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NOTEGRAM

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FORM EG&G-460A
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TO:	T. K. McLellan	FROM:	D. I. Monnie DIM & C. B. Ransom CBR
ORG:	NRC/EMEB	ORG:	EG&G/Mechanical Systems Evaluations
ADDRESS:	Bethesda, MD	ADDRESS:	Idaho Falls, ID

TRIP REPORT FOR THE PUMP AND VALVE INSERVICE TESTING PROGRAM WORKING MEETING FOR THE D.C. COOK NUCLEAR POWER STATION, UNITS 1 AND 2

On July 14 and 15, 1987, a working meeting was held at the D. C. Cook Nuclear Power Station with the American Electric Power Service Corporation, NRC, and EG&G Idaho, Inc., representatives to discuss the questions resulting from the review of the D. C. Cook Nuclear Power Station, Units 1 and 2, pump and valve inservice testing (IST) programs. Attached is a list of the meeting attendees, the questions that served as an agenda for the meeting, and the responses to those questions as taken from the meeting minutes. The utility representatives were given a brief introduction outlining the agenda and the methods used for the documentation of questions and responses. This was followed by detailed discussions concerning specific pumps and valves in the D. C. Cook Nuclear Power Station, Units 1 and 2, programs.

Those discussions resulted in one open item for the NRC staff. The open item is specifically identified in this trip report.

jm

Attachment:
As Stated

cc: E. C. Anderson
D. L. Wigginton, NRC
H. L. Magleby HLM
C. F. Obenchain
H. C. Rockhold HCR

ATTENDANCE LIST
- INSERVICE TESTING PROGRAM WORKING MEETING

Plant: D. C. Cook Nuclear Power Station, Units 1 and 2
Dates: July 14 and 15, 1987

Name	Representing
Terry Postlewait	I&M Cook
Mary M. Terry	I&M Cook
T. K. McLellan	NRC\NRR
Ted Sullivan	NRC\NRR
Darrell Monnie	EG&G Idaho
Clair Ransom	EG&G Idaho
T. L. Cook	EG&G Idaho
D. L. Wigginton	NRC\NRR
B. A. Svensson	I&M Cook
T. R. Stephens	I&M Cook
Scott Richardson	I&M Cook
David Climer	I&M Cook
Roger Rickman	I&M Cook
Lou Gibson	I&M Cook
Jim Kobyra	AEPSC
Ed Gilabert	AEPSC
Dilip Vadodaria	AEPSC
Jim Feinstein	AEPSC
M. P. Alexich	AEPSC
D. J. Moellen	AEPSC
Karl J. Toth	AEPSC
Clair Manges	AEPSC
Satyan Sharma	AEPSC

WORKING MEETING MINUTES

D. C. COOK NUCLEAR POWER STATION, UNITS 1 AND 2

JULY 14 AND 15, 1987

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

1. VALVE TESTING PROGRAM

A. General Questions and Comments

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.

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.

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.

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.

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.

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.

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.

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

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

C. Feedwater System

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.

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.

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.

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 the valve. Provide a detailed

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.

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.

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.

E. Reactor Coolant System

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

8. Provide a more detailed technical justification for not full-stroke exercising valves SI-161-L1, -L2, -L3, and -L4 during cold shutdowns.

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.

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.

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).

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 valve'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, -138E, 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.

2. Are valves CTS-127E, -127W, -131E, and -131W, 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.

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.

Resolution:

These valves are not opened during power operation and are passive and need not be exercised.

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.

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.

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.

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.

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.

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.

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.

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.

2. PUMP TESTING PROGRAM

1. Lack of installed instrumentation is not an adequate justification for not measuring the pump flowrate for the spent pool pit cooling pumps (refer to pump Code Relief Request III). Provide a more detailed technical justification for not measuring this Code required parameter to allow the detection of pump degradation.

   Resolution:

   More detailed justification will be included in the relief request.