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 MURLEY, T. E. Document Control Branch (Document Control Desk)

SUBJECT: Responds to request re 930628 submittal requesting relief
 from provisions of Section XI of ASME Code.

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AEP:NRC:0969Z

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
IST PROGRAM REVISION - REQUESTS FOR
RELIEF

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

Attn: T. E. Murley

January 7, 1994

Dear Dr. Murley:

Reference: Letter, AEP:NRC:0969V, E. E. Fitzpatrick (IMCo) to
Dr. T. E. Murley (NRC), "IST Program Revisions -
Requests for Relief," dated June 28, 1993.

This letter responds to a request by members of your staff for additional information regarding our June 28, 1993, submittal requesting relief from provisions of Section XI of the ASME Code. Your staff's questions, which were discussed in a telephone conference on November 23, 1993, concern the technical justification for not employing non-intrusive examination (NIE) techniques to meet the Code provisions. At the end of the conference call, it was agreed that we would provide additional technical justification to support interim relief until NIE methods suitable for use at Donald C. Cook Nuclear Plant are developed. The following provides an overview of the current effort by Indiana Michigan Power Company to find suitable NIE methods, and the attachment provides the responses to the specific questions asked by your staff.

Overview of Check Valve Non-Intrusive Examination

During December 1992, Cook Nuclear Plant took receipt of the ITI-MOVATS CheckMate II ("CheckMate") system. This purchase was the culmination of several months of evaluation of various vendors' NIE systems. CheckMate utilizes acoustic and either



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ultrasonic or external magnetic technologies in check valve evaluation. CheckMate was planned as an integral part of the check valve preventive maintenance program/SOER 86-03, and eventually the ASME Section XI IST Valve Program.

Since receipt of the equipment, ITI-MOVATS has provided onsite training to Plant Engineering personnel on the use of CheckMate and interpretation of results. Several trials have been performed to determine the sizes, styles, and applications of check valves for which NIE is well suited, and the system has been used to gather baseline information on about 30 check valves involved in SOER 86-03. Approximately half of these valves will be disassembled during the 1994 refueling outages to qualify the process for use in the SOER 86-03 program. Our plan is that, once confidence in the equipment is established through its use in the SOER 86-03 program, use of the equipment will be incorporated into the ASME Section XI IST program.

Cook Nuclear Plant does not, except in extreme cases, consider radiography a viable NIE method. The ALARA, source scheduling and management, exclusion of other work in the area, and technical difficulties associated with radiographing relatively large, thick-walled components in water-filled systems renders radiography such an undesirable NIE method that disassembly and inspection would generally be preferred.

Cook Nuclear Plant has chosen to take a conservative approach in deploying NIE for use in IST. There are several factors influencing this, among them:

1. The requirements of Section XI are specified in Technical Specification 4.0.5. As such, a very high degree of confidence must be present before NIE will be accepted as the basis for considering a check valve operable.
2. A sufficient experience base has not yet been established to evaluate the performance of NIE methods for the wide array of sizes, styles, and services of check valves which are part of the IST program.
3. NIE is not discussed in GL 89-04, Guidance on Developing Acceptable Inservice Testing Programs. However, additional guidance is expected to be included in the code or through NRC documentation which will address the acceptability of NIE in sample based examination programs.

Dr. T. E. Murley

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4. Cook Nuclear Plant's third 120-month ISI/IST interval is presently scheduled to commence on July 1, 1996. The experience with NIE we expect to have gathered by then through the SOER 86-03 program, in combination with additional industry experience, is expected to establish the data quality and repeatability necessary for its use in IST. Check valves in the IST program will then be systematically evaluated against Code requirements for potential application of NIE, rather than through individual relief requests from the current program.

Sincerely,



E. E. Fitzpatrick
Vice President

RGV/cad

Attachment

cc: A. A. Blind
G. Charnoff
J. B. Martin - Region III
NFEM Section Chief
NRC Resident Inspector - Bridgman
J. R. Padgett

ATTACHMENT TO AEP:NRC:0969Z

RESPONSES TO NRC QUESTIONS

Listed below are the questions and responses discussed during the November 23, 1993, telephone conference.

1. "The licensee should provide additional information detailing the bases to support the conclusion that non-intrusive examination would not be meaningful for valves ESW-111, -112, -113, -114, -141, -142, -143, -144; CCW-224-1, -2, -3, -4; and CCW-225-1, -2, -3, -4. Based on the review of the valve design drawings by the staff, it appears that the application of radiography or acoustics may be practicable. Also, the licensee should address the recommendations of the valve manufacturer and vendors that specialize in non-intrusive examinations".

Response

1-ESW-111, -112, -113, -114; 2-ESW-141, -142, -143, -144: These valves are wafer style duo-disc check valves. Consequently, the body is very narrow and transducer placement is difficult. Recently, with NIE vendor assistance, some success with ultrasonics has been realized, but this is not considered adequate acceptance criteria for IST. Radiography, as previously discussed, is not a desirable alternative. Interim relief of the form discussed in the June 28, 1993, submittal for these valves is requested through the end of the second ten-year inspection interval. This will allow time to gain experience with NIE, apply systematic evaluation for NIE across all IST check valves, and develop acceptance criteria and procedures. It should also be noted that these valves are disassembled and inspected at each refueling outage as the result of IE Bulletin 83-03, "Check Valve Failures in Raw Water Cooling Systems of Diesel Generators".

1/2-CCW-224-1, -2, -3, -4; 1/2-CCW-225-1, -2, -3, and -4: Two of these valves are in series in each RCP component cooling water loop and are not isolable from each other. Sufficient experience with NIE has not yet been developed to predict the effect and extent of interaction between these valves when attempting to apply NIE for individual component acceptance. Radiography, as discussed previously, is not a desirable alternative. Interim relief of the form discussed in the June 28, 1993, submittal for these valves is requested through the end of the second ten-year inspection interval. This will allow time to gain experience with NIE, apply systematic evaluation for NIE across all IST check valves, and develop acceptance criteria and procedures.

2. "Address whether exercising valve CS-295 is practicable during cold shutdown when RCP is not operating".

Response

1/2-CS-295: This valve cannot be tested during cold shutdowns with RCPs secured since seal injection is provided at all times when the RCS is full. The conservative operating philosophy of maintaining seal injection when the RCS is full prevents contaminants from entering the seal cavity, and minimizes the possibility of seal or pump bearing damage.

3. "Provide additional information regarding the design change that caused relief request for valves 1-SI-141-L1, -L2, -L3, and -L4 to be revised. Also, specify exactly what was revised in the relief request". (Note: identical relief was requested for the Unit 2 sister valves).

Response

1/2-SI-142-L1 through -L4: The Code relief request for valves SI-142-L1 through -L4 was revised to reflect design changes related to the boron injection tank (BIT). The BIT is no longer maintained at a 20,000 ppm boron concentration, and the recirculation piping has been abandoned. The technical basis for the relief request is unchanged, the valves cannot be exercised without introducing highly borated water into the RCS. Previously, this had been 20,000 ppm BIT water. In current configuration it is nominally 2500 ppm RWST water. The change in the relief request is essentially editorial.

4. "The licensee should address in detail whether non-intrusive examination is practicable for verifying the closure capability of valve SI-101".

Response

1/2-SI-101: Radiography is not a desirable alternative. Based on our limited experience with NIE so far on similar bonnet-hung check valves, these should be good candidates for NIE. However, as previously discussed, we do not expect to have NIE fully qualified and programmatically supported for use in the IST program until the start of the third ten-year inspection

interval. Interim relief of the form discussed in the June 28, 1993, submittal for these valves is requested through the end of the second ten-year inspection interval. This will allow time to gain experience with NIE, apply systematic evaluation for NIE across all IST check valves, and develop acceptance criteria and procedures.