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May 25, 2007
LIC-07-0037

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

References: 1. Docket No. 50-285
2. NRC Regulatory Guide 1.35, "Inservice Inspection of Prestressed Concrete Containments," Revision 3 dated July 1990
3. American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code, Section XI, Subsection IWL, 1992 Edition, 1992 Addenda

Subject: Special Report on the Containment Tendon Prestressing System, Free Water found in Dome Tendons

The Omaha Public Power District (OPPD) submits this special report pursuant to the requirements of Fort Calhoun Station, Unit No.1 (FCS) Technical Specification (TS) 5.9.3.b, "Special Reports."

The FCS surveillance test acceptance criteria for the containment tendon prestressing system requires the absence of "free water" in the corrosion inhibiting grease. TS 5.19 requires an immediate investigation to determine the causes and extent of any non-conformance with the acceptance criteria and requires the results to be reported to the Commission within 90 days via a special report in accordance with TS 5.9.3.

Precision Surveillance Corporation (PSC) completed the thirty-fifth year containment building prestressing system surveillance including the dome tendons on February 27, 2007 in accordance with References 2 and 3. Free water was found in one (1) dome tendon (D230P) randomly selected for testing. Inspections of the tendon anchor head and button heads found no corrosion. One (1) of the ninety (90) effective wires was removed from tendon D230P and a small amount of corrosion was noted. The wire was sent to an offsite laboratory for additional inspection and testing. All conditions were satisfactory for tensioning tendon D230P and returning it to service. Grease caps on adjacent tendons were removed to inspect for free water and a small amount was found in tendon D231P, which did not warrant further testing.

Temperatures were below freezing during the entire test period. When temperatures are not consistently above 60°F, removal, and replacement of corrosion inhibiting grease is not practical.

Laboratory testing of the wire removed from tendon D230P was in accordance with Subsection IWL-2523 of the ASME Code and resulted in satisfactory values of yield strength, ultimate tensile strength, and elongation. A pH of 8.6 was found in the water sample from tendon D230P. A pH value above 7.0 indicates the water is non-acidic and not conducive to aggressive corrosion. Analyses conducted on corrosion medium samples showed acceptable reserve alkalinity, water content, and concentrations of water-soluble chlorides, nitrates, and sulfides.

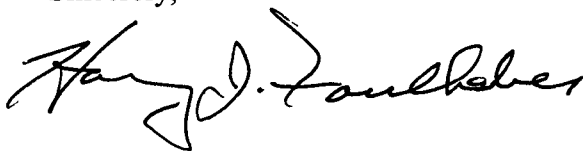
OPPD suspects that the free water entered tendons D230P and D231P through small cracks in the dome concrete. However, the cracks are not accessible for visual inspection due to a concrete overlay on the dome perimeter, which allows a level work surface.

OPPD will investigate the feasibility of using a crack sealant to block the suspected leak path. As a preventative measure, additional inspections are planned to check more tendons adjacent to tendon D230P for free water. The old grease will be replaced with new grease on any tendons found with free water inside. An additional wire will be removed from tendon D230P, and will be examined and tested in accordance with Subsection IWL-2523 of the ASME Code. These actions are considered regulatory commitments (AR 40538) and will be completed by July 31, 2008.

Tests show that despite the presence of free water, corrosion has not degraded the strength of dome tendon D230P. Based on chemical analysis of the corrosion inhibiting grease, no significant corrosion of the tendon wire and anchorage components, and continued satisfactory tension measurements of the containment prestressing tendons, OPPD is confident in the ability of the containment structure to perform its safety related function.

If you should have any questions or require additional information, please contact Mr. Thomas C. Matthews at (402) 533-6938.

Sincerely,

A handwritten signature in black ink, appearing to read "H. J. Faulhaber", written in a cursive style.

H. J. Faulhaber
Division Manager
Nuclear Engineering

HJF/MLE/mle

- c: B. S. Mallett, NRC Regional Administrator, Region IV
 A. B. Wang, NRC Project Manager
 J. D. Hanna, NRC Senior Resident Inspector