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SUBJECT: Forwards addl info re operability of sys w/Copes-Vulcan valves,per NRC 881221 telcon.

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Donald C. Cook Nuclear Plant Unit 1
Docket No. 50-315
License No. DPR-58
OPERABILITY OF SYSTEMS WITH COPES-VULCAN VALVES

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

Attn: A. B. Davis

December 27, 1988

Dear Mr. Davis:

A conference call was held among NRC Region III, NRR and AEPSC representatives on December 21, 1988. The purpose of the call was to address the basis for continued operation of Donald C. Cook Nuclear Plant, Unit 1, due to concerns related to the recent discrepancies found in both weight and center of gravity of Copes-Vulcan air operated valves installed on small-bore diameter piping systems. The enclosure to this letter provides the information requested during the conference call.

In addition, the plant walkdowns conducted to date and the preliminary analytical results have yielded no evidence that the systems affected by the valves are incapable of performing their safety related functions. Initial computer runs on the first seventeen (17) valves indicate that we are within the NRC approved 2.0 Sy interim acceptance criteria. As we have previously committed in our December 9, 1988 letter, we expect to complete our evaluation of the associated Problem Report regarding the subject valves by January 3, 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

A001

MPA/eh

Attachment

cc: D. H. Williams, Jr.
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Charnoff
G. Bruchmann
NRC Resident Inspector - Bridgman

The following information provides the basis for our engineering judgment to continue operating Cook Nuclear Plant, Unit 1, while the analytical efforts continue regarding the impact of discrepancies found in both the weight and location of the center of gravity for installed small-bore (3/4", 1" and 2" diameter) Copes-Vulcan air operated valves.

FUNCTION OF AFFECTED PIPING SYSTEMS

The thirty-eight (38) fail closed Copes-Vulcan valves in Unit 1 are installed in piping systems that require no flow through to fulfill their safety related function but which must retain the pressure boundary integrity of the safety related systems to which they are connected. Twenty-six (26) of these valves are normally closed during power operation and function as fill, drain, flush, and test lines for the ECCS and Accumulator systems. Nine (9) of these valves are in the CVCS letdown system, which is isolated to maintain RCS inventory upon activation of the safety injection system. The remaining three (3) valves, which automatically close on a safety injection signal, are in the line that continuously circulates the Boron Injection Tank contents during power operation.

LOW EARTHQUAKE PROBABILITY

As indicated in Chapter 2.5 of the Updated Final Safety Analysis Report, the Cook Nuclear Plant is located in the Michigan tectonic plate, historically a low seismicity basin. The seismic history and known tectonics in the region reveal that no major earthquake epicenter has occurred within four hundred (400) miles of the Cook Nuclear Plant site and no shocks have occurred within fifty (50) miles of the Cook Nuclear Plant site of sufficient magnitude to cause significant structural damage. Based on this historical data, the probability of a damaging earthquake at the Cook Nuclear Plant is considered to be extremely low.

SUPPORTS IN THE VICINITY OF THE VALVES

Our Alternate Analysis criteria, the simplified approach to supporting small-bore (less than or equal to 2-inch nominal diameter) piping systems, required supporting of concentrated loads, such as valves. Review of available photographs has confirmed the existence of pipe supports in the vicinity of the valves.

STRENGTH OF PIPING

Based on the inherent safety margins in the codes and our own power plant experience, piping systems are more robust than would be predicted by rigorous code analyses. Also, recent studies have indicated that piping system failures occur due to seismic anchor movements and not due to the seismic inertia loads. Most of the piping systems in question are within the same building and are at the same general elevation. Furthermore, the differential displacements under seismic conditions between the safety-related buildings are not significant; therefore, we believe that the piping systems that run through the containment to the auxiliary building would not be adversely affected in the unlikely event of a seismic disturbance.

OPERATING EXPERIENCE

The affected piping systems have functioned for over twelve (12) years of operation in Unit 1. During the recent walkdown to obtain as-built design information, the personnel involved were instructed to note any physical signs of distress in the piping system and supports. No adverse findings were noted in the field walk of the accessible valves, demonstrating that the affected piping systems can withstand normal operating loads.