

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