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

SUBJECT: Forwards addl info re inservice testing program in response to SA Varga 850205 ltr. Insp interval for valve internal insp same as refueling outage frequency. Sys design does not allow venting to verify valve closure.

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... surveillance testing program ... testing interval for valve internal ... frequency ... does not allow ... to verify valve closure.

Inservice Inspection/Testing

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INDIANA & MICHIGAN ELECTRIC COMPANY

P.O. BOX 16631
COLUMBUS, OHIO 43216

May 10, 1985

AEP:NRC:0730F

Donald C. Cook Nuclear Plant Nos. 1 and 2
Docket Nos. 50-313 and 50-316
License Nos. DPR-58 and DPR-74
INSERVICE TESTING PROGRAM-ADDITIONAL INFORMATION

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

Reference: Letter from Mr. Steven A. Varga dated February 5, 1985.

Dear Mr. Denton:

This letter and its Attachment are in response to the above referenced letter from Mr. Steven A. Varga of your staff and provides additional information on the Inservice Testing Program (IST) for the Donald C. Cook Nuclear Plant. Attachment to this letter contains the responses to the NRC staff questions on the IST program. These responses were developed as a result of the discussions held in a meeting between our staff, NRC staff and EG&G, NRC consultants on March 6 and 7, 1985.

The additional/modified ASME Code reliefs resulting from the revised IST program are being submitted to the NRC as a separate submittal which will be identified by our letter number AEP:NRC:0730G.

This document 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

5/10/85

cm
Attachment
cc: John E. Dolan
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ATTACHMENT

TO

AEP:NRC:0730F

Donald C. Cook Nuclear Power Plant
Inservice Testing Program (IST) - Additional Information

VALVES

A. General Questions and Comments

1. The Figure 2 Note that states check valves exercising CF-2 and CF-3 need not be done more often than every nine months in the case of frequent cold shutdowns should be changed to not more often than once every 3 months in the case of frequent cold shutdowns.

   The next IST submittal, for the second ten year interval, due in January 1986 will incorporate a later code which revises the testing frequency as shown above.

2. A limiting value of full-stroke time should be assigned to each power operated valve in the IST program.

   A base line stroke time and limiting stroke time is being developed for each power-operated valve in the program. Corrective action will be taken when the limiting stroke time is exceeded. In addition, trending base line stroke times is being undertaken to detect small increases in stroke time that may occur from test to test. These programs should be implemented by the time the update of the IST Program to the new code is completed.

   Stroke times for fast acting valves will not be trended.As defined by the NRC, at the March meeting, fast acting valves are those that stroke in two seconds or less. Limiting stroke times are being developed for each fast acting valve. A 100% increase in stroke time plus one second will be the acceptance criteria for the fast acting valves.

3. Are all valves that are Appendix J, Type C, leak tested included in the IST program as Category A or A/C?

   Yes, all valves that are seat leakage tested in accordance with the Appendix J Program are included in the IST Valve Program as category A or A/C. Two typographical errors in the program have been corrected. (Valves PA-343, Unit 1, and PA-342, Unit 2 corrected to show as category A/C). These two valves were being seat leakage tested in accordance with the existing Appendix J Program.

4. What is the inspection interval for valves that are identified in the IST program for disassembly for internal inspection on a sampling basis?

   The inspection interval for internal inspection is refueling outage frequency. Note "E" on Page 3 of 3 in front of the IST valve Program has been revised to comply with NRC Sample Disassembly Program; that is "where alternative testing is to be performed by disassembly or radiography as indicated by valve summary sheet

notes, it will be accomplished by selecting one representative valve from each group of valves during refueling outages. If the inspection results are unacceptable, then all the valves in that group will be inspected."

5. Is the valve leak testing designated SLT-1 in the IST program performed in accordance with Section XI, IWV-3420?

   The valves that are designated SLT-1 under test performed in the IST Program are being seat leakage tested in accordance with Section XI, IWV-3420.

6. What is the frequency of the SLT-2 testing identified in the IST program?

   The valves that are seat leakage tested (SLT-2) are being tested as a part of integrated leak rate test per 10 CFR 50, Appendix J during every refueling outage which is at least as frequent as required by Section XI, IWV-3420(b).

7. Are all valves that are categorized E in the IST program locked or sealed in position?

   Yes, all categorized E valves are locked or sealed.

8. Do any control valves have required fail-safe positions?

   ASME Code Class 1, 2 or 3 control valves that have a fail-safe position are included in the IST program.

B. Main Steam System

1. Do valves MS-108-2 and -3 perform any safety function in the closed position? Are these valves individually full-stroke exercised quarterly?

   These check valves are located on the individual steam lines to the turbine driven auxiliary feedpumps (TDAFP). Valves MCM-221&231 are the block valves used to terminate this flow path. However, the check valves also prevent back flow. The valves will be confirmed closed by radiography or disassembly on a sampling basis during refueling outages. The program has been revised to reflect this change.

   These valves are individually full stroke exercised open during pump testing.

2. Can valves MRV-210, -220, -230, and -240 be partial-stroke exercised during power operation?

   Valves MRV-210, -220, -230 and -240 are part stroke tested quarterly in Unit 1 by use of external hydraulics. The IST Program for Unit 2 has been revised to add this test. These valves will be full stroke tested at a cold shutdown frequency.

5. How are check valves FW-149 and FW-150 individually full-stroke exercised?

   These valves cannot be full stroke exercised individually because they are installed in parallel and cannot be isolated. The valves are full stroke tested to the open position during turbine driven auxiliary feedpump surveillance testing.

6. Are the motor driven auxiliary feed pumps used to feed the steam generators during each startup and shutdown? (Reference Note 2, i.e., are valves FW-132-1-4 full-stroke exercised at cold shutdown frequency?)

   Yes, the motor driven auxiliary feed pumps (MDAFP) are used each startup and/or shutdown. Valves FW-132-1, -2, -3, and -4 will be full-stroke exercised at cold shutdown frequency. The program has been revised to reflect this change.

7. What alternate methods have been investigated to full-stroke exercise check valves FW-138-1, -2, -3, and -4? The NRC Staff position is that relief will not be granted to never full-stroke exercise a valve whose operability is important to safety.

   These valves are located on the supply line of TDAFPs to the steam generators. These valves cannot be full stroke exercised during power operation or hot standby (Mode-3) without injecting cold water to the steam generators which could cause thermal shock to steam generators. The valves are being full stroke exercised when the plant is returned to power after cold shutdown. The program has been revised accordingly.

8. Are valves FW-125, -126, and -127 locked or sealed in position? If so, then they should be included in the IST program as Category E valves.

   Valves FW-125, -126, and -127 are maintenance valves and are not included in the IST program.

   Extra Comment

   Valves CF-126, -127, -128, and -129 have been deleted from the IST program. The normally closed manual valves directly upstream provide the boundary function.

D. Essential Service Water System

1. Do the following valves perform any safety function in the closed position?

Unit 1	Unit 2
ESW-111	ESW-141
ESW-112	ESW-142
ESW-113	ESW-143
ESW-114	ESW-144
ESW-101-E	ESW-102-E
ESW-101-W	ESW-102-W

3. Are valves MRV-213, -223, -233, and -243, steam generator power operated reliefs, utilized to satisfy Reactor Systems Branch Technical Position 5-1?

   No, the plant is not committed to meet RSB Technical Position 5-1.

4. The auxiliary feed pump turbine trip and throttle valve should be stroke timed in accordance with the Section XI Category B requirements unless specific relief from those requirements is requested.

   The trip and throttle valve will be stroke timed to the open position quarterly. The IST program has been revised accordingly.

C. Feedwater System

1. Can check valves FW-118-1, -2, -3, and -4 be verified to shut by utilizing existing upstream stop valves, drain valves, and pressure indication?

   No, system design does not allow venting to verify closure of the valves. These valves are internally inspected to verify the closed position on a sampling basis during refueling outages.

2. How are valves FW-153 and FW-160 verified shut quarterly?

   These valves are verified shut utilizing back pressure when testing the opposite auxiliary feedwater train.

3. Provide the technical justification for not full-stroke exercising check valves FW-124, FW-128, FW-159, and FW-161 quarterly.

   These valves will be full-stroke exercised quarterly during power operation. The procedure will be changed to do this during pump testing.

4. What alternate test methods have been considered to full-stroke exercise check valves FW-134 and FW-135? How was it determined that a flow rate of 700 gpm is sufficient to full-stroke exercise these valves?

   These valves are located in the suction and discharge lines of the Turbine Driven Auxiliary Feedpumps (TDAFP) respectively. The design flow rate through TDAFP discharge line is 900 gpm. These valves are stroke tested during monthly pump test when the TDAFP is operated at a flow rate of 700 gpm through the test line. The pump's test line is not designed to pass 900 gpm. We believe that 700 gpm is sufficient to demonstrate the full stroke operability.

Valves ESW-111, -112, -113, and -114 do not perform a safety function in the closed position. ESW-101-E and ESW-101-W are verified closed during pump testing.

Valves ESW-141, -142, -143, and -144 do not perform a safety function in the closed position. ESW-102-E and ESW-102-W are verified closed during pump testing.

The program has been revised to reflect the above.

2. Provide a more detailed technical justification for not full-stroke exercising valves WMO-753, WMO-754, and WMO-744 quarterly.

These valves are normally closed and are required to open when Condensate storage tank is exhausted. Exercising the valves could cause lakewater contamination of the steam generators. Lakewater chemistry can potentially impact steam generator tube integrity. We believe that testing at a refueling outage frequency is sufficient to demonstrate operability of these long term valves. The valves will be full stroke tested during refueling outages.

3. Is the position of the following Category E valves verified before and after being operated? Should the "Test Performed" column indicate OC-1 instead of EF-2?

ESW-168-S	ESW-170-S
ESW-168-N	ESW-170-N
ESW-169-S	ESW-171-S
ESW-169-N	ESW-171-N

These manual valves are required to change position to perform the safety function. The IST program has been revised to reflect valve category change from "E" to "B". Also Note 2 has been revised to state that since the valves are manual stroke timing is not required.

4. Do the following valves have a required fail-safe position? If so, then they should be tested in accordance with Section XI, IWV-3410(e).

Unit 1	Unit 2
WRV-721	WRV-722
WRV-723	WRV-724
WRV-725	WRV-726
WRV-727	WRV-728

Yes, these valves have a fail safe position. Due to valve design, these valves cannot be tested individually. The IST program has been revised to reflect the fail-safe test "EF-8" for these valves during refueling outages. Also code relief has been requested from stroke timing because the valves do not have control switches.

5. Is the position of the following Category E valves verified before and after being operated? Should the "Test Performed" column indicate OC-1 instead of EF-2?

Unit 1	Unit 2
ESW-115	ESW-145
ESW-243	ESW-240
ESW-109	ESW-243

These manual valves are required to change position to perform the safety function. The program has been revised to reflect the valve category change from "E" to "B". Also Note 4 has been added to state that since the valves are manual, stroke timing is not required.

6. The following Category B valves should be stroke timed during quarterly testing unless specific relief is requested from the stroke timing requirements of Section XI.

Unit 1	Unit 2
WRV-761	WRV-763
WRV-762	WRV-764
WRV-766	WRV-768
WRV-767	WRV-769
WRV-771	WRV-773
WRV-772	WRV-774
WRV-776	WRV-778
WRV-777	WRV-779

These valves have been deleted from the IST program since they do not perform a safety function.

E. Non-essential Service Water System

1. Would failure in the closed position while testing either the supply or return valve from the reactor coolant pumps motor air coolers result in damage to the motors or require pump shutdown?

Yes, failure of a supply or return valve could result in motor damage or result in plant shutdown, however, we have currently elected to exercise these valves quarterly.

F. Compressed Air System

1. Should valves PA-342 and PA-343 be Categorized A/C instead of C?

PA-343, Unit 1, and PA-342, Unit 2: The program has been revised to show category A/C instead of C. These valves are included in the program per seat leakage test 10 CFR 50, Appendix J.

2. Provide a more detailed explanation of the consequences of a loss of control air to containment as discussed in Note 1.

Loss of control air in containment would result in loss of pressurizer level control which could result in a reactor trip. For example, upon loss of control air, letdown isolation valve

QCR-301 would fail close, result in pressurizer level change which could lead to a reactor trip. Various other control systems valves would also be affected due to the loss of control air.

G. Station Drainage System

1. Review the safety function of the 1/2" check valve located at coordinates k-9 to determine if it should be included in the IST program.

Valve NS-357 has been included in the IST program as a containment isolation valve, Category A/C. The valve is being seat leakage tested per 10 CFR 50 Appendix J program.

H. Reactor Coolant System

1. How are valves NSO-021, -022, -023, and -024 stroke timed? Do any alternate methods exist to verify valve position in accordance with Section XI, IWV-3300?

These solenoid valves will be stroke timed during cold shutdowns. These valves are equipped with magnetic reed switches which indicate valve position. Remote position indication verification will be accomplished by passing flow through these valves during refueling outages. The IST program has been revised to reflect these changes. Relief has been requested from testing at cold shutdowns due to ALARA and personnel safety considerations. The testing frequency is consistent with Technical Specifications requirements.

2. How are valves PW-275 and N-159 verified shut during cold shutdowns?

These valves are verified closed by seat leakage testing during refueling outages. The IST program has been revised to reflect this test frequency.

3. Provide a more detailed technical justification why valves CS-442-1, -442-2, -442-3, and -442-4 cannot be exercised at the Code specified frequency.

These valves cannot be exercised during power operation because seal water is required to the RCP seals. During cold shutdowns, seal water must be maintained to prevent backflow through the seals which could result in seal damage from dirt. The valves will be full stroke exercised during refueling outages.

4. How are valves NSO-061, -062, -063, and -064 stroke timed? Do any alternate methods exist to verify valve position in accordance with Section XI, IWV-3300?

These solenoid valves will be stroke timed during cold shutdowns. These valves are equipped with magnetic reed switches which indicate valve position. Remote position indication verification will be accomplished by passing flow through these valves during refueling outages. The IST program has been revised to reflect these

changes. Relief has been requested from testing at cold shutdowns due to ALARA and personnel safety considerations. The testing frequency is consistent with Technical Specification requirements.

5. Review the safety function of valve RC-124 at location J-7 to determine if it should be included in the IST program and Categorized E.

   Valve RC-124 is a maintenance valve and is not included in the program.

I. CVCS - Reactor Letdown and Charging System

1. Why have valves CS-297-E and CS-297-W been categorized A/C rather than C?

   These valves performed a pressure isolation function prior to recent design modification. The safety function of these valves are to open for charging pump minimum flow only. The IST program has been revised to indicate the change in category. The valves are full stroke tested open during pump testing.

2. Are valves QMO-225 and QMO-226 ever required to perform a safety function in the closed position?

   These valves perform a safety function in both open and close positions and will be stroke timed in both directions. The program has been revised accordingly.

3. Provide a more detailed technical justification why valve SI-185 cannot be full-stroke exercised during cold shutdowns.

   The valve cannot be full stroke exercised during cold shutdowns because the only full flow path available is into RCS which does not have sufficient volume to accommodate that flow without a possible low temperature overpressure condition. The valve is being full stroke tested during refueling outages.

4. Why have valves CS-299-E and CS-299-W been categorized A/C rather than C? Provide the specific technical justification for not full-stroke exercising these valves during power operation or cold shutdowns.

   These check valves located on the discharge lines of the centrifugal charging pumps serve as pressure isolation valves to protect the low pressure charging pump suction lines from RCS pressure. The valves cannot be full stroke exercised open during power operation because the centrifugal charging pumps cannot pass full design flow when the RCS is pressurized. The valves cannot be full stroke exercised during cold shutdowns because the flow required could cause a low temperature overpressure condition in the RCS. The valves will be full stroke tested to the open position and confirmed closed by seat leakage testing during refueling outages.

5. Is pressurizer auxiliary spray from the CVCS utilized to satisfy Reactor Systems Branch Technical Position RSB 5-1? (Reference exercising CS-321 and CS-325).

   No, D. C. Cook Plant is not committed to meet Reactor Systems Branch Technical position RSB 5-1.
   Extra Comment:-CS-325. This valve does not function as Pressurizer Isolation Valve (PIV) and has been deleted from the IST program.

6. Are valves QMO-200 and QMO-201 full-stroke exercised during each cold shutdown, not more often than each three months? Are these valves required to change position to perform a safety function?

   These valves are normally in the open position and are full stroke exercised to the closed position during cold shutdown. Also, the valves are located in an alternate emergency boration flow path. Full stroke testing to the open position will be performed during cold shutdowns. The IST Program has been revised to indicate safety position as "O/C" (open/closed).

7. What is the safety function of valves CS-328L1, -328L4, -329L1, and 329L4 if they do not perform a pressure boundary isolation function?

   CS-328L1 and CS-328L4 and CS-329L1 and CS-329L4: The IST program has been revised to show that the valves will be exercised in the open direction for and alternate emergency boration flow path. These valves are not identified as PIVs.

   These valves do not perform a PIV function but will remain in the IST program as an emergency boration flow path. Valves QRV-61, -62 -200 and -251 have been included in the IST program as category B valves in an emergency boration flow path. The program has been revised accordingly.

8. Review the safety function of valves CS-296-E and CS-296-W to determine if they should be included in the IST program and categorized E.

   Valves CS-296-E and -W are manual maintenance valves and are not included in the program.

9. Provide a more detailed technical justification for not full-stroke exercising valves QMO-250 and QCM-350 during power operation.

   Valves QCM-250 and -350 cannot be exercised during power operation because closure would interrupt RCP seal flow which could cause damage to the seals.

J. CVCS - Boron Makeup System

1. What is the safety function flow path in this system? Why are some valves locked or sealed while others in the same line are not?

The flowpath is essentially the entire system, i.e., alternate flow paths may be used. The manual valves are maintenance valves and are not included in the IST program. The valves on this flow diagram associated with emergency boration flow path are listed below.

	CS-427N	
QRV-422	CS-427-S	CS-426-N
QMO-410	CS-415-1	CS-426-S
QMO-420	CS-415-2	
QRV-411	CS-415-3	
QRV-421	CS-415-4	
QRV-412		

The IST program has been revised accordingly.

2. Provide a more detailed technical justification for not full-stroke exercising valves PW-266 and PW-267 during cold shutdowns.

   Valves PW-266 and -267 do not perform a safety function and have been deleted from the program.

K. Component Cooling System

1. Provide a more detailed technical justification for not full-stroke exercising valve CCW-135 during cold shutdowns.

   This valve cannot be confirmed closed without performing a leak test. This valve is given a leak test during refueling outages per Appendix J Type C program. This simple check valve is not equipped with position indication.

2. What is the P&ID location of CCW-170 (Unit 2)?

   CCW-170 does not exist in Unit 2. This portion of the CCW system is a shared system and was included in the Unit 1 IST program. There is only one valve (CCW- 170) and may swing to either unit. The IST program has been revised to delete this listing in Unit 2.

3. Are valves CCM-430, CCM-431, CCM-432, and CCM-433 presently being leak rate tested to Appendix J requirements?

   These valves are required to remain open during and after a LOCA. Seat leakage testing of these valves is being performed to Appendix J, Type C requirements.

4. If leakage is important for valves CCR-440 and CCR-441 to perform their safety function, then these valves must be leak tested in accordance with Section XI, IWV-3420.

   These valves are being seat leakage tested in accordance with, Appendix J, Type C requirements.

L. Spent Fuel Pit Cooling and Cleanup System

1. Any valve that performs a function important to safety must be included in the IST program and tested in accordance with Section XI unless specific relief from the testing requirements is requested.

   The spent fuel pit cooling and cleanup is not an ASME Code Class 1, 2 or 3 system. The valves other than SF-151 and SF-153 (containment isolation valves) are not included in the program.

M. Nuclear Sampling System

1. Do any of the valves listed (Sheet 4 of 4) perform a safety function in the open position?

   These valves perform a safety function in the open position. The IST program is revised to show safety position of these valves as "O/C" instead of "C".

N. Post-Accident Liquid and Gas Sampling

1. Do any of the valves listed perform a safety function in the open position?

   The sole safety function of these valves is in the closed position to fulfill containment isolation. The post-accident sampling system is not ASME Code Class 1, 2, or 3 system.

O. Emergency Core Cooling - SIS

1. How is valve SI-126 verified shut quarterly?

   Valve SI-126 is verified closed by stopping the boric acid transfer pumps and watching the pressure decay in the Boron Injection Tank (BIT). If the pressure holds, i.e., no flow out of the BIT, then SI-126 is shut.

2. Provide the specific technical justification for not full-stroke exercising valve SI-101 at the Code specified frequency.

   Valve SI-101 cannot be full-stroke exercised during power operation because the Safety Injection pumps cannot overcome RCS pressure, therefore, no flow path exists. The pumps are tagged out during cold shutdowns to prevent a low temperature overpressure condition. This valve is full-stroked during refueling outages. The IST program has been revised.

3. Review the safety function of the following valves to determine if they should be included in the IST program and categorized E.

SI-103S	SI-111S	SI-106S
SI-103N	SI-111N	SI-106N

   These manual valves are maintenance valves and are not included in the IST program.

P. Emergency Core Cooling - RHR

1. Provide the specific technical justification for not full-stroke exercising valves RH-108E and RH-108W quarterly.

   RH-108E and RH108W cannot be full-stroke exercised quarterly because no full flow path exists. These valves can be full-stroke exercised during cold shutdowns during RHR operation. The IST program has been revised accordingly.

2. Provide a more detailed technical justification for not full- or part-stroke exercising valve SI-148 during power operation or cold shutdowns.

   Valve SI-148 cannot be full-stroke exercised because the system design has the potential to cause air to be trapped in the piping. That air collects in the charging pumps RWST suction valves, then if the charging pump suction is shifted to the RWST air binding of the pumps can result. These valves will continue to be full-stroked during refueling outages.

3. Is valve GCR-314 full-stroke exercised during power operation in Unit 2?

   Valve GCR-314 (Unit 2) is full-stroke exercised. The IST program has been revised.

   Extra Comment

   Valve N-102 will be verified shut during leak testing during refueling. This simple check valve is not equipped with position indication.

4. Do valves ICM-129 and IMO-128 perform a pressure boundary isolation function? Should valve IMO-128 be categorized A?

   Valves ICM-129 and IMO-128 do perform a PIV function, however, they cannot be leak tested without unloading the core because the RHR system must remain operable. IMO-128 will remain as Category B. ICM-129 will remain Category A with relief requested from leak testing.

5. Valves that do not perform a function important to safety, i.e., ICM-111, may be included in the IST program at the owner's discretion, however, the NRC will not review requests for relief for those valves.

   Valve ICM-111 does not perform a safety function and has been deleted from the IST program.

6. Review the safety function of valves IMO-330 and -331 to determine if they should be categorized A.

Valves IMO-330 and -331 do not perform a containment isolation function. Containment isolation is affected by valves RH-141 and RH-142 which are included in the IST program as category A/C.

7. Review the safety function of valves ICM-311 and -321 to determine if they should be categorized A.

   These valves do not perform a containment isolation function and are not seat leakage tested to Appendix J. The IST program is correct.

8. How are the following valves full-stroke exercised during cold shutdowns?

SI-161-L1	SI-170-L1	SI-158-L1
SI-161-L2	SI-170-L2	SI-158-L2
SI-161-L3	SI-170-L3	SI-158-L3
SI-161-L4	SI-170-L4	SI-158-L4

   SI-161-L1 thru SI-161-L4: These check valves are full stroked with RHR flow at cold shutdowns. The flow through the header is known but not through each valve because they are parallel valves.

   SI-158-L1 thru SI-158-L4: These check valves are full stroke exercised with RHR flow at cold shutdowns. The flow through the header is known but not through each valve because they are parallel valves.

   Our initial investigation concerning the use of clamp on flow meter indicates that they are inconsistent and unreliable. We will continue our investigation in this area.

   SI-170-L1 thru SI-170-L4: These valves will be part stroked during refueling outages. The valves will be disassembled on a sample basis during refueling outages to verify the full stroke exercising.

   Extra Comments: SI-166-L1 thru SI-166-L4 - The valves will be disassembled on a sample basis to verify the full stroke exercising. The IST program has been revised accordingly.

9. Why are valves SI-170-L2, -170-L3, RH-133, and RH-134 the only valves identified as pressure boundary isolation valves that have a leakage limit specified?

   These valves are the only ones that have a Technical Specifications leakage limit assigned to each of them.

10. Provide the specific technical justification for not measuring the stroke time of valves IMO-315, -316, -325, and -326.

    These valves were not stroke timed. The IST program has been revised to add stroke timing requirements.

11. Would failure in a nonconservative position while exercising valves IMO-315, -316, -325, and -326 during power operation result in less than the minimum number of injection flow paths as required by the FSAR?

Yes. These valves will be full-stroked and timed during cold shutdowns. The IST program has been revised accordingly.

12. Review the safety function of the following valves to determine if they should be included in the IST program and categorized E.

RH-104-E	RH-113-E	RH-116-E
RH-104-E	RH-113-E	RH-116-E

These valves are manual maintenance valves and are not included in the IST program.

13. Review the safety function of valves IRV-310 and IRV-320 to determine if they should be included in the IST program and categorized B.

IRV-310 and -320 do not have to change position and are not included in the IST program.

Q. Containment Spray System

1. Review the safety function of the following valves to determine if they should be included in the IST program and categorized E.

CTS-116	CTS-105-E
SI-151	CTS-105-W
SI-152	CTS-139-E
CTS-119-E	CTS-139-W
CTS-119-W	

The valves listed are manual maintenance valves and are not included in the IST program.

R. Ice Condenser Refrigeration System

1. Provide the specific technical justification for not full-stroke exercising valves R-156 and R-157 quarterly.

Valves R-156 and R-157 are full-stroked open quarterly and verified shut during refueling by leak testing. These small checks are not equipped with position indication.

S. Containment Ventilation System

1. Note 2 does not agree with Note 3 where the containment radiation monitor operational requirements are concerned. Which note is correct?

Note 3 is correct. Note 2 in the IST program has been revised to state that valves will be tested during cold shutdown.

T. Control Room Ventilation System

1. Do valves VRV-315 and -325 have a required fail safe position?

Control Room Ventilation System, VRV-315 and VRV-315: The self contained temperature control valves will be fail safe tested but cannot be stroke timed because they are not equipped with position indicators and initial position is undefined, therefore stroke times are not repeatable.

U. Emergency Diesel Generator Systems

1. Review the safety function of valves DF-101 and -102 to determine if they should be included in the IST program and categorized E.

   Valves DF-101 and -102 are manual maintenance valves and are not included in the IST program.

2. Do valves QT-114 and -132 have a required fail safe position?

   Self contained temperature control three-way valves QT-114 and -132 have a fail-safe position but only if the valve fails internally (internal sensing tube failure) and have no external controls. These valves are not testable and will be verified to operate properly by observing proper temperatures during diesel testing.

3. Review the safety function of valves XRV-220, -221, and -222 to determined if they should be categorized B. Provide the specific technical justification for not measuring the stroke time of these valves. Are valves XRV-221 and -222 individually verified open when they are exercised?

   XRV-221 and XRV-220 - Air Start Supply Lines: These valves are valved out one at a time to verify the operability during the diesel generator tests. The valve operability is determined by measuring diesel starting times. The IST Program has been revised to change their category from "A" to "B".

   XRV-220 - Jet Assist to Turbo Charger: The operability of this valve is verified during diesel generator tests. The valve operability will be determined by measuring diesel starting times. The IST Program has been revised to change its category from "A" to "B".

4. Review the safety function of the following valves to determine if they should be included in the IST program and categorized as indicated.

Category B	Category C
XRV-240	DG-139
	DG-140
	DG-141
	DG-142

XRV-240 is self-contained pressure regulating valve, therefore it is not included in the IST program.

DG-139, -140, -141 and -142: These check valves have been added in the IST program. They are presently being exercised at least as frequently as code requires.

PUMPS

A. Miscellaneous Systems

1. Review the safety function of the spent fuel pit cooling pumps to determine if they should be included in the IST program and tested in accordance with Section XI.

   The safety function of the spent fuel pit cooling pumps/system was reviewed to determine if the pumps should be included in the IST Pump Program. The pumps/system provide a means to cool the spent fuel pit water via the spent fuel pit heat exchangers. This system is not required for the safe shutdown of the plant nor does it mitigate the consequences of an accident. Therefore, the spent fuel pit cooling system has not been classified as an ASME Code Class 1, 2 or 3 system. Failure of these pumps would not jeopardize the cooling of spent fuel assemblies. Available water in the spent fuel pit provides cooling as it evaporates. Makeup water is available from the following sources to maintain adequate water level:

   a. Refueling Water Storage Tanks via the Refueling Water Purification Pumps.

   b. Primary Water Storage Tank

   c. Auxiliary Building Fire Header via temporary hoses

   It has been conservatively determined that when forced coolant circulation is lost, peak clad temperature would remain well below clad degradation temperatures.

2. Review the safety function of the diesel fuel oil transfer pumps to determine if they should be included in the IST program and tested in accordance with Section XI.

   The safety function of the diesel fuel oil transfer pumps was reviewed to determine if the pumps should be incorporated in the IST Pump Program. Since their function is necessary for long term operation of the emergency diesel generators, these pumps will be inlcuded in the IST Pump Program. Testing will be performed in accordance with the 1974 Edition of the ASME Code Section XI, except that, relief requests have been generated to allow testing of these pumps for only three minutes on a quarterly basis because of the limited capacity of the diesel generator fuel oil day tank. Relief request on bearing temperature measurement has also been generated. The code required pump running time for bearing temperature measurement can not be met due to the limited day tank capacity. In addition, the bearings are directly lubricated and cooled by the pumped fluid, rendering temperature measurements inconclusive. The IST Pump Program has been revised accordingly.

3. The present NRC staff position is that pump testing must be conducted at the monthly testing frequency if the 1974 Edition of the Code is utilized for the IST program.

   Present pump testing frequency will continue based on the NRC's staff position that monthly testing is required if the 1974 Code Edition of Section XI is used. However, relief will be requested for the Diesel Fuel Oil Transfer Pumps as detailed above. The IST Pump Program has been revised accordingly.

4. Provide the alert and required action range values of vibration velocity utilized in the pump vibration monitoring program.

   Reference vibration values in terms of velocity have been established at the plant for each Section XI pump. Alert and required action values were derived based on Table IWP-3100-2 "Allowable Ranges of Test Quantities", utilizing the converted vibration values. This list was presented to the NRC at the March meeting. Most of the action values in this list fall in the fair to rough range as defined by the IRD Mechanalysis "General Machinery Vibration Severity Chart". The pump with the highest vibration listed has its reference value in the slightly rough region and the action and alert, in the rough region. These are considered acceptable operating values as defined by the IRD guide. Current reference values and recent test data are listed on the attached table.

Table I

Pump Vibration Values

		Displacement (mils)				Velocity (in/sec)		
Unit	Pump	Recent Test Data	Ref. Value	Alert	Action	Ref. Value	Alert	Action
1	E-RHR	0.40	.35	1.00	1.50	.033	.093	.140
2	E-RHR	0.13	.65	1.30	1.95	.061	.121	.181
1	E-CCP	0.42	.40	1.00	1.50	.101	.252	.377
2	E-CCP	0.28	.22	1.00	1.50	.055	.252	.377
1	N-SI	0.48	.40	1.00	1.50	.075	.187	.280
2	N-SI	0.44	.65	1.30	1.95	.121	.243	.364
1	E-CTS	0.80	.60	1.20	1.80	.056	.113	.169
2	E-CTS	0.35	1.26	2.52	3.78	.119	.237	.356
1	TDAFP	0.12	.20	1.00	1.50	.046	.228	.341
2	TDAFP	0.14	.35	1.00	1.50	.080	.228	.341
1	E-CCW	0.30	.71	1.42	2.13	.043	.087	.130
2	E-CCW	0.63	.30	1.00	1.50	.018	.061	.092
1	E-ESW	0.80	.60	1.20	1.80	.027	.055	.082
2	E-ESW	1.40	2.50	4.50	6.50	.114	.206	.297
1	E-MDAFP	0.19	.25	1.00	1.50	.047	.188	.282
2	E-MDAFP	0.11	.22	1.00	1.50	.041	.188	.282
1	W-RHR	0.55	1.60	3.20	4.80	.149	.298	.447
2	W-RHR	0.56	.55	1.10	1.65	.051	.102	.154
1	W-CCP	0.45	.26	1.00	1.50	.065	.252	.377
2	W-CCP	0.32	.44	1.00	1.50	.111	.252	.377
1	S-SI	0.26	.80	1.60	2.40	.149	.299	.448
2	S-SI	0.28	.80	1.60	2.40	.149	.299	.448
1	W-CTS	0.82	.72	1.40	2.20	.068	.136	.207
2	W-CTS	0.78	2.10	4.10	6.10	.198	.386	.574
1	W-MDAFP	0.27	.28	1.00	1.50	.053	.188	.282
2	W-MDAFP	0.29	.35	1.00	1.50	.066	.188	.282
Shared	# 1 BAT	0.30	.26	1.00	1.50	.048	.183	.275
Shared	# 2 BAT	0.12	.21	1.00	1.50	.038	.183	.275
Shared	# 3 BAT	0.27	.18	1.00	1.50	.033	.183	.275
Shared	# 4 BAT	0.28	.30	1.00	1.50	.055	.183	.275
1	W-CCW	0.25	.38	1.00	1.50	.023	.061	.092
2	W-CCW	0.34	.48	1.00	1.50	.029	.061	.092
1	W-ESW	0.20	.94	1.88	2.82	.043	.086	.129
2	W-ESW	0.72	.63	1.26	1.89	.028	.058	.086
Shared	Spare CCW	1.10	.84	2.00	3.00	.051	.122	.183

Note: Any differences from the table presented at the March meeting and this table are a result of correcting typographical errors as well as the recent establishment of new reference values due to major pump overhaul (i.e. replacement of rotating element).