ATTACHMENT 1 TO AEP:NRC:0969R

DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2
INSERVICE TESTING PUMP PROGRAM
REVISION 2

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 Section XI, Subsection IWP of the 1983 Edition of the ASME Boiler and Pressure Vessel Code through Summer 1983 Addenda, except for specific code relief, requested in accordance with 10 CFR 50.55a(g)(5)(iii). Exemptions or ammendments are identified in Code Relief Requests I and II.

B. This pump test program is for the 2nd ten year inspection/test interval commencing July 1, 1986 for both Unit 1 and Unit 2.

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 (Drawing No.)	Pump Number	TEST PARAMETERS: Speed N	Inlet Pressure P_i	Differential Pressure DP	Flow Rate Q	Vibration Amplitude V	Bearing[c] Temperature T_b	Test Frequency (1)
Auxiliary[a] Feedwater (5106A)	PP-3W	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-3E	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-4	Yes	Yes	Yes	Yes	Yes	Yes	Quarterly
Essential[b] Service Water (5113)	PP-7W	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-7E	No	Yes	Yes	Yes	Yes	Yes	Quarterly
Centrifugal Charging (5129)	PP-50W	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-50E	No	Yes	Yes	Yes	Yes	Yes	Quarterly.
Boric Acid[b] Transfer (5131)	PP-46-1	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-46-2	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-46-3	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-46-4	No	Yes	Yes	Yes	Yes	Yes	Quarterly
Component Cooling Water (5135A)	PP-10W	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-10E	No	Yes	Yes	Yes	Yes	Yes	Quarterly
Safety[a] Injection (5142)	PP-26N	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-26S	No	Yes	Yes	Yes	Yes	Yes	Quarterly
Residual[a] Heat Removal (5143)	PP-35W	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-35E	No	Yes	Yes	Yes	Yes	Yes	Quarterly

Pump Service (Drawing No.)	Pump Number	TEST PARAMETERS						
		Speed N	Inlet Pressure P_i	Differential Pressure DP	Flow Rate Q	Vibration Amplitude V	Bearing[c] Temperature T_b	Test Frequency (1)
Containment[a] Spray (5144)	PP-9W	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-9E	No	Yes	Yes	Yes	Yes	Yes	Quarterly
Diesel Fuel Oil Transfer (5151)	QT-106-AB1	No	Yes	Yes	Yes (2)	Yes	No (1)	Quarterly
	QT-106-AB2	No	Yes	Yes	Yes (2)	Yes	No (1)	Quarterly
	QT-106-CD1	No	Yes	Yes	Yes (2)	Yes	No (1)	Quarterly
	QT-106-CD2	No	Yes	Yes	Yes (2)	Yes	No (1)	Quarterly
Spent Fuel Pit Cooling (5136)	PP-31N	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	PP-31S	No	Yes	Yes	Yes	Yes	Yes	Quarterly
Jacket Water (5151B)	QT-130-AB1	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	QT-130-AB2	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	QT-130-CD1	No	Yes	Yes	Yes	Yes	Yes	Quarterly
	QT-130-CD2	No	Yes	Yes	Yes	Yes	Yes	Quarterly

a These pumps are tested on test, bypass or minimum flow loops - per Section XI Subarticle IWP-1400.

b Inlet pressure measurement is in head of liquid, ft.

c Bearing temperatures will be measured annually, per Section XI IWP-3300 except as noted.

(1) Refer to Code Relief Request I

(2) Refer to Code Relief Request II

DONALD C. COOK NUCLEAR PLANT - UNITS NO. 1 AND 2
PUMP INSERVICE TEST PROGRAM
CODE RELIEF REQUEST I
Bearing Temperature Measurement

We believe that the intent of Paragraph IWP-4310 is to exempt those pump bearings in the main flow path from temperature measurement requirements. However, if code relief is required, we request that the Diesel Fuel Oil Transfer Pumps be exempt from bearing temperature requirements as stated in Section XI, Subarticle IWP-3300.

The inboard and outboard sleeve bearings on those two HP gear pumps are lubricated and cooled by the pumped fluid. Temperature readings are therefore inconclusive since bearing measurement points are not responsive to the changes in bearing temperatures.

Bearing problems on gear pumps can be more readily identified by degradation of pump capacity. Flow rate deterioration indicates the existence of excessive clearance due to bearing wear and problems.

In addition, the code required pump running time for yearly bearing temperature measurement can not be met due to the limited capacity of the diesel generator fuel oil day tank.

DONALD C. COOK NUCLEAR PLANT - UNITS NO. 1 AND 2
PUMP INSERVICE TEST PROGRAM
CODE RELIEF REQUEST II
Duration of Tests

Request that the duration of pump operation for testing, per Section XI Subarticle IWP-3500, be amended for the Diesel Fuel Oil Transfer Pumps.

These pumps supply the diesel generator fuel oil day tank. A conservative level is maintained in the tank to meet the minimum capacity per Technical Specification requirements. Due to the limited capacity of this tank, the pump operating test range is restricted. It is requested to record test parameters immediately after pump operation has stabilized.

ATTACHMENT 2 TO AEP:NRC:0969R

INSERVICE TESTING PROGRAM FOR VALVES,
UNIT 1, REVISION 3, FEBRUARY 5, 1990

ATTACHMENT 3 TO AEP:NRC:0969R

INSERVICE TESTING PROGRAM FOR VALVES,
UNIT 2, REVISION 3, FEBRUARY 5, 1990

ATTACHMENT 4 TO AEP:NRC:0969R

SUMMARY OF REVISION 2, IST PUMP PROGRAM AND
REVISION 3, IST VALVE PROGRAM

SUMMARY OF REVISIONS

The IST Program (Second 10-Year Inspection Interval) for Donald C. Cook Nuclear Plant, Units 1 and 2 has been revised (Pump Program Revision 2, Valve Program Revision 3) to reflect the changes required by the Safety Evaluation Report (SER) dated August 29, 1989, Supplemental SER (SSER) dated November 28, 1989 and Generic Letter 89-04.

1) The specific issues described in Enclosure 3 of the SSER, and our responses to each, are listed below:

Appendix C, No. 17 (3.2.1)

Flow instrumentation will be installed on the spent fuel pit cooling pumps (tentative completion date is January 31, 1990).

Response: Installation of the flow instrumentation was completed by January 31, 1990. Therefore, Code Relief Request III has been deleted from the pump program.

Appendix C, No. 3 (4.2.1.1)

Closure of main steam to turbine driven auxiliary feedwater pump (TDAFP) check valves (MS-108-2 and -3) will be verified in accordance with Generic Letter 89-04.

Response: The IST Valve Program has been revised to reflect this change.

Appendix C, No. 14 (4.4.1.1)

The essential service water to auxiliary feed pump suction valves will be tested on a cold shutdown frequency.

Response: The IST Valve Program has been revised to reflect this change.

Appendix C, No. 5

A revision to the IST program notes will indicate that the TDAFP suction and discharge valves will be part stroke exercised quarterly and full stroke exercised at a cold shutdown frequency. The staff concurred with the licensee's resolution.

Response: The IST Valve Program has been revised to reflect this change.

Appendix C, No. 2 (4.1.1)

The IST program will be revised to designate valves with maximum limiting stroke times of up to two seconds as "fast acting valves". The staff agreed that stroke times do not need to be specified in the program and concurred with the licensee's resolution.

Response: The IST Valve Program has been revised to reflect this change. All power operated valves that are stroke timed are indicated by ET-XXX in the Valve Summary Sheets. Stroke time limiting values have been removed from the IST program and are identified and controlled via the Plant Technical Data Book and plant procedures. This has been referenced in Figure 1 and Figure 3 of the IST Program. This change was made per the NRC recommendation made during the meeting.

Appendix C, No. 3

The program will be changed to indicate that disassembly of check valves will be performed in accordance with Generic Letter 89-04 (disassembly accepted instead of testing in some cases where testing proved impractical). The staff indicated some concern about the possibility of incorrect reassembly of bonnet-hinged check valves. AEP indicated that bonnet-hinged check valves can be backflow tested and would not have to be disassembled under the IST program.

AEP requested clarification on the requirement to test different sized valves of the same type and manufacturer at a given frequency. The staff suggested that AEP might want to consider separating the valve sizes into two groups and changing the frequency, as allowed by Generic Letter 89-04, if it can be justified based on in-service experience.

Response: The Containment Spray Check Valves (CTS-127E&W,-131 E&W and RH-141 and -142) are bonnet-hinged design valves. These valves are seat leakage tested to verify backflow before (as found) and after disassembly which ensures proper reassembly of the valve internals.

The IST Program has been revised to reference GL 89-04 for alternative testing method requirements (i.e., grouping, frequency, etc.) for the check valves as required.

Appendix C, No. 12

AEP stated that the diesel generator air start valves XRV-221 and -222 have no required fail safe position and fail safe testing should not be required. (Valves fail in one position

on loss of instrument air and in the other position on loss of DC power.) The staff concurred with the licensee's conclusion.

Response: The IST valve Program has been revised to reflect this change for starting air valves. In addition, code relief notes for valves XRV-221, -222, -226 and -227 (Starting air) and -XRV-220 and -225 (Jet assist) for the emergency diesel generators also have been revised to reflect changes in testing frequency due to new Technical Specification 4.8.1.1.2 requirements approved by the NRC.

Appendix C, No. 16

AEP clarified that no relief was required for testing of essential service water to diesel generator cooling check valves since all required tests for Section XI are already performed.

Response: The IST Valve Program (notes) has been revised to clarify above.

Appendix C, No. 4 (4.3.1.1)

AEP discussed the burden involved in disassembly of feedwater header check valves (FW-118-1, -2, -3 and -4) at every cold shutdown and proposed to disassemble the valves on a refueling outage frequency. The staff found the licensee's resolution acceptable.

Response: The IST Valve Program has been revised to reflect this change.

Appendix C, No. 9 (4.7.1.1)

Additional justification was also provided for not fail safe testing and stroke timing normal charging control valves QRV-200 and -251. AEP contends that stroke timing is impractical because there is no local or remote position indicator on the valves. The staff agreed that locally verifying smooth full travel of the valve would be adequate. AEP explained to the staff that QRV-200 does not have a fail safe position. Furthermore, AEP indicated that fail safe testing of the QRV-251 valve was impractical and would require disassembly of the air supply line. However, AEP committed to investigate possible ways in which to perform fail safe testing of QRV-251 (e.g., adding a valve to the air supply line if necessary).

Response: The IST Valve Program has been revised to reflect this change. To "fail-safe" test valve QRV-251, an alternative testing method is being proposed which duplicates the fail-safe condition using the existing control scheme. This method is described in the code relief notes for QRV-251 in lieu of modification (install hand valves in the control air lines).

Appendix C, No. 13 (4.8.1.1)

The staff agreed with the AEP justification for fail safe testing the letdown heat exchanger temperature control valve (CRV-470) only on a cold shutdown frequency (i.e., not at power).

Response: The IST Program has been revised to reflect this change.

Appendix C, No. 8 (4.6.1.3)

AEP's proposal for testing containment isolation check valve (SI-189) was consistent with Generic Letter 89-04 but still a code deviation. The staff determined that the licensee's proposal to part stroke test on a cold shutdown frequency and full stroke test on a refueling outage frequency is acceptable.

Response: The IST Program has been revised to reflect this change. Full stroke testing in the open position will be done in accordance with the alternative method described in GL 89-04 as described in the code relief notes.

Appendix C, No. 11

With regard to RHR pump discharge line check valves (RHR-108E and -108W): AEP proposed to conduct a part stroke test on a quarterly basis and a full stroke test during cold shutdown. The staff agreed with this since full stroke of the valve at full power is undesirable and since the line isn't instrumented for full flow.

Response: The IST Program has been revised to reflect this change.

Appendix C, No. 7 (4.6.2)

AEP proposed to test the reactor head vent valves and the pressurizer vent valves during cold shutdowns when the RCS pressure is less than or equal to 80 psig for personnel safety considerations. The staff asked the licensee to explain the basis for the 80 psig pressure constraint. AEP notified the NRC Project Manager on 11/15/89 that these valves would be tested during cold shutdown in accordance with Code requirements.

Response: The IST Program has been revised to reflect this change.

2) The entire IST Valve Program has been re-reviewed and revised as necessary for clarity and consistency to alleviate anomalies identified in the SER (i.e., SER Appendix C, Items 6, 10 and 15).

SER Appendix C, Item 6

The NRC staff position regarding containment isolation valve testing is explained in Generic Letter 89-04. Testing containment isolation valves in accordance with the requirements of 10 CFR 50, Appendix J, and Section XI, IWV-3426 and 3427(a), is acceptable. Since this position represents a deviation from the Code requirements, it should be documented in the IST Program.

Response: The IST Program has been revised to document testing containment isolation valves in accordance with the requirements of 10 CFR 50, Appendix J and Section XI, IWV-3426 and 3427(a).

SER Appendix C, Item 10

The licensee lists the testing being performed on valves SI-170 L1, L2, L3 and L4 as note 6. Note 6 is the relief request from exercising valves SI-161 L1, L2, L3 and L4. This discrepancy should be corrected.

Response: The IST Program has been revised to correct this discrepancy.

SER Appendix C, Item 15

The Cook Nuclear Plant IST Program valve table lists valves IMO-330, -331, -340 and -350 as being tested quarterly in accordance with Section XI. The licensee requested relief from quarterly testing requirements in letters to the NRC dated October 31, 1986, and November 20, 1987, and the licensee was granted interim relief. Additionally, this relief request should be included in the IST Program.

Response: The IST Program has been revised to include relief request for valves IMO-340 and -350 as granted by the NRC dated January 30, 1989.

3) In addition, the following changes have been made to the program.

Code relief requests or cold shutdown justifications for the following valves have been revised to clarify the testing methods and/or frequency that will be employed at the Cook Nuclear Plant.

WRV-721, -723, -725 and 727-Unit-1 WRV-722, -724, -726 and 728-Unit-2	(Code Relief #3) Drawing No. 1-5113 Drawing No. 2-5113
XRV-220-Jet Assist (Turbo Charger)-Unit-1	(Code Relief #3 and 4)

XRV-225-Jet Assist (Turbo Charger)-Unit-2	Drawing No. 1-5151B and D
XRV-221 and -222-Starting Air-Unit 1	Drawing No. 2-5151B and D
XRV-226 and -227-Starting Air-Unit 1	
CTS-109 & -110 -Units 1 and 2	(Cold Shutdown Justification #6)
	Drawing No. 1-5144
	Drawing No. 2-5144
VRV-315 and -325 -Units 1 and 2	(Code Relief #1)
	Drawing No. 1-5149
	Drawing No. 2-5149

Revised permissible leakage values per calculation ECP-1-2-IO-01 Rev. 1.

1-CTS-131 East & West	Paragraph #2,
2-CTS-131 East & West	Attachment A

The following check valves have been removed from the program since the valve internals were removed under Modification Package 12-MM-019.

DG-131A and -C-Unit-1	Drawing No. 1-5151B and D
DG-133A and -C-Unit-1	Drawing No. 2-5151B and D
DG-132A and -C-Unit-2	
DG-134A and -C-Unit-2	

All notes in the IST Program have been revised to state whether it is a code relief or cold shutdown justification or comment associated with specific valve(s) as suggested by the NRC during the meeting (Appendix C, No. 1).

The diesel jacket water cooling pumps have been incorporated into the program (Drawing No. 1-5151B and 2-5151B) due to review of Generic Letter 89-04. The pumps will be entered into the program by July 1, 1990, the additional time allowing for procedures to be written.