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 RECIP. NAME RECIPIENT AFFILIATION
 DENTON, H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards inservice testing program for pumps & valves, in response to SA Varga 840305 ltr.

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October 2, 1984
AEP:NRC:0730C

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
INSERVICE TEST PROGRAM - PUMPS & VALVES
REQUEST FOR ADDITIONAL INFORMATION

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commkssion
Washington, D. C. 20555

Reference: NRC letter from Mr. S. A. Varga to Mr. J. E. Dolan dated
March 5, 1984

Dear Mr. Denton:

This letter and its attachments are in response to the above referenced letter from Mr. S. A. Varga of your staff in reference to the Inservice Testing Program for Pumps & Valves for the Donald C. Cook Nuclear Plant. This submittal addresses the concerns raised in the Safety Evaluation Report by EG&G that was attached to Mr. Varga's letter. The Attachments to this letter are as follows:

Attachment No. 1: Inservice Testing Program For Pumps -
Units Nos. 1 and 2

Attachment No. 2: Inservice Testing Program For Valves -
Unit No. 1

Attachment No. 3: Inservice Testing Program For Valves -
Unit No. 2

Three copies of each of the attachments are included with this letter. These three Attachments comprise the revised IST Program for valves and pumps. This submittal replaces all the other previous submittals we have made and also addresses the issues discussed in the meeting on March 27 and 28, 1984 between the NRC staff and our staff. The format of the IST program has been changed as per the discussion of the above meeting and includes the additional information requested by EG&G.

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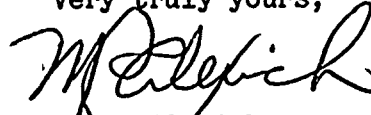
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Main body of the document containing faint, illegible text and scattered black dots, possibly representing a list or data points.

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

Very truly yours,



M. P. Alexich
Vice President

Handwritten:
10-2-81

MPA/cm

Attachments

- cc: John E. Dolan
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Charnoff
P. Eng, Reactor Inspector, Region III
J. A. Keppler, Administrator, Region III
E. R. Swanson, NRC Resident Inspector - Bridgman

ATTACHMENT NO. 1

to

AEP:NRC:0730C

DONALD C. COOK NUCLEAR PLANT - UNITS NO. 1 AND 2

ASME B & PV CODE SECTION XI

PUMP INSERVICE TEST PROGRAM

- A. The pump test program shall be conducted in accordance with Subsection IWP of Section XI of the 1974 Edition of the ASME Boiler and Pressure Vessel Code through Summer 1975 Addenda, except for specific relief requested in accordance with 10 CFR 50.55a(g)(5)(iii) which is identified in Table B, Table C and Table D.
- B. The period for which the pump inservice test program is applicable is the period beginning December 23, 1978 for Unit 1 and the period beginning July 1, 1978 for Unit 2.

Revisions to the program, proposed herein by Code Relief Requests, Table B and Table C, dated August 14, 1984, shall be implemented only upon approval by the NRC.

- C. The pump test program was developed employing the classification guidelines contained in Regulatory Guide 1.26, Revision 2 for Quality Groups B and C, and the definition of the reactor coolant system boundary contained in 10 CFR 50.2 (v) for Group A. (Quality Groups A, B, and C are the same as ASME Class 1, 2, and 3, respectively). Using these guidelines and IWP-1100, the pump list attached as Table A was developed. Table A identifies the following:
- i. The pump number and service it performs along with the drawing identification number on which it is found.
 - ii. The applicable test parameters:
 - 1. Speed
 - 2. Inlet Pressure
 - 3. Differential Pressure
Determined as the difference between measured discharge and suction pressures
 - 4. Flow Rate
 - 5. Vibration Amplitude
 - 6. Bearing Temperature
 - iii. The test frequency required.

DONALD C. COOK NUCLEAR PLANT - UNITS NO. 1 AND 2
PUMP INSERVICE TEST PROGRAM.

TABLE A
PROGRAM SUMMARY

| PUMP SERVICE DWG. NO. | PUMP NUMBER | TEST PARAMETERS | | | | | | TEST FREQUENCY | |
|---------------------------------|--|----------------------|--|--------------------------|--------------------------|---------------------------|--|--|-----|
| | | SPEED N | INLET PRESSURE P _i | DIFFERENTIAL PRESSURE P | FLOW RATE Q | VIBRATION AMPLITUDE V (4) | BEARING TEMPERATURE T _b (5) | (1) | (2) |
| AUXILIARY FEEDWATER (5106A) | PP-3W PP-3E PP-4 | NO NO YES | YES YES YES | YES YES YES | YES* YES* YES* | YES YES YES | YES YES YES | QUARTERLY QUARTERLY QUARTERLY | |
| ESSENTIAL SERVICE WATER (5113) | PP-7W PP-7E | NO NO | YES (3) YES (3) | YES YES | YES YES | YES YES | YES YES | QUARTERLY QUARTERLY | |
| CENTRIFUGAL CHARGING (5129) | PP-50W PP-50E | NO NO | YES YES | YES YES | NO** NO** | YES YES | YES YES | QUARTERLY QUARTERLY | |
| BORIC ACID TRANSFER (5131) | PP-46-1 PP-46-2 PP-46-3 PP-46-4 | NO NO NO NO | YES (3) YES (3) YES (3) YES (3) | YES YES YES YES | NO* NO* NO* NO* | YES YES YES YES | YES YES YES YES | QUARTERLY QUARTERLY QUARTERLY QUARTERLY | |
| COMPONENT COOLING WATER (5135A) | PP-10W PP-10E | NO NO | YES YES | YES YES | YES YES | YES YES | YES YES | QUARTERLY QUARTERLY | |
| SAFETY INJECTION (5142) | PP-26N PP-26S | NO NO | YES YES | YES YES | NO** NO** | YES YES | YES YES | QUARTERLY QUARTERLY | |
| RESIDUAL HEAT REMOVAL (5143) | PP-35W PP-35E | NO NO | YES YES | YES YES | YES* YES* | YES YES | YES YES | QUARTERLY QUARTERLY | |
| CONTAINMENT SPRAY (5144) | PP-9W PP-9E | NO NO | YES YES | YES YES | YES* YES* | YES YES | YES YES | QUARTERLY QUARTERLY | |

(1) Bearing Temperature will be measured annually - per Section XI Code Subarticle IWP - 3300

(2) Refer to TABLE B.

(3) Inlet Pressure Measurement is Head of Liquid.

(4) Refer to TABLE C.

(5) Refer to TABLE D.

* Pumps are tested on by-pass (test) loops since it is impractical to test in regular circuits - per Section XI Code Subarticle IWP - 1400

** Pumps are tested on recirculation (minimum flow) paths to prevent unsafe operating conditions (impractical to align system for full flow test) - per Section XI Code Subarticle IWP - 1400

DONALD C. COOK NUCLEAR PLANT - UNITS NO. 1 AND 2

PUMP INSERVICE TEST PROGRAM

TABLE B

CODE RELIEF REQUEST

Test Frequency

- a. Request that frequency of testing be changed from monthly to quarterly for the following pumps:*

Auxiliary Feedwater Pumps
Centrifugal Charging Pumps
Containment Spray Pumps
Residual Heat Removal Pumps
Safety Injection Pumps

The requirement of the testing of the pumps at monthly intervals causes unnecessary operation of safeguards equipment which could be detrimental to the availability, operability and useful service life of the equipment.

- b. Request that frequency of testing be changed from monthly to quarterly for the following pumps:*

Boric Acid Transfer Pumps
Component Cooling Water Pumps
Essential Service Water Pumps

One or more of each of these pumps are generally in operation. However to provide a uniform test program, the frequency of testing should be the same for all pumps involved in the program.

Additional Alternative Testing

Pump shafts will be rotated monthly by hand or by operating the pump.

* Note: This quarterly test frequency is in accordance with the 1980 Edition of Section XI, Subarticle IWP-3400.

DONALD C. COOK NUCLEAR PLANT- UNITS NO. 1 AND 2
PUMP INSERVICE TEST PROGRAM

TABLE C

CODE RELIEF REQUEST

Vibration Measurement

Request that vibration amplitude, as specified in Section XI Subarticle IWP-4510, be measured in terms of velocity, inches per second peak instead of peak to peak displacement.

The major characteristics of vibration are displacement and frequency. Velocity provides a better indication of vibration severity because it includes both displacement and the frequency of displacement.

Since velocity is directly related to displacement, the velocity acceptance criteria for vibration amplitude is consistent to the acceptance criteria for displacement as specified in Table IWP - 3100-2.

DONALD C. COOK NUCLEAR PLANT - UNITS NO. 1 AND 2

PUMP INSERVICE TEST PROGRAM

TABLE D

CODE RELIEF REQUEST

Bearing Temperature Measurement

Request that the pump bearing temperature requirements, per Section XI Subarticle IWP-4310, be amended for the Essential Service Water Pumps and the Boric Acid Transfer Pumps.

- a. Except for one bearing assembly located within the ESW motor stand, the remaining pump shaft bearings are located below the main pump flange and are inaccessible.

In addition to measuring the single accessible ESW pump bearing, temperatures will also be measured on the motor bearing blocks.

- b. Only one boric acid pump motor bearing is accessible for temperature measurement, as the pump is completely encased. The single motor bearing temperature will be measured on each pump.