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SUBJECT: Forwards final results of environ qualification test program re safety injection pump motor.

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AEP:NRC:0775AP
LER NO. 86-031-00

Donald C. Cook Nuclear Plant Unit 2
Docket No. 50-316
License No. DPR-74
FINAL RESULTS OF ENVIRONMENTAL QUALIFICATION TEST
PROGRAM CONCERNING THE SAFETY INJECTION PUMP MOTOR

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Attn: T. E. Murley

July 14, 1989

Dear Dr. Murley:

In Cook Nuclear Plant Unit 2 Licensee Event Report (LER) No. 86-031-00, Attachment 1, we committed to an environmental test program for a safety injection (SI) pump motor that had been serviced by a non-certified vendor. In a subsequent letter, AEP:NRC:0775AL dated March 3, 1987, we committed to provide the results of the environmental test. The purpose of this letter is to inform you of the test results which indicate that the motor would have functioned normally under accident conditions.

The test program was planned as two tasks. Task 1 of the testing program was to perform an evaluation, based on a search of existing literature, to predict the effects of radiation on the insulating varnish used by the noncertified motor-repair shop. Radiation effects on the interaction between this varnish and the original stator winding insulation were evaluated. Attachment 2 to this letter is the report, titled "Analysis of Materials: D. C. Cook Safety Injection Motor Materials Qualification," submitted by Battelle Columbus Division. Basically the report concludes that: (1) Radiation damage is not likely to occur until the varnishes and paints in question have received a dose of more than 10^8 rads, and (2) Problems are not likely unless the original and over-laid varnish and paints are chemically incompatible. Because this analysis did not provide a conclusive statement as to operability, we proceeded with the second task.

Task 2 of the testing program was originally to perform radiation testing of a sample pump motor stator winding to be fabricated by

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Westinghouse. Westinghouse subsequently informed us however, that many of the materials originally used in the manufacture of the pump motor stator are no longer commercially available. We therefore could not perform the Battelle-recommended tests to determine chemical non-compatibility which would negate the need for an irradiation test, or the more simplistic irradiation test of painted, twisted pairs of wires, without dismantling and/or destroying the motor. As a result, our plan was modified to perform radiation testing of the entire SI motor in question, as we indicated we would do in our March 3, 1987 letter.

Summarily, the motor showed no indication of degradation or damage during the irradiation period. The insulation resistance values, recorded before, during, and after the exposure period, showed no appreciable difference in levels such as to indicate degradation. Further, the motor perfomance test run performed after irradiation on April 5, 1989 showed no degradation from the pre-irradiation performance test run conducted on February 13, 1989.

This document has been prepared following Corporate procedures that incorporate a reasonable set of controls to ensure its accuracy and completeness prior to signature by the undersigned.

Sincerely,

M. P. Alexich
Vice President

MPA/eh

Attachments

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