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SUBJECT: Forwards Rev 2 to "DC Cook Nuclear Plant Unit 1 Inservice Testing Valve Program" & "DC Cook Nuclear Plant Unit 2 Inservice Testing Valve Program." Fee paid.

SEE Repts.

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Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
UPDATED INSERVICE TESTING PROGRAM

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

Attn: T. E. Murley

October 5, 1987

Dear Dr. Murley:

Re: NRC Letter from Mr. D. L. Wigginton dated August 6, 1987, "Summary of Meeting Held on July 14-15, 1987, to Discuss Second 10-Year Inservice Testing Program"

This letter and its attachments are in response to the above-referenced letter for the Second 10-Year Inservice Testing (IST) Program for Pumps and Valves for the Donald C. Cook Nuclear Plant. The Second 10-Year IST Program was submitted to your office by our letter AEP:NRC:0969, dated December 31, 1985. This submittal addresses the "Questions, Comments, and Resolutions" agreed upon in a meeting between the NRC staff, the NRC consultant (EG&G) and AEPSC on July 14-15, 1987. The attachments to this letter are as follows:

Attachment No. 1: Inservice Testing Program for Pumps - Units 1 and 2, Revision 1, dated September 1, 1987.

Attachment No. 2: Inservice Testing Program for Valves - Unit 1, Revision 2, dated August 31, 1987.

Attachment No. 3: Inservice Testing Program for Valves - Unit 2, Revision 2, dated August 31, 1987.

Attachment No. 4: Summary of Revision 2, IST Valve Program.

Attachment No. 5: Guide to Revised IST Valve Program.

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The first three attachments comprise the revised IST Program for the second ten-year interval for pumps and valves. This submittal replaces the IST Pump and Valve Program submitted December 31, 1985. The IST program enclosed has been revised to address the issues discussed in the meeting on July 14-15, 1987 between the NRC staff and our staff.

This letter is being transmitted to you prior to formal review by the Plant Nuclear Safety Review Committee (PNSRC) or the Nuclear Safety Design Review Committee (NSDRC). We do not anticipate any major changes resulting from NSDRC or PNSRC review, but should that occur, we will notify you as appropriate.

A check in the amount of $150.00 is enclosed with this letter for the NRC review of the Inservice Testing Program.

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.

Sincerely,

M. P. Alexich
Vice President

MPA/cm

cc: John E. Dolan (w/o attachments)
W. G. Smith, Jr. - Bridgman
R. C. Callen (w/o attachments)
G. Bruchmann (w/o attachments)
G. Charnoff (w/o attachments)
NRC Resident Inspector - Bridgman
A. B. Davis - Region III

ATTACHMENT NO. 1

TO

AEP:NRC:0969H

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, II, and III

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 DWG. NO.	PUMP NUMBER	TEST PARAMETERS SPEED N	INLET PRESSURE P_i	DIFFERENTIAL PRESSURE P	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
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	NO (3)	YES	YES	QUARTERLY
	PP-31S	NO	YES	YES	NO (3)	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.

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

TABLE A
(CONTINUED)

PROGRAM SUMMARY

(1) Refer to Code Relief Request I
(2) Refer to Code Relief Request II
(3) Refer to Code Relief Request III

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 2 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 temperature.

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.

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

PUMP INSERVICE TEST PROGRAM

CODE RELIEF REQUEST III

Flow Measurement of Spent Fuel Pit Cooling Pumps

We request that the Spent Fuel Pit Cooling Pumps be exempt from flow measurement as required in Section XI, Subarticle IWP-3100 and Table IWP-3100-1, of the 1983 ASME Boiler and Pressure Vessel Code since the original design of the spent fuel pit cooling system did not incorporate flow measuring devices for these pumps.

The primary function of the spent fuel pit cooling system is to remove the decay heat generated by the spent fuel elements stored in the pit. The water from the pit flows to the suction of the spent fuel pit cooling pump and is pumped, through a heat exchanger where it is cooled, back to the spent fuel pit. Duplicate pumping loops are provided to assure proper back-up. By setting the discharge valve downstream of the heat exchanger to a specific predetermined setting, a repeatable system with a fixed resistance has been established. We propose to measure the differential pressure of the spent fuel pit cooling pump(s) in this fixed configuration to ascertain their operational readiness and determine any potential degradation. The water in this system is of high purity which precludes the fouling of the system, hence changes in differential pressure would be a good indication of changes in pump performance. In addition, pump vibration is measured and trended which would indicate potential mechanical problems. 1

While the spent fuel pit system provides cooling of the spent fuel pit water, it is not required for the safe shutdown of the plant nor does it mitigate the consequences of an accident. It is the level in the pit that determines the adequacy of the spent fuel pit cooling system. Failure of the redundant pumps would not jeopardize the cooling system since makeup water is available from the following sources to maintain level:

1. Refueling water storage tanks via the refueling water purification pumps.

2. Primary water storage tank.

3. Auxiliary building fire header via temporary hoses.

The spent fuel pit cooling system is closely monitored. Low level and high temperature as well as spent fuel pit cooling pump failure alarms would annunciate to indicate an abnormal condition and specifically a loss of cooling water flow. This would allow for the timely switch over to the redundant cooling pump and/or to correct any system problems.

The redundant spent fuel cooling pumps are of the horizontal centrifugal type with stainless steel materials and very reliable, especially in a fixed system with good water such as exists in the spent fuel pit cooling system. A review of all maintenance records on these pumps indicate there have been no failures and, further, the maintenance performed has been routine in nature. 1

In view of the above, we contend that the spent fuel pit cooling pumps can be properly monitored without measuring flow and without sacrificing any reliability to the spent fuel pit cooling system.

ATTACHMENT NO. 4
TO
AEP:NRC:0969H

ATTACHMENT 4 AEP:NRC:969H

SUMMARY OF REVISION 2

IST Valve Program

REFERENCE 1: NRC letter dated August 6, 1987, "D. C. Cook Nuclear Power Station, Units 1 and 2 Pump and Valve Inservice Testing Program Questions, Comments, and Resolutions"

1. The IST Valve Program (Relief Requests Notes and Valve Summary Sheets, etc.) has been revised to provide additional technical justification to answer the unresolved questions from Reference 1. They are indicated as Revision 2. Attachment 5, Guide to Revised IST Valve Program, indicates the page of the IST Valve Program that was revised to resolve each of the open questions. The following questions were resolved and no further response is required: A-1, A-2, A-3, C-1, D-1, H-1, H-4, H-5, H-10, J-1, N-1, and O-1.

2. Revised relief request notes for valves 1-PA-343, Unit 1 and 2-PA-242 and 2-PCR-40, Unit 2. Deleted relief request notes for valves 1-PCR-40 and 2-PCR-40 (Units 1 & 2) as indicated on the valve summary sheets.

3. Revised relief request note "H" (Fig. 1) for Fast Acting Valve's limiting values from two seconds to five seconds.

4. Added/revised code relief requests for quarterly stroke testing for The following containment isolation check valves: (NRC Question No. G-1)

Valve No.	Dwg. No.	Valve No.	Dwg. No.
1-NS-357	1-5124	2-NS-357	2-5124
1-PW-275	1-5128A	2-PW-275	2-5128A
1-CCW-243-25	1-5135B	2-CCW-243-25	2-5135B
1-CCW-243-72	1-5135B	2-CCW-243-72	2-5135B
1-CCW-244-25	1-5135B	2-CCW-244-25	2-5135B
1-CCW-244-72	1-5135B	2-CCW-244-72	2-5135B
1-N-159	1-5128A	2-N-159	2-5128A

5. Additional technical justification has been provided in the revised relief request notes for valves 1-SI-148 and 2-SI-148 (NRC Question No. H-6). Our previous code relief for check valve SI-148, which is located in the RWST supply line to the RHR system, cited that partial stroking of this valve at power or cold shutdown frequency could introduce entrained air in the RHR system into the suction of ECCS pumps.

The air entrainment concerns have been addressed by changes to operating procedures. In particular, operation of the RHR system at 1/2 loop is restricted to only one operating RHR pump at all times to prevent vortexing and air entrainment. Two pump operation during pump transfer at 1/2 loop is believed to have been the primary source of air in this system. The administrative increase of the 1/2 loop level by 8" has also assisted in minimizing the potential for air introduction in the RHR system. Based on these administrative changes, RHR air entrainment, though still a concern, is controlled to a point where it would not restrict part stroke testing of SI-148 in accordance with Section XI requirements.

The testing for SI-148 is: part-stroke testing every three months and full-stroke testing during refueling outages. Cold Shutdown Justification and Code Relief Request is provided in the Relief Request Note.

6. Minor editorial changes made to the valve program are as follows:

   a. Flow diagram changes (revision number, coordinates, valve, identifications, etc.)
   b. Revised Revision 2 date to August 31, 1987, except for Valve Summary Sheets)
   c. Revised Figure 3 explanatory notes for clarity as indicated. Also added ASME Code, Section XI, references as applicable.
   d. Added flow diagram 1-5105D and due to the latest revision, the listing of valves have been changed as follows:

From 1-5105 to 1-5105D	From 2-5105 to 2-5105B
1-MRV-210,-220,-230,-240 -211,-221,-231,-241 -212,-222,-232,-242 1-MS-108-2 and 1-MS-108-3 1-MCM-221 and -231	2-DCR-310,-320,-330,-340
All (20) Unit 1 Main Steam Safety Valves	

From 1-5106 to 1-5101D
1-FW-118-1 through -4

ATTACHMENT NO. 5
TO
AEP:NRC:0969H

ATTACHMENT NO. 5
TO
AEP:NRC:0969H

D. C. COOK NUCLEAR POWER STATION, UNITS 1 AND 2
PUMP AND VALVE INSERVICE TESTING PROGRAM
QUESTIONS, COMMENTS, AND RESOLUTIONS

"GUIDE" TO REVISED IST VALVE PROGRAM

1. VALVE TESTING PROGRAM

A. General Questions and Comments

	UNIT-1	UNIT-2
1. List any valves that are Appendix J, Type C, leak rate tested that are not included in the D. C. Cook IST programs?		
Resolution: All valves, except those excluded by IWV-1200, that are Appendix J, Type C, leak rate tested are included in the D. C. Cook IST program.	NO CHANGE OR RESPONSE REQUIRED.	NO CHANGE OR RESPONSE REQUIRED.
2. The entry in the test mode column of the valve listing table is often misleading because it does not always reflect the frequency at which the Code testing requirements are being met (as an example, listing a "P" for testing during power operations when a valve is being partial-stroke exercised quarterly and full-stroke exercised during refueling outages leads a person to believe that the testing is completed quarterly, when in actuality it is not completed until the refueling outage).		
Resolution: Procedures are prepared for the detailed testing. These procedures identify the required testing and the associated testing frequency.	NO CHANGE OR RESPONSE REQ'D	NO CHANGE OR RESPONS REQ'D
3. How does the SLT-1 seat leakage test differ from the leak rate testing requirements of Section XI, Paragraph IWV-3420?		

Resolution:

The SLT-1 testing designation refers to testing as per Section XI requirements. The technical specifications identify as PIVs the same four valves identified in the first 10-year IST program.

UNIT-1	UNIT-2
NO CHANGE OR RESPONSE REQ'D	NO CHANG OR RESPO REQ'D.

4. Has Testing Procedure No. 12THP-4030-STP-237 been approved by the NRC staff to be used in lieu of the Appendix J testing for those valves identified for the SLT-2A seat leakage test?

Resolution:

The procedure has previously been approved by NRC. The procedure will be described in the revised IST program and the history of procedure approval will be described.

NOTE FOR "SLT-2A" REVISED PAGE 13	NOTE FOR "SLT-2A" REVISED PAGE 13

5. Test method EF-8 is identified to be performed on a cold shutdown frequency in the introduction, however, in the valve listing table it is sometimes identified for a refueling outage frequency.

Resolution:

The definition of EF-8 will be modified to include refueling outage frequency.

NOTE FOR EF-8 REVISED PAGE 11	NOTE FOR EF-8 REVIS PAGE 11

6. What criteria is utilized for assigning limiting values of full-stroke time for power operated valves?

Resolution:

The design data, manufacturers data and FSAR requirements have been reviewed and factored into the program. The average of 4 stroke times was determined for a valve. The limiting stroke time is 150% of the average time which is more restrictive than the code for valves that are trended.

REVISED PARAGRAPHS "G" AND "H", FIG. 1 PAGES 6-8,	REVISED PARAGRAPH "G" AND "H" FIG 1, PAGE 6-8

UNIT-1	UNIT-2

Designated fast acting valves with less than a 2 second stroke time are not trended and are treated as fast acting valves as per the NRC method for fast acting valves. The licensee will provide a summary of the criteria used for assigning limiting values of the full-stroke time in the IST program resubmittal.

B. Main Steam System

1. What percentage of the steam flow required through valves MS-108-2 and -3 for the turbine driven auxiliary feedwater pump to pump 900 gpm into the steam generators at operating pressures is needed to pump 700 gpm through the pump test flow path? On what basis is this partial flow test considered sufficient to verify the full-stroke capability of these valves (refer to main steam system Note 2)?

Resolution:

Ninety percent of the design steam flow is needed to pump 700 gpm. The relief request will be modified to provide a more detailed justification and basis for the impracticality of full-stroke exercising the valves.

REVISED NOTE 2 PAGE 14	REVISED NOTE 3 PAGE 15

2. Radiography may be an acceptable alternate testing method to determine valve disk position, however, the reviewers are not aware of a method of testing by radiography that provides a reasonable assurance of the reverse flow closure capability of check valves that perform a safety function in the closed position. How can radiography be used to assure the reverse flow capability of valves MS-108-2 and -3?

Resolution:

The licensee will provide a detailed justification to support the use of radiography to provide assurance of valve full-stroking. Also, the licensee will describe the method

REVISED NOTE 2 ON PAGE 14, PARAGRAPH "E" ON PAGE 5	REVISED NOTE 3 ON PAGE 15, PARAGRAPH ON PAGES 4

used to sample the valves and group the valves for disassembly.

C. Feedwater System

UNIT-1	UNIT-2

1. What flowrate is established through the pump test flow paths during the quarterly testing of the motor driven auxiliary feedwater pumps? What is the design accident flowrate through check valves FW-124 and -128?

Resolution:

Greater than design accident flow is established during testing.

NO CHANGE OR RESPONSE REQ'D

NO CHANG OR RESPON REQ'D.

2. How is it verified that sufficient flow passes through valves FW-153 and -160 to full-stroke them open with flow quarterly?

Resolution:

A pressure decrease is used to determine that flow is established in the mini-flow line. The test method for stroking the valves will be described in the IST program.

ADDED NEW NOTE 1 PAGE 17 "VSS" REVISED

ADDED NEW NOTE PAGE 18 "VSS" REV

3. What is the safety related function of valve 12-CRV-51?

Resolution:

The IST program will be amended to show the valve safety function is closed and it will be tested as per Code requirements.

DELETED OLD NOTE 1 "VSS" REVISED

N/A

4. The NRC staff position is that verification of the maximum flow rate through a check valve identified in any of the plant's safety analyses would be an adequate demonstration of the full-stroke capability of tne valve. Provide a detailed

"VSS" = VALVE SUMMARY SHEETS

"VSS" - Valve Summary Sheets.

UNIT-1	UNIT-2

technical justification why this cannot be done to quarterly full-stroke exercise valves FW-134 and -135.

Resolution:

The licensee will provide additional justification for not testing these valves as per Section XI requirements.

REVISED NOTE 3 PAGE 17	REVISED NOTE 2 PAGE 17

5. Is credit taken for the reverse flow closure of any of the check valves in the flow paths of the auxiliary feedwater pumps to the steam generators? If so, how are these valves individually verified to close?

Resolution:

The temperature of the auxiliary feed line is monitored to determine valve closure at least quarterly. This method will be described in the IST program and the closed safety function of the appropriate valves will be identified that are tested using this method.

REVISED NOTE 2 ON PAGE 17 & NOTE 4 ON PAGE 18 "VSS" REVISED.	REVISED NOTE 1 ON PAGE 17 AND NOTE 3 ON PAGE 18 "VSS" REVISED.

D. Essential Service Water System

1. If valves ESW-101E and -101W perform a safety function in the closed position to prevent reverse flow through an idle pump, they must be tested to the closed position to verify their ability to perform that function.

Resolution:

The ESW trains are not cross-connected and further information is not required.

NO CHANGE OR RESPONSE REQ'D.	NO CHANGE OR RESPONSE REQ'D.

"VSS" - VALVE SUMMARY SHEETS

E. Reactor Coolant System

UNIT-1

1. Provide a more detailed technical justification for not exercising valves NSO-021, -022, -023, and -024 during cold shutdowns.

Resolution:

Justification will be provided in the IST program for not testing these valves during cold shutdowns.

REVISED NOTE 1 ON PAGE 22 "VSS" REVISED

REVISED NOTE 1 ON PAGE 22. "VSS" REVISE

2. Provide a more detailed technical justification for not exercising valves NSO-061, -062, -063, and -064 during cold shutdowns.

Resolution:

Same as Item E.1 except the referenced information in the technical specification will be included in the IST program.

REVISED NOTE 6 ON PAGE 24 "VSS" REVISED

REVISED NOTE 6 ON PAGE 2 "VSS" REVIS

F. Chemical and Volume Control System

1. Explain how radiography can be used to verify reverse flow closure of check valve CS-292.

Resolution:

Justification for using radiography to test this valve will be provided in the IST program. A radiograph of this valve was examined. The radiograph showed that the valve was in the closed position and thus provided visual observation of valve closure.

REVISED NOTE 1 ON PAGE 25

REVISED NOTE 1 ON PAGE 25

2. What is the safety function of control valves QRV-200 and -251? The NRC staff position is that requests for relief will not be

evaluated for valves that do not perform a safety related function.

Resolution:

Valves QRV-200 and -251 are used for emergency boration in Modes 5 and 6 and should be in the IST program. Note 7 for valves QMO-200 and -201 will be corrected in the ISTprogram. The function of valves QRV-200 and -251 will be reevaluated and Notes 8 and 9 may be deleted. If these notes aren't deleted they will be modified to show impracticality of testing.

UNIT-1	UNIT-2
REVISED NOTES 7,8&9 ON PAGE 27	REVISED NOTES 7,8& ON PAGES26&2

G. Post Accident Sampling System

1. Unless valve NS-283 is verified in the closed position during the quarterly exercising test, relief is still required from the Section XI requirement to full-stroke exercise this check valve quarterly.

Resolution:

The valve list will be revised to show that relief is requested. In addition, closure testing of other check valves will be reviewed to see that relief is being requested as appropriate and included in the IST program.

UNIT-1	UNIT-2
REVISED NOTE 2 ON PAGE 34	REVISED NOTE 2 ON PAGE 33

H. Emergency Core Cooling System

1. If valves IMO-51, -52, -53, and -54 are ever required to change position to accomplish a specific function, they are not passive and must be exercised in accordance with the Code.

Resolution:

These valves are passive and, therefore, need not be included in the program.

UNIT-1	UNIT-2
NO CHAGE OR RESPONSE REQ'D	NO CHANGE OR RESPONSE REQ'D.

UNIT-1 UNIT-2

2. The use of IWV-3416 in emergency core cooling Note 2 for valves IMO-128 and ICM-129 is not appropriate since the RHR system is not out of service during power operations. An adequate justification is provided in the note which demonstrates the impracticality of exercising these valves during power operations and they should, therefore, be exercised on a cold shutdown frequency as provided for in the Code.

Resolution:

The last sentence in Note 2 will be deleted to eliminate reference to IWV-3416. The note will be modified to identify and justify valve testing during shutdown.

REVISED NOTE 2 ON PAGE 37 "VSS" REVISED

REVISED NOTE 2 PAGE 36 "VSS" REVI

3. If valve N-102 is opened during power operations to add nitrogen to the safety injection accumulators, then it is not a passive valve and should be tested to the requirements of IWV-3520 unless relief is requested from the Code requirements.

Resolution:

This is an active valve and a relief request will be provided for exercising the valve.

REVISED NOTE 14 ON PAGE 41

REVISED NOTE 14 PAGE 4C

4. If any credit is taken for closing valves IMO-110, -120, -130, and -140 in order to allow the reduction of RCS pressure to permit the RHR system to be placed into operation in the recirculation mode, they perform an active safety function and should be included in the IST program.

Resolution:

This is an open item for the NRC to determine whether these valves must be included in the program as active valves.

NO CHANGE OR RESPONSE REQ'D.

NO CHAN OR RES REQ'D.

	UNIT-1	UNIT-2
5. Is credit taken in any accident analysis for shifting low pressure safety injection (RHR) pump suction from the refueling water storage tank to the containment recirculation sump? If so, valve IMO-390 performs an active safety function to isolate the suction from the RWST and should be tested in accordance with the Code.		
Resolution: Valves IMO-310 and -320 are required to close and isolate the pump suction from the RWST, therefore, IMO-390 does not have to be in the program.	NO CHANGE OR RESPONSE REQ'D.	NO CHANG OR RESPO REQ'D.
6. Have system modifications been performed to allow full-stroke exercising check valve SI-148 in accordance with the Code without jeopardizing the availability of other safety systems?		
Resolution: The licensee will rewrite the basis for requesting relief and will include in the resubmittal the resolution of the air entrainment problem identified in the SER for the first 10-year interval.	REVISED NOTE 9 ON PAGE 39 "VSS" REVISED	REVISED NOTE 9 O PAGE 38 "VSS" REVIS
7. Provide a more detailed technical justification for not full-stroke exercising valves SI-158-L1, -L2, -L3, and -L4 during cold shutdowns.		
Resolution: The licensee will add a justification for not full-stroking these valves during cold shutdown to Note 12.	REVISED NOTE 12 ON PAGE 41	REVISED NOTE 12 ON PAGE
8. Provide a more detailed technical justification for not full-stroke exercising valves SI-161-L1, -L2, -L3, and -L4 during cold shutdowns.		

UNIT-1	UNIT-2
REVISED NOTE 6 ON PAGE 38	REVISED NOTE 6 O PAGE 3

Resolution:

Same as Item H.7.

9. Provide the detailed technical justification for not full or partial-stroke exercising valves SI-170-L1, -L2, -L3, and -L4 either quarterly during power operations or during cold shutdowns.

Resolution:

The licensee will provide a more detailed justification including identifying partial-stroking during cold shutdown.

REVISED NOTE 13 ON PAGE 41	REVISED NOTE 13 C PAGE 40

10. If valves ICM-311 and -321 are ever required to change position to accomplish a specific function, they are not passive and must be exercised in accordance with the Code.

Resolution:

These valves do not have to change position, are passive, and do not have to be included in the program.

NO CHANGE OR RESPONSE REQ'D.	NO CHNX OR RESPON REQ'D,

I. Containment Spray System

1. The NRC staff has concluded that a valve sample disassembly and inspection utilizing a manual full-stroke exercise of the valve disk is an acceptable method to verify a check valve's full-stroke capability. This program involves grouping similar valves together and testing one valve in each group during each refueling outage. The sampling technique requires that each valve in the group be of the same design (manufacturer, size, model number and materials of construction) and have the same service conditions. Additionally, at each disassembly it must be verified that the disassembled valve is capable of full-stroking and that its internals are structurally sound (no loose or corroded parts).

	UNIT-1	UNIT-2

A different valve of each group is required to be disassembled, inspected and manually full-stroke exercised at each refueling outage, until the entire group has been tested. If it is found that the disassembled vaive's full-stroke capability is in question, the remainder of the valves in that group must also be disassembled, inspected and manually full-stroke exercised during the same outage.

Are valves CTS-103E, -103W, -13[illegible], and -138W grouped together for sample disassembly and inspection? These valves do not appear to meet the NRC staff's criteria for grouping as explained above.

Resolution:

The licensee will either sample, group, inspect, and disassemble valves as per the stated NRC position or justify a deviation from this position.

	REVISED NOTE 1 ON PAGE 42 AND PARAGRAPH "E" ON PAGE 5	REVISED NOTE 1 ON PAGE 41 AND PARAGRAPH "E" ON PAGE 5

2. Are valves CTS-127E, -127W, -131E, and -13[illegible]W, and valves RH-141 and -142 grouped together for sample disassembly and inspection? These valves do not appear to meet the NRC staff's criteria for grouping as explained in Question I.1 above.

Resolution:

Same as Item I.1.

	SAME AS ABOVE EXCEPT NOTE 2	SAME AS ABOVE EXCEPT NOTE

J. Weld Channel Pressurization System

1. If valves CA-181-N and -S are opened during power operations, then they are not passive valves and should be tested to the requirements of IWV-3520 unless relief is requested from the Code requirements.

	UNIT-1	UNIT-2
Resolution:		
These valves are not opened during power operation and are passive and need not be exercised.	NO CHANGE OR RESPONSE REQ'D.	NO CHANGE OR RESPONSE REQ'D.
K. Ice Condenser Refrigeration System		
1. Unless valves R-156 and -157 are verified in the closed position during the quarterly exercising test, relief is still required from the Section XI requirement to full-stroke exercise these check valves quarterly.		
Resolution:		
The valve list will be changed to indicate relief is being requested and the basis for relief will be modified to include additional technical justification.	REVISED NOTE 1 ON PAGE 44	REVISED NOTE 1 O PAGE 43
L. Emergency Diesel Generator Subsystems		
1. Provide a more detailed technical justification for not measuring the stroke times for the following valves quarterly during power operations. Explain how the proposed testing individually verifies the operability of these valves. Do these valves have required fail-safe positions?		
XRV-220 XRV-221 XRV-222 XRV-225 XRV-226 XRV-227		
Resolution:		
The licensee will provide a more detailed technical justification for not measuring the stroke time of these valves. The licensee will review the fail-safe position of these valves and, if appropriate, provide a relief request for not fail-safe testing these valves.	REVISED NOTE 3 ON PAGE 48 AND NOTE 3 ON PAGE 51	REVISED NOTE 3 C PAGE 47 NOTE 3 C PAGE 5

"VSS" - VALVE SUMMARY SHEETS.

	UNIT-1	UNIT-2
2. Review the safety related function of valves 2-DG-102C and -104C (P&ID 2-5151D-26 coordinates H-4 and F-4) to determine if they should be included in the IST program.	N/A	"VSS" REVISED
Resolution:		
These valves will be included in the licensee's IST program.		
M. Compressed Air System		
1. What are the consequences of loss of containment control air that make the quarterly testing of valves XCR-100, -101, -102, and -103 impractical?		
Resolution:		
The licensee will provide a more detailed technical justification that shows that full-stroking these valves during power operation is impractical and will include a discussion of the consequences of loss of containment control air during operation.	REVISED NOTE 3 ON PAGE 54	REVISED NOTE 3 ON PAGE 53
N. Boron Make-up System		
1. If valves CS-415-1, -2, -3, and -4 perform a safety function in the closed position to prevent reverse flow through an idle boric acid transfer pump, they must be tested to the closed position to verify their ability to perform that function.		
Resolution:		
These valves do not have a safety function in the closed position and, therefore, do not have to be tested to the closed position.	NO CHANGE OR RESPONSE REQ'D.	NO CHANGE OR RESPON. REQ'D

O. Spent Fuel Pit Cooling and Clean-up System

1. If valves SF-118N and S perform a safety function in the closed position to prevent reverse flow through an idle spent fuel pit pump, they must be tested to the closed position to verify their ability to perform that function.

Resolution:

These valves do not have a safety function in the closed position because sufficient water will pass through the heat exchanger prior to returning to the fuel storage pool.

UNIT-1: NO CHANGE OR RESPONSE REQ'D.

UNIT-2: NO CHANGE OR RESP REQ'D.

P. WDS Vents and Drains System

1. Provide a more detailed technical justification for not exercising valve N-160 during cold shutdowns.

Resolution:

The licensee will provide justification for testing this valve during cold shutdowns.

UNIT-1: REVISED NOTE 2 ON PAGE 57

UNIT-2: REVISED NOTE 2 PAGE 5[illegible]

Q. PAL Sampling and Instrumentation System

1. Reduction of redundancy is not an adequate justification for not performing the Code required testing; how long can one of the lower containment radiation monitor trains be inoperable before action must be taken?

Resolution:

The inlet valves will be tested as per the requirements of Section XI and relief will be requested for the valve in the common return line. Both trains are not required to be in continuous operation by the technical specifications as there is a 30 day LCO. Also, additional justification will be provided in the relief request for valve SM-1

UNIT-1: REVISED NOTES 1 & 3 ON PAGE 59 VSS REVISED

UNIT-2: REVISED NOTES 1 & ON PAGE "VSS" REVISE