FENOC
FirstEnergy Nuclear Operating Company

Perry Nuclear Power Plant
10 Center Road
Perry, Ohio 44081

John K. Wood
Vice President, Nuclear

440-280-5224
Fax: 440-280-8029

February 26, 2001
PY-CEI/NRR-2549L

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Perry Nuclear Power Plant
Docket No. 50-440
Second Interval Inservice Testing Program Recommended Actions (TAC No. MA3328).

Ladies and Gentlemen:

In accordance with 10 CFR 50.55a(f)(5)(iv), on July 22, 1998 (PY-CEI/NRR-2290L), relief requests for the second ten-year interval of the pump and valve inservice testing program were submitted. The NRC staff provided a Safety Evaluation (SE) on August 9, 1999, addressing the relief requests. In the NRC staff's SE, certain licensee actions were identified. A response describing the actions taken, actions in progress, or actions to be taken to address each licensee action, was requested within one year of the date of the SE or by the end of the next refuel outage, whichever is later. Responses to the requested licensee actions identified in the SE are provided in Attachment 1. In response to the licensee actions, new revisions are proposed for relief requests VR-1, VR-3, VR-4 and VR-9. These relief requests are included in Attachment 2 for review and approval. In addition, a revision to relief request VR-5 is proposed and is included in Attachment 2.

There are no regulatory commitments contained in this letter or its attachment. If you have questions or require additional information, please contact Mr. Gregory A. Dunn, Manager - Regulatory Affairs, at (440) 280-5305.

Very truly yours,

Attachments

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III
State of Ohio

A047

RESPONSES TO RECOMMENDED ACTION ITEMS FOR INSERVICE TESTING PROGRAM RELIEF REQUESTS

The NRC staff, during the review of the Perry Nuclear Power Plant (PNPP) second ten-year interval for the pump and valve inservice testing program, identified a number of recommended licensee actions. Resolutions to each of the recommended actions are provided below.

A. GENERAL RECOMMENDED ACTIONS

Recommended Action

1. The page numbers provided in the Valve Testing Index do not reference the correct Valve Test Table pages and should be revised as appropriate.

Response

1. Effective May 11, 2000, the pump and valve Inservice Testing Program (ISTP) was revised to make this correction.

B. RECOMMENDED ACTIONS FOR RELIEF REQUESTS

Recommended Action

1. The licensee has requested deferring flowrate measurements for the RHR, LPCS, HPCS, and RCIC waterleg fill pumps (PR-2, TER Section 2.2) because quarterly testing at the selected flow rate would result in the pumps being declared inoperable. The licensee should consider selecting a pump reference value which would not require taking a system out of service (i.e., at the normal flow running rates). Although measuring flowrates at minimum flow would provide less information on the pump's operational readiness compared to those taken at full or substantial flow, it does not appear to be a hardship or impractical to comply with the Code requirements.

Response

1. These waterleg pumps provide a source of water to maintain the injection lines full for the Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) systems. The waterleg systems by design are supply and demand type systems that normally supply (i.e., normal flow running rate) <1 gpm flow to its associated system plus approximately 10 gpm through a fixed restricting orifice for minimum flow. Testing the pumps at or near minimum flow conditions is impractical for the following reasons:

    1) There is not adequate straight piping to install an ultrasonic flow meter, since no permanent flow monitoring capabilities exist.
    2) The pump curve is essentially flat at minimum flow conditions; thus it would be very difficult to monitor pump performance.
    3) Since the flow rate could change due to system demands, repeatability of test conditions would be difficult if not impossible to achieve.

Also, no matter what flow rate is selected, if it were above the normal waterleg system flow rates, the associated system would need to be declared inoperable to perform a waterleg pump test. Also, note that declaring the Division 1 or 2 waterleg pump systems inoperable causes the Feedwater Leakage Control System to be inoperable.

All four of these pumps would require attaching suitable lengths of hose to the ECCS/RCIC systems' ¾ inch test connections and diverting the flow to floor drains to establish a fixed flow rate for testing. Once the hoses are attached, the system would be breached to establish a more suitable waterleg pump reference value. The ECCS/RCIC pump is declared inoperable when the ¾ inch test connections are opened. Also, when waterleg flow is directed away from the supported ECCS/RCIC system, it inevitably leads to a low pressure alarm on the supported system, requiring the supported system to be declared inoperable and requiring a fill and vent per the applicable Alarm Response Instructions. Therefore, no additional quarterly testing is warranted beyond the existing monitoring of discharge pressure and vibration. Full flow testing will continue to be performed on a cold shutdown basis.

Recommended Action

2. In PR-4 and –5 (TER Sections 2.4 and 2.5), the licensee has requested generic relief for all smooth-running Code Class pumps (standby and normally operating). The NRC staff has been reluctant to approve these requests due to the pump degradation experience at Catawba, but has reviewed a similar request from another licensee which committed to including these pumps in a condition monitoring program. In this relief request, the licensee has not made a similar commitment in the proposed alternate testing, which the NRC staff has determined to provide an acceptable level of safety. Based on the existence of a condition monitoring program, the licensee should ensure that the CM program would identify pump degradation demonstrating that the proposed alternate provides acceptable levels of quality and safety. Interim relief has been recommended. The licensee must commit to including these pumps in the condition monitoring program and revise the relief request to reflect this commitment in the interim period. The licensee must also discuss whether all vibration directions measured must be below the reference value for a pump to be considered smooth-running. The licensee should also discuss the overall vibration level at which the pump would no longer be considered smooth-running.

Response

2. Pump Relief Requests (PR)-4 and PR-5, will not be implemented at this time. These relief requests have been revised to restrict their use until all provisions of the NRC staff's Safety Evaluation are met.

Recommended Action

3. In PR-6 (TER Sect. 2.6), the licensee proposed to use digital instruments which would not have been adequate to monitor measured values in the alert or required action range. When selecting and using digital instruments for Code Class 2 and 3 pumps, the licensee should ensure that 110 percent of the measured parameter's reference value is within the instrument's calibrated range.

Response

3. An evaluation was performed that confirmed that 110% of the measured parameter's reference value is within the instrument's calibrated range.

Recommended Action

4. The licensee should clarify the proposed alternate testing portion of VR-1 (TER Sect. 3.1) to state that the HCU accumulator pressure decay test will be performed.

Response

4. Effective May 11, 2000, the pump and valve ISTP (VR-1) was revised to remove closure verification of 1C11-EP115 (see Attachment 2). Refueling Outage Justification (RO)-31 was created to clarify the exercise closed testing of the 1C11-EP115 check valve. RO-31 states that accumulator supply check valve testing (1C11-EP115) is performed by securing the operating control rod drive pump, and verifying a no accumulator fault condition exists, or that there is only minimal pressure drop observed. The PNPP Technical Specifications do not require a hydraulic control unit accumulator pressure decay test. However, the accumulator supply check valve testing is supplemented by operational rounds every 7 days, where hydraulic control unit pressures are verified to be $\geq$ 1520 psig.

Recommended Action

5. In VR-3 (TER Section 3.3), the licensee proposes to exercise the solenoid valve for one of the two ADS/SRV each refueling outage per Technical Specifications. As discussed in the previous interval's NRC Safety Evaluation (April 5, 1993), provisional relief was provided if a sampling approach was used whereby if one valve failed testing, the others would be tested during the same outage. The licensee's current proposal does not reflect that provisional relief and should be revised accordingly.

Response

5. Effective May 11, 2000, VR-3 was clarified (see Attachment 2) in the ISTP to include the specified provision.

Recommended Action

6. The licensee has proposed a disassembly and inspection plan for the LPCS, RHR, and RCIC keep fill pump discharge check valves (VR-4, Technical Evaluation Report (TER) Section 3.4). The licensee has stated that the valve group may contain more than four valves, though the relief request only references four valves. The licensee has not provided information on the length of the refueling cycles. As discussed in Generic Letter 89-04, extension of the disassembly/inspection interval to longer than once every six years should be considered in cases of "extreme hardship." Additionally, the licensee should clarify in the request the inspection interval. The licensee should investigate the use of non-intrusive techniques to verify valve closure. The licensee should also evaluate the guidance provided in NUREG-1482, Section 4.1.1. This evaluation should be documented in the relief request.

Response

6. For the referenced Low Pressure Core Spray (LPCS), Residual Heat Removal (RHR), and RCIC keep fill pump discharge check valves, VR-4 has been clarified (see Attachment 2) to state a maximum disassembly and inspection frequency of three refueling outages (two year operating cycles). Also, an investigation into the use of non-intrusive techniques has been performed and is documented in VR-4. The "series pair" testing guidance in NUREG-1482, Section 4.1.1, was evaluated and was not determined to be an appropriate test method for the valves in VR-4. This evaluation is documented in VR-4.

   In addition, 1) Two RCIC exhaust vacuum breakers (1E51-F079 & 1E51-F081) have been added to this relief request based on the response documented in Condition Report (CR) 99-2553 within the PNPP corrective action program. This CR states that these in-series valves may not be treated as a "series pair." Therefore, 1E51-F079 and 1E51-F081 were removed from VR-9 ("series pair" relief) and added to VR-4 (sample disassembly relief). 2) Six Division 1, 2 and 3 Diesel Generator Fuel Oil Transfer System siphon breakers (1R45-F0577A/B, 1R45-F0578A/B and 1R45-F0579A/B) have been added to this relief request based on field testing experience. The in-field testing determined that there was no positive testing (flow, pressure, or acoustics), which would verify closure of these simple lift check valves. Therefore, these valves are not tested as an insitu "series pair" in accordance with NUREG-1482, Section 4.1.1. They are however, being disassembled and inspected per GL 89-04.

Recommended Action

7. The licensee has proposed that the CRD Rupture Discs be replaced at the discretion of the licensee, and not in accordance with the Code (VR-8, TER Sect. 3.8). If the licensee has determined that these discs are within the scope of the regulations (i.e., ASME Code Class), and are necessary for overpressure protection of the nitrogen system, then additional information is required. The licensee should provide information concerning specific hardship for complying with the Code, and a discussion of these components' safety function, including the consequences of premature rupture during operation or failure to rupture when required. The licensee should review the classification and function of the disks and revise the IST program, resubmit the request with the information requested, or comply with the provisions of the Code.

Response

7. VR-8 is withdrawn via this letter and the rupture discs will be tested in accordance with the ASME/ANSI O&M Code, Part 10. To preclude its use, VR-8 has been removed from the ISTP. ASME Code clarification will continue to be pursued through the ASME Code Committees.

Recommended Action

8. The RCIC penetration pressurization check valves are Code Class MC per the IST Program (VR-9, TER Sect. 3.9). The P&ID, D-302-762 Rev. H, Note 3 identifies the valves as Class II per ASME Section III. The licensee should review the Code Classification for the valves and revise either the drawing or IST program accordingly.

In addition, the proposed alternate testing is consistent with the guidance provided in NUREG-1482, Section 4.1.1. However, the licensee has not provided any information on the valves' treatment in the safety analysis, as discussed in the NUREG. This position can only be used if the safety analysis does not require both valves. The licensee has also not discussed the corrective actions which would be taken if the pressure decay test fails.

Response

8. The penetration pressurization check valves code class has been changed from MC to Class 2 in the pump and valve ISTP. The RCIC check valves have been removed from VR-9, and are being disassembled and inspected on a refueling outage frequency in accordance with Generic Letter 89-04, "Guidance On Developing Acceptable Inservice Testing Programs" (RO-32). RO-32 has been generated to allow disassembly of both the 1E51-F079 and 1E51-F081 valves on a refueling outage frequency per OM-10. These valves have also been added to VR-4 for sample disassembly. Also, VR-9 has been clarified to discuss corrective actions to be taken if a pressure decay test failure occurs (see Attachment 2).

C. RECOMMENDED ACTIONS FOR DEFERRAL JUSTIFICATIONS

Recommended Action

1. In CS-7, the licensee has stated that valve closure for the RCS pressure isolation testable check valves will be verified at cold shutdowns by verifying a position indication signal. These normally closed valves do not require flow to verify closure, and closure verification should be performed quarterly in accordance with the Code.

Response

1. Simply verifying that the valve is closed using its remote position indication in the control room does not constitute an "exercise closed" test. The NRC's published position is consistent with this position as noted under paragraph 2.5.3.2 of the Federal Register dated Wednesday September 22, 1999. The Federal Register states: "The NRC agrees with the need for a required demonstration of bi-directional exercising movement of the check valve disc. Single direction flow testing of check valves, as an interpreted requirement, will not always detect degradation of the valve." In all cases where it is possible, check valve "exercised closed" testing at PNPP requires the valve to be verified open at some point and vice versa. Therefore, no change is deemed necessary at this time.

Recommended Action

2. The Valve Test Table indicates that the Nuclear Boiler Head Vent Lines valves are active. The justification for CS-9 states these valves are passive. The licensee should clarify the program.

Response

2. Effective May 11, 2000, the ISTP was clarified to remove reference to "active" valve function. These valves are passive.

Recommended Action

3. The licensee has stated that testing the motor-operated Reactor Water Cleanup CIV's (CS-10) would cause "prolonged system inoperability" and that the transients may be potentially damaging to the RWCU pump seals. Several BWRs (i.e., Susquehanna, Hope Creek, and Monticello) exercise the RWCU motor-operated valves quarterly. The test of a MOV is momentary and does not appear to cause prolonged system inoperability. The licensee should evaluate if their specific situation is unique, such that testing during operation is impractical.

Response

3. An evaluation was conducted and is summarized as follows:

   Monticello (BWR3) has "cold leg" Reactor Water Cleanup (RWCU) pumps (heat exchangers before the pumps) and does not experience significant thermal cycles on its pump seals during system shutdown from rated conditions. Susquehanna (BWR4) has "hot leg" RWCU seal-less pumps that are not susceptible to thermal cycle failures. Hope Creek (BWR4) has "hot leg" RWCU pumps similar to PNPP, with average pump seal run times of approximately 24 months. However, their pump seal is of a different style/manufacturer.

   PNPP (BWR6) has "hot leg" RWCU pumps and has experienced pump seal run times greater than 5 years provided the seals are not subjected to unnecessary thermal and pressure transients.

   Based on operating experience, the thermal and pressure transients placed on our RWCU CAN-6 pump seals during a pump shutdown from rated temperature and pressure, significantly increases the chance of a RWCU pump seal failure. Seal failure results in an expensive and dose intensive work activity (approximately $300,000 and 1.5 Rem). Testing the RWCU motor-operated valves results in prolonged system inoperability since to accommodate this testing the system filters must be placed on hold, the associated pump secured, and the valves stroked closed. Upon recovery, voids in the system piping may require a system fill and vent, which promotes thermal and pressure transients upon the RWCU pump seals. Therefore, testing the motor-operated Reactor Water Cleanup CIV's would cause prolonged system inoperability and introduce thermal and pressure transients that may be potentially damaging to the RWCU pump seals. Thus, quarterly valve testing would be impractical due to the potential for damaging the pump seals. CS-10 has been revised to reflect this additional justification.

Recommended Action

4. The licensee has stated that it is impractical to exercise the RHR Containment Pool Cooling MOV's (CS-12) quarterly because if open, flow would be diverted from the reactor vessel. Testing each of these MOV's would require removing one train of RHR from service and entering a LCO for a short period of time. As discussed in NUREG-1482, Section 3.1.2, entry into a LCO alone is not sufficient justification for deferring testing. If the purpose of the referenced reactor pressure interlock is to protect equipment from overpressurization, testing that could potentially damage the equipment would not be practical. The licensee should review the testing for these valves and revise the IST Program accordingly.

Response

4. Defeating the 135 psig interlock in order to perform exercise open testing of these valves could result in overpressurization of the low energy piping outboard of the isolation valves. CS-12 has been changed to incorporate the aforementioned information.

Recommended Action

5. The licensee has proposed testing the ECCS waterleg pump check valves (CS-13) at cold shutdowns. These pumps are tested both quarterly and cold shutdowns (PR-2). The licensee should evaluate if the quarterly lower flow test is adequate to full-stroke exercise these check valves or if the quarterly test is a partial-stroke exercise, and revise the justification accordingly.

Response

5. The quarterly waterleg pump test does not satisfy the ASME test requirements since a flowrate or differential pressure is not established. The only testing performed on a quarterly basis is gathering of discharge pressure and pump vibration data; no flowrate or differential pressure data is gathered. Therefore, because this does not constitute a partial or full-stroke exercise test, CS-13 was not revised (refer to Section B, Response No. 1).

Recommended Action

6. The licensee has stated that a reverse flow test of valve 1E21-F0501 (LPCS minimum flow and test return to suppression pool check valve) (RO-2) during refueling outages is possible, but "requires expenditure of significantly more resources than simply removing the valve for exercise testing." The Code allows disassembly and inspection as an alternative to exercising with flow or a mechanical exerciser. The intent of the Code is that disassembly and inspection can only be used if exercising with flow or a mechanical exerciser is impractical. The licensee should reverse flow test this valve at refueling outages and revise the justification accordingly.

Response

6. RO-2 has been clarified to better explain the benefits provided by disassembly and inspection in lieu of insitu reverse flow testing. Within RO-2, it now states, "...this valve (1E21-F0501) is a TRW Mission Duo check valve, which when removed may be better assessed by visual inspection rather than by testing. When removed the check valves spring tangs and hinge pin may be inspected to ensure they have not failed or worn to the point of failure. Therefore, it is impractical to test when the disassembly, inspection and reassembly of the valve provides a superior assessment of the valves functionality."

Recommended Action

7. The licensee has proposed disassembly and inspection for valve 1E22-F007, the inboard valve of a series pair (RO-2). The licensee should consider the guidance provided in NUREG-1482, Section 4.1.1, to determine if a leak test could be used to verify the closure of the valve pair in lieu of disassembly and inspection.

Response

7. Valve 1E22-F007 is not being treated as a valve within a "series pair." Therefore, the guidance in NUREG-1482, Section 4.1.1, is not applicable. In accordance with GL 89-04, RO-2 has been clarified to remove reference to "series pair" check valve testing requirements for the 1E22-F007 valve.

Recommended Action

8. The licensee has stated that disassembling valve 1E51-F047 (RCIC turbine exhaust drain line check valve) (RO-2) is required for system maintenance. Disassembly and inspection is a option where exercising with flow or a mechanical exerciser is impractical. The licensee should evaluate whether there are other means (e.g. leak testing) to verify valve closure. Convenience is not a sufficient justification for not exercising with flow.

Response

8. Effective May 11, 2000, the pump and valve ISTP was revised to delete reference to this valve, since a design modification eliminated the RCIC Turbine exhaust drain line check valve (1E51-F047) and restricting orifice (1E51-D004).

Recommended Action

9. The RWCU system does not serve a safety-related function, except for the valves that isolate the containment penetrations. In RO-4, valves 1G33-F052A and B appear to only have a safety function to close. The licensee should review the safety function of these valves and revise the IST Program accordingly.

Response

9. Simply verifying that the valve is closed using its remote position indication in the control room does not constitute an "exercise closed" test. The NRC's published position is consistent with this position as noted under paragraph 2.5.3.2 of the Federal Register

dated Wednesday September 22, 1999. The Federal Register states: "The NRC agrees with the need for a required demonstration of bi-directional exercising movement of the check valve disc. Single direction flow testing of check valves, as an interpreted requirement, will not always detect degradation of the valve." During a refueling outage, the valve would be exercised to the open position then allowed to close verifying both the open and closed positions. In all cases where it is possible, check valve "exercise closed" testing at PNPP requires the valve to be verified open at some point and vice versa. Therefore, no change is deemed necessary at this time.

Recommended Action

10. In RO-9, the licensee has stated that the RHR valves serve no safety function. However, per the Valve Test Table, they are exercised open. If the licensee is optionally exercising these valves open, it should be noted in the Program as an augmented inspection. The licensee has discussed the impracticality of using non-intrusive techniques to verify closure. However, there is no discussion of the use of a leak test during refueling outages. The licensee should investigate the use of leak testing and revise the justification accordingly.

Response

10. RO-9 has been clarified regarding valve closure safety function and the inability to perform insitu seat leak testing. These valves are optionally opened during disassembly as part of the disassembly program. They have no safety function in the open direction. The ISTP has a remark placed in the test table that states these valves are optionally opened. No test connections exist to perform insitu testing in the closed direction. Therefore, the valves are removed, exercised open and closed, leak tested for "leakage outside containment" purposes, and re-installed.

Recommended Action

11. The licensee should alternate the shutdown cooling loop chosen during cold shutdowns, so both shutdown cooling loop valves are exercised (RO-11 and RO-12).

Response

11. The pump and valve inservice test program does not determine system/plant operating conditions when entering into a cold shutdown. For example, if entering a cold shutdown due to a Division 2 failure/problem, Division 1 RHR would probably be placed into shutdown cooling. If subsequent shutdowns were also due to a Division 2 failure/problem, then Division 1 would still be used for shutdown cooling. Therefore, testing shutdown cooling loops at an alternating cold shutdown frequency would be impractical to enforce. Also, implementing this recommendation could lead to higher radiological doses to plant personnel, which is not consistent with the As Low As Reasonably Achievable (ALARA) program/regulations.

Recommended Action

12. The licensee has implied in RO-12 that testing at cold shutdown is impractical based on generation of radwaste. The upstream MOV, 1E12-F023 is exercised at cold shutdowns (CS-3). It appears that exercising this valve would also require flushing the head spray lines since there are no downstream isolation valves. Although this would generate liquid radwaste, three valves would have their operational readiness verified (1E12-F019, 1E51-F065 and F066 (RO-25)). Other plants (e.g., WNP-2) exercise this valve at cold shutdowns. The licensee should reevaluate the testing and determine if Perry has a unique issue which makes testing at cold shutdowns impractical.

Response

12. An evaluation of RO-12 and RO-25 was performed and has determined that 1E12-F019, 1E51-F065 and 1E51-F066 are capable of being exercised open during cold shutdowns (see Page 12, response to Recommended Action 20). RO-12 has been revised to eliminate exercise open testing, and two new cold shutdown justifications were written (CS-16 and CS-17). Exercise closed testing will remain in RO-12 based on leak testing being the only positive means of closure verification.

Recommended Action

13. In RO-13, it is not apparent why the normally open CRDH check valve 1C11-F122, with a downstream flow element, cannot be exercised open quarterly. The licensee should also clarify the Basis for Justification and the Alternate Testing sections to indicate that the other valves are exercised quarterly, as well as when the systems are placed back in service following a refueling outage.

Response

13. A plant scram is required to full flow exercise 1C11-F122. It is not prudent to perform this action quarterly or during cold shutdown conditions. Therefore, RO-13 has been clarified to indicate this impracticality. In addition, RO-13 alternate testing requirements have been clarified.

Recommended Action

14. In RO-17, the airlock check valves are verified open every time the airlock door is used, which is not restricted to refueling outages. The open exercise does not appear to require equipment installation or removal. The licensee should review the testing of these valves and revise the justification to provide additional information to support testing only at refueling outages.

Response

14. The airlock check valves (1P53-F601A/B, 1P53-F602A/B, and 1P53-F633A/B) are all associated with the Drywell airlock and are addressed in RO-17. Therefore, these valves do not see service during normal plant operation or necessarily during a plant cold shutdown. Exercise open testing will continue to be performed on a refueling outage frequency. Within RO-17, it states that after opening the drywell air lock door, it

requires testing prior to plant startup. This testing would require that the drywell airlock radiation protection shield doors be unlocked, the shield doors be pulled back for access to the airlock, and sufficient time given for Health Physics to establish a boundary, and Site Safety must be present for opening an unknown atmosphere. This testing also requires significant test duration for valve lineups, equipment installation, stabilization time and equipment removal. It would be impractical on a quarterly or cold shutdown frequency to force the plant to enter the drywell just to open the drywell airlock check valves and ball valves that are being maintained in their accident positions. Also, an existing technical specification requires testing at a specified frequency.

Recommended Action

15. A review of P&ID D-302-271 indicates that valves 1P57-F572B and F574B are not located inside containment, which is used as a basis for not testing quarterly or at cold shutdowns (RO-19). Additionally, it does not appear that testing these valves would make the MSIVs inoperable, as there are additional check valves in series and air is available from the ADS safety-related air storage tank B. The licensee should review the testing performed on these valves and determine and document the basis for the impracticality. If leak testing is required to verify the valves' safety function, NUREG-1482, Section 4.1.4 may be referred to for guidance. If the justification is based on ALARA, NUREG-1482, Section 2.5.1, should be referenced. In addition, valves 1B21-F024A-D and 1P57-F572B and F574B are Code boundary valves which appear only to have a safety function to close. The licensee should review the function of these valves and revise the IST Program accordingly.

Response

15. RO-19 states that some valves are in the Drywell (1B21-F024A,B,C,D) and in the Steam Tunnel (1B21-F029A,B,C,D, 1P57-F572B, and 1P57-F574B). Since the Steam Tunnel radiation levels are prohibitive, testing of these valves is to be performed during a refueling outage. Therefore, RO-19 has been clarified to indicate this impracticality and the guidance in NUREG-1482, Section 2.5.1, has been referenced. Review of these valves safety function has been performed. The safety function of these valves is to open as well as close. Therefore, RO-19 will continue to show these valves with both an open and close function.

Recommended Action

16. Numerous valve deferral justifications (e.g., RO-19 and RO-22) state that compliance with the exercise requirements would result in unusual difficulty without a compensating increase in the level of quality and safety. In accordance with the Code, testing may be deferred solely based on the impracticality of testing during operation or cold shutdowns. If the deferrals are based on the hardship or unusual difficulty in complying with the Code, without a compensating increase in the level of quality and safety, relief must then be authorized in accordance with 10CFR50.55a(a)(3)(ii).

Response

16. All cold shutdown and refuel outage justifications were reviewed for hardship versus impracticality and revised as required.

Recommended Action

17. In RO-20, the valves are described as being the safety interface between the RPV level reference leg and the non-safety portion of the CRD system. These valves appear to have only a safety-related function to close. The licensee should review the function of these valves and revise the IST Program accordingly. In addition, the drawing coordinates referenced in the Valve Test Table for these valves are incorrect.

Response

17. The check valves have an open as well as closed function in order to maintain adequate water level in the condensing chambers of the Reactor Pressure Vessel (RPV) level instrumentation. Therefore, no program changes for their function are deemed necessary. However, the drawing reference coordinates have been corrected in the pump and valve ISTP.

Recommended Action

18. In RO-22, the licensee has identified the components which would be affected by exercising air supply valve 1P52-F550. There is no discussion of the consequences of securing the non-safety related instrument air to these components (e.g., plant transient or scram). The downstream motor-operated valve, 1P52-F200 is exercised quarterly. The licensee should provide justification of the impracticality of exercising the valves quarterly or during cold shutdowns, rather than discussing the hardship.

Response

18. RO-22 has been clarified to discuss consequences of securing instrument air to the supported components and why this test is impractical to be performed quarterly or during cold shutdowns.

Recommended Action

19. In RO-23, containment entry alone (unless it is inerted) is not adequate justification for deferring testing. The licensee has stated that testing "could possibly make the associated SRVs inoperative." Check valves 1P57-F524A and B are located upstream of the SRV accumulators and associated check valves. It is not apparent why this testing would make the SRV's inoperable. The licensee should provide additional information on why entering containment is impractical and why the SRVs would be inoperable.

Response

19. RO-23 has been clarified to discuss consequences of isolating safety related instrument air to the safety relief valves during plant operation. Implementation of this on a quarterly frequency would be impractical and result in an unnecessary challenge to a safety system. Within RO-23 it states that isolation of the containment and drywell would not allow the safety related instrument air system header pressure to be monitored in the control room since there is no instrumentation or alarms associated with that portion of the safety related instrument air system. If pressure were to decrease

below 150 psig without being monitored, the Safety Relief Valves (SRV's) would be inoperable without control room knowledge. Therefore, quarterly or cold shutdown testing is impractical due to potential unnecessary challenges to a safety system.

Recommended Action

20. The licensee has not provided basis for the determination that it is impractical to exercise the PIVs in RO-25 open at cold shutdowns. With regards to the closure verification, PIV 1E51-F066 is normally closed and has position indication. It appears that the closure of this valve can be verified quarterly. An exercise open is not a prerequisite for the closure verification. The licensee should review the testing of these valves and revise the justification accordingly.

Response

20. An evaluation of RO-25 was performed and has determined that 1E51-F065 and 1E51-F066 are capable of being exercised open during cold shutdowns. Therefore, RO-25 has been revised to eliminate exercise open testing and a new cold shutdown justification was written (CS-17). Regarding closure verification, in all cases where it is possible, check valve "exercise closed" testing at PNPP requires the valve to be verified open at some point and vice versa. Exercise closed testing will remain in RO-25 based on leak testing being the only positive means of closure verification.

D. RECOMMENDED ACTIONS FOR SYSTEM REVIEW

I. Reactor Core Isolation Cooling System

Recommended Action

1. On P&ID D-302-631, the RCIC pump discharge MOV to the reactor vessel (valve 1E51-F013) appears to be normally open. Likewise, the RCIC pump discharge MOV to the suppression pool (valve 1E51-F019) also appears to be normally open. However, the Valve Test Table for both valves indicates that they are normally closed. The licensee should review the safety function of these valves and revise the IST Program if necessary.

Response

1. Per plant procedures, 1E51-F013 is a normally closed valve. Valve Lineup Instruction (VLI)-E51 identifies 1E51-F013 as closed with disconnect ED1A09-C open. System Operating Instruction (SOI)-E51 Section 4.1, "Startup to Standby Readiness," Step 5, closes disconnect ED1A09-C but the 1E51-F013 remains closed. Per SOI-E51, there are only four sections that open the valve, "Auto Initiation from Standby Readiness", "Manual Startup from Standby Readiness (Injection)," "RPV Level and Pressure Control," and "Recovery to Operating Status from Automatic Turbine Trip." All verification checklists have 1E51-F013 closed. This valve may be shown as open on drawing D-302-631. However, at PNPP we do not use drawings to govern our required valve positions.

The PNPP VLI's/SOI's govern valve position. For 1E51-F019, all verification checklists have 1E51-F019 closed. Therefore, no actions are deemed necessary at this time.

Recommended Action

2. Testable check valve (1E51-F066) is located inside the drywell. There is a check valve (1E51-F547) and a stop check valve (1E51-F548) which appears to supply water for testing of valve F066. These valves appear to form the boundary between safety-related and non-safety related piping. Likewise, downstream, there is a check valve F541 and a globe valve F544 which also appear to form the interface between safety-related and non-safety related piping. These four valves do not appear on the Valve Test Tables. The licensee should review the function of these valves and modify the IST Program if necessary.

Response

2. Valves 1E51-F547, 1E51-F548, 1E51-F541, and 1E51-F544 are test valves and do not perform a safety function. Therefore, they will not be included in the pump and valve ISTP.

II. **Low Pressure Core Spray System**

Recommended Action

3. On P&ID D-302-705, there is a stop check valve (1E21-F526) and a check valve 1E21-F525 which appear to supply water for the testing of valve 1E21-F006. Neither of these valves are included in the Valve Test Table. The licensee should review the function of these valves to ensure they do not have a safety function in the closed direction to prevent RCIC flow diversion and revise the IST Program if necessary.

Response

3. Valves 1E21-F526 and 1E21-F525 are test valves and do not perform a safety function. Therefore, they will not be included in the pump and valve ISTP.

III. **Nuclear Closed Cooling System**

Recommended Action

4. On P&ID D-302-613 (Nuclear Closed Cooling System), valves P43-F783 and 1P43-F722 are located on the containment side of penetration 2039. Neither of these valves are listed in the Valve Test Table though they appear to serve as the boundary between safety-related and non-safety related piping. The licensee should review the safety function of these valves and revise the IST Program if necessary. Valve 1P43-F215 is listed in the IST Program and appears to serve as boundary between safety and non-safety related piping. However, the P&ID does not show this boundary. The licensee should review this valve on the P&ID and revise as necessary.

Response

4. Valve 1P43-F783 is on the Drywell side (not Containment) of Drywell penetration #2045 not #2039. The Nuclear Closed Cooling system is not required for safe shutdown of the plant following a design basis accident (this function is provided by the Emergency Closed Cooling system). Therefore, valves 1P43-F722 and 1P43-F783 do not have a safety function. Valve 1P43-F215 is shown on drawing D302-613 as a safety related Class 2 Containment isolation valve, which also serves as the boundary between safety and non-safety piping. Therefore, no change is deemed necessary at this time.

Valve Relief Request #

VR-1

System: Control Rod Drive Hydraulic System (C11)

Valves: 1C11-114, 1C11-115, 1C11-126, 1C11-127 (Typical of 177)

Category: B (1C11-126, 1C11-127)
C (1C11-114, 1C11-115)

Class: 2

Function: Control Rod Drive Scram Inlet, Exhaust, Scram Discharge Header Check, and Accumulator Supply Check.

Test Requirements: OM(10) - 4.2.1, Valve Exercising Test

OM(10) - 4.3.2, Exercising Tests For Check Valves

Basis for Relief: These valves operate as an integral part of the hydraulic control unit to rapidly insert control rods. Solenoid valves 1C11-126 & 1C11-127 will be fully tested and check valves 1C11-114 & 1C11-115 will be Exercised Open in accordance with Technical Specifications (TS) (i.e., maximum scram insertion time). The TS surveillance required frequency of testing (i.e., all control rods prior to thermal power exceeding 40% of rated thermal power after fuel movement within the reactor pressure vessel, and after each reactor shutdown ≥120 days, and testing of a representative sample of the control rods at least once per 120 days of operation in mode 1), assures the necessary quality of the system and components is maintained, that facility operation will be within the safety limits and the Limiting Condition of Operation will be met. Therefore, compliance with the ASME Code would be impractical per 10 CFR 50.55a(f)(6)(i).

A similar relief request (VR-6) had been previously approved per GL 89-04, Position 7 as identified in NRC Safety Evaluation Dated April 5, 1993 (Log No. PY-NRR/CEI-0629L)

Alternate Testing: Scram insertion testing shall be substituted for individual valve testing.

Valve Relief Request #

VR-3

System: Nuclear Boiler (B21)

Valves: 1B21-F410A, 1B21-F410B, 1B21-F411A, 1B21-F411B, 1B21-F412A, 1B21-F412B, 1B21-F413A, 1B21-F413B, 1B21-F414A, 1B21-F414B, 1B21-F415A, 1B21-F415B, 1B21-F416A, 1B21-F416B, 1B21-F417A, 1B21-F417B, 1B21-F420A, 1B21-F420B, 1B21-F421A, 1B21-F421B, 1B21-F422A, 1B21-F422B, 1B21-F423A, 1B21-F423B, 1B21-F424A, 1B21-F424B, 1B21-F425A, 1B21-F425B, 1B21-F440A, 1B21-F440B, 1B21-F441A, 1B21-F441B, 1B21-F442A, 1B21-F442B, 1B21-F443A, 1B21-F443B, 1B21-F444A, 1B21-F444B

Category: B

Class: 3

Function: Supply air to air operators of the nuclear boiler ADS and Safety/Relief valves.

Test Requirement: OM(10) - 4.2.1, Valve Exercising Test

Basis for Relief: These solenoid operated valves are proven operable during testing of the Nuclear Boiler ADS and Safety/Relief valves (SRV). Also, in a study (BWR Owners Group Evaluation of NUREG-0737, Item II.K.3.16) the number of ADS and safety relief valve openings should be reduced as much as possible to minimize LOCA risk. The design of PNPP provides two solenoid valves for each SRV, with divisional separation of the solenoid valves, such that an SRV exercise only exercises one of the two solenoid valves. Based on this study, and the potential for causing a LOCA condition, exercising these valves is delayed to refueling.

The solenoid valves are proven operable by remotely actuating the SRV to verify open and close capability of the relief valve prior to resumption of electric power generation. The solenoid operated valves will be tested at the Technical Specification Surveillance Required frequency of testing (i.e., every 24 months on a STAGGERED TEST BASIS for each valve solenoid). If a SRV fails to meet its acceptance criteria during cycling, the associated SRV solenoid valves will be evaluated to determine if corrective action should be taken. Therefore, the alternative test provides an acceptable level of quality and safety.

Valve Relief Request #

VR-3 (Continued)

If during the STAGGERED TEST BASIS testing one of the solenoid valves fail, then the remaining solenoid valves shall be tested.

A similar relief request (VR-20) had been previously approved in NRC Safety Evaluation Dated April 5, 1993 (Log No. PY-NRR/CEI-0629L).

Alternate Testing: Solenoid operated valve exercise testing shall be performed on a refueling outage frequency, in accordance with the Technical Specification Surveillance Requirements prior to resumption of electric power, by exercising the SRV(s).

Valve Relief Request #

VR-4

System: Division 1, 2, 3 Diesel Generator Fuel Oil Transfer Systems, Safety-related Keep Fill Systems, and Reactor Core Isolation Cooling exhaust vacuum breakers.

Valves: 1R45-F577A, 1R45-F577B, 1R45-F578A, 1R45-F578B, 1R45-F579A, 1R45-F579B, 1E12-F084A, 1E12-F084B, 1E12-F084C, 1E51-F061, 1E51-F079, and 1E51-F081

Category: C

Class: 2 and 3

Function: These class 2 simple check valves (1E12-F084A, 1E12-F084B, 1E12-F084C, 1E51-F061) are used as in-line check valves for the safety-related keep fill pumps discharge lines, for the Low Pressure Core Spray, Residual Heat Removal and Reactor Core Isolation Cooling systems.

These class 3 simple lift check valves (1R45-F577A, 1R45-F577B, 1R45-F578A, 1R45-F578B, 1R45-F579A, 1R45-F579B) break the potential siphon between the Fuel Oil Day Tank and the Fuel Oil Storage Tank to prevent the Fuel Oil Day Tank from siphoning back to the Fuel Oil Storage Tank.

These class 2 simple lift check valves (1E51-F079 and 1E51-F081) break the vacuum on the RCIC exhaust line to ensure suppression pool water is not drawn into the RCIC system piping due to condensing steam following RCIC shutdown.

Test Requirements: OM(10) - 4.3.2, Exercising Tests For Check Valves

Basis for Relief:

1E12-F084A/B/C and 1E51-F061

These simple check valves are the outboard check of a series pair for the safety-related keep fill pump discharge. They provide the high to low pressure interface to prevent overpressurization of the low pressure portion of the system.

Both the associated inboard and involved outboard check valves are in close proximity to each other. The valves being in such close proximity make non-intrusive testing an option that is not preferred due to the difficulty in analyzing the test data (e.g. with acoustics it is difficult to determine which valve closed). Also with the system configuration it is difficult to get reversal/cessation of flow to close the valve with sufficient force to test. At cold shutdown these valves are exercised open by verifying proper keep fill system flow.∴

Valve Relief Request #

VR-4 (Continued)

The associated inboard stop check valves can be verified closed using the manual handwheel (in accordance with the guidance provided in September 26, 1991, Supplement to the public meetings on Generic Letter 89-04). The system configuration does not include test connections between the involved outboard valves and their associated inboard stop check valves. Hence, the closure of the outboard check valves cannot be individually verified. The system would have to be redesigned and modified to perform the code required testing. Disassembly and inspection of these valves on a sampling basis to assess their closure capability provides reasonable assurance of the valves operational readiness.

This relief request has been previously approved in NRC Safety Evaluation Dated August 9, 1999 (Log No. PY-NRR/CEI-0989L) for the Safety-related Keep Fill System check valves.

1R45-F577A/B, 1R45-F578A/B, and 1R45-F579A/B

1R45-F577A and F578A, Division 1 Standby Diesel Generator Fuel Oil Transfer pump siphon breakers, 1R45-F577B and F578B, Division 2 Standby Diesel Generator Fuel Oil Transfer pump siphon breakers, and 1R45-F579A and F579B, Division 3 HPCS Diesel Generator Fuel Oil Transfer pump siphon breakers are simple lift check valves. These valves break the potential siphon between the Fuel Oil Day Tank and the Fuel Oil Storage Tank to prevent the Fuel Oil Day Tank from siphoning back to the Fuel Oil Storage Tank. An attempt was made to comply with the ASME Code required Exercise Closed (EC) by using both the Dynasonics and Controlotron non-intrusive ultrasonic flow meters. The Dynasonics was unable to accurately measure flow since it required suspended solids for proper indication of flow, which, clean Number 2 fuel oil does not have. The Controlotrons were unable to accurately measure flow since they need certain physical attributes (e.g. 15 pipe diameters from flow disturbance) to be met for proper indication of flow, which, could not be met by the piping systems. Also the Controlotrons could not be physically installed in an area of the piping system with laminar flow (upstream side of check) for all the check valves. Acoustical testing was considered but not attempted due to the size of the check valves, the orientation of the check valves and the lack of reverse flow to positively seat the check valve while testing.

Valve Relief Request #

VR-4 (Continued)

1E51-F079 and 1E51-F081	1E51-F079 and 1E51-F081 break the vacuum of the RCIC exhaust piping upon RCIC shutdown. These simple check valves were evaluated by engineering and may not be treated as a series pair assembly, as both valves are needed to perform their function. These check valves currently have no intermediate test connections to allow individual valve testing. The intended long term fix for these valves is to install an intermediate test connection to allow for testing individually. However, in the interim period, sample disassembly and inspections will provide sufficient data to assess their closure capabilities and will provide reasonable assurance of the valves operational readiness. Both the associated inboard and involved outboard check valves are in close proximity to each other. The valves being in such close proximity make non-intrusive testing an option that is not preferred due to the difficulty in analyzing the test data (e.g. with acoustics it is difficult to determine which valve closed). Also with the system configuration it is difficult to get reversal/cessation of flow to close the valve with sufficient force to test. The NRC staff previously accepted valve disassembly and inspection on a sampling basis as an alternative to full flow testing in Generic Letter 89-04, Attachment 1, Position 2. Due to the scope of the activity and system operating restrictions, these valve disassemblies will be performed during reactor refueling outages for the Safety-related Keep Fill System check valves and during on-line divisional diesel outages or reactor refueling outages for the Division 1, 2, 3 valves. All check valves will continue to be exercised open in accordance with OM-10, paragraph 4.3.2. Therefore, in accordance with 10CFR50.55a(a)(3)(ii), it is requested that the proposed alternative be authorized, since it provides reasonable assurance of the check valves operational readiness. Also the imposition of the Code requirements would result in a hardship without a compensating increase in the level of quality and safety.

Valve Relief Request #

VR-4

Alternate Testing:

A sample disassembly and inspection plan which is consistent with Generic Letter 89-04, Attachment 1, Position 2, will be utilized to verify check valve closure. Sample groups may consist of more than 4 valves; however, all valves within each group must be disassembled within a maximum of 3 refueling outages/cycles. The keep fill check valves are exercised open following their re-assembly by verifying proper keep fill pump flow. The siphon breaker check valves are exercised open following their re-assembly by verifying no reverse rotation of the applicable pump when secured.

If a check valve fails its disassembly and inspection, it will be repaired or replaced and satisfactorily retested prior to returning to service.

Valve Relief Request

VR-9

Systems: Penetration Pressurization Series-Pair Check Valves

Valves: 1P53-F572B, 1P53-F573B, 1P53-F574

Category: AC

Class: 2

Function: These P53 check valves serve as air accumulator supply check valves for Lower Containment Airlock inner door small and large seals. They prevent excessive leakage in the event of loss of instrument air (P52).

Test Requirements: OM(10) - 4.3.2, Exercising Tests For Check Valves

Basis for Justification:

1E51-F079/F081	Exercise close testing of 1E51-F079 and 1E51-F081 were moved to VR-4.

Intentionally Left Blank

Valve Relief Request

VR-9 (Continued)

1P53-F572B/F573B and F574	1P53-F572B and 1P53-F573B serve as the lower containment airlock small seal and large seal accumulator check valves respectively. The air supply line upstream of these two check valves is common and contains a third check valve, 1P53-F574 in series. These valves serve as the pressure boundary to ensure adequate seal pressure is maintained upon loss of the Instrument Air (P52) supply. The inflatable seal system pressure boundary is verified operable by conducting a Seal Pneumatic System Leak Test and verifying that system pressure does not decay more than 1.5 psig from 90 psig within 24 hours or 0.45 psig from 90 psig within 8 hours. Satisfactory completion of the decay pressure test verifies the valve leak rate test requirements. The valve seat leakage shall be determined by measuring pressure decay in the test volume with the apparent leakage rate being charged to the valve combination being tested (series check valves). The exercise closed (EC) will be satisfied by obtaining a satisfactory pressure decay test. Verifying the normal position by means other than a pressure decay test is not practical. This test makes the airlocks inoperable for an extended period of time, thus restricting access to the containment. Therefore, performance of the normal position verification on other than the technical specification frequency would result in a hardship without a compensating increase in the level of safety due to a prolonged restriction of access, causing a possible safety concern and unnecessary wear of sealing parts.

Valve Relief Request

VR-9 (Continued)

If the pressure decay test were to fail for the series pair check valves both check valves will be repaired or replaced as necessary.

Alternate Testing: Perform valve exercise testing of the series-pair, 1P53-F572B/F574, and 1P53-F573B/F574, during refueling outage.

SUMMARY OF PROPOSED RELIEF REQUEST FOR VR-5

Valve Relief Request, VR-5 was authorized for use pursuant to 10 CFR 50.55a(a)(3)(ii) upon receipt of NRC Safety Evaluation on August 9, 1999. Even though no NRC comments were made to VR-5, it has been changed since the date of NRC review. The change made will allow the testing of all Diesel Generator starting air solenoids every quarter versus the current frequency of monthly. Requiring the operations staff to perform the pre-startup and post-shutdown engine rolls using both roll methods (normal and alternate) every month has become burdensome. Therefore, VR-5 has been reworded to only require testing of all starting air solenoids once per quarter versus once per month. The Division 1 and 2 diesels will still be started and loaded every month per Technical Specifications, but only one or the other roll method (alternate or normal) will be required at the discretion of the control room to perform the pre-startup and post-shutdown engine rolls. However, every quarter, to satisfy the ASME Code, a surveillance will be performed, requiring that both the pre-startup and post-shutdown air rolls be completed using both methods to roll the engine.

Valve Relief Request #

VR-5

System: Division 1 and 2 Standby Diesel Generator Starting Air (1R44) and Division 3 HPCS Standby Diesel Generator Starting Air (1E22)

Valves: 1E22-F541A, 1E22-F541B, 1E22-F543A, 1E22-F543B, 1R44-F010A, 1R44-F011A, 1R44-F010B, 1R44-F011B, 1R44-F015A, 1R44-F016A, 1R44-F015B, 1R44-F016B, 1R44-F020A, 1R44-F021A, 1R44-F020B, 1R44-F021B, 1R44-F025A, 1R44-F026A, 1R44-F025B, 1R44-F026B

Category: B

Class: 3

Function: Starting Air Valves supply starting air for Division 1 and 2 Standby Diesel Generators and the HPCS Standby Diesel Generator.

Test Requirements: OM(10) - 4.2.1, Valve Exercising Test

Basis for Relief: It is impractical to measure the stroke times of these valves because they are totally enclosed solenoid/air operated valves which have no externally visible indication of valve position. Failure of a valve to perform the required function will result in an increase in the starting time of the diesel generator or failure to secure starting air.

Division 3 HPCS requires both air start solenoids to open to satisfy its starting time for operability, thus normal monthly timing verifies operability. Therefore, the proposed alternative provides an equal level of quality and safety.

Division 1 and Division 2 Standby Diesel Air Starting Systems have two independent air banks with each air bank having two parallel starting air solenoid valves. During performance of monthly diesel surveillance tests, a pre-start air roll and a post-shutdown air roll are performed on each standby diesel. During performance of the pre-start air roll, both air banks are operated and only one parallel starting air solenoid valve in each air bank is energized to roll the diesel. The two energized starting air solenoid valves (one in each air bank) are (1) verified open, by verification of an acceptable diesel start time and (2) verified closed by verification of air being secured upon termination of the air roll. It is feasible that only one set of solenoid valves will be tested for 2 consecutive

Valve Relief Request #

VR-5 (Continued)

months. However, every quarter a separate surveillance (other than the monthly diesel start surveillance's) will require both sets of solenoid valves to be tested.

In accordance with plant procedures, the air roll portion of the monthly surveillance is not permitted to be performed on an operable standby diesel if the other standby diesel is inoperable, since performance of the air rolls on the operable diesel requires declaring the operable diesel inoperable, thus rendering both emergency diesel generators inoperable. Consequently, an extended diesel outage (i.e., greater than quarterly) may cause the operable diesel air start solenoids to exceed the quarterly test requirements. In such cases, the diesel starting air solenoid valves shall be verified operable by satisfactory performance of the monthly diesel runs based on starting times only.

In summary, performance of the quarterly surveillance for diesel air rolls provides an acceptable means of verifying diesel starting air solenoid valve operability. In those situations where conformance to the Code is impracticable for the facility, such as where quarterly diesel air rolls cannot practicably be performed, monthly diesel runs shall adequately demonstrate diesel air start solenoid valve operability. Therefore, the proposed alternatives provide an equivalent level of quality and safety.

A similar relief request (VR-32) had been previously approved per a NRC Safety Evaluation Dated April 5, 1993 (Log No. PY-NRR/CEI-0629L).

Valve Relief Request #

VR-5 (Continued)

Alternate Testing:

At least one set of diesel starting air valves shall be verified operable during monthly diesel generator surveillance testing with both sets of diesel starting air solenoids being tested quarterly per a separate surveillance instruction.

The operability of HPCS starting air valves shall be determined by monitoring HPCS diesel starting time.

Normally the operability of at least one set of Div. 1 and Div. 2 starting air valves shall be determined during performance of monthly air rolls by using one solenoid from each air bank and verifying diesel start times are acceptable. With both sets being tested quarterly by using one solenoid from each bank and using both the Normal and Alternate roll methods. However, air roll testing is not permitted to be performed on an operable standby diesel if the other standby diesel is already inoperable. Therefore, if one diesel remains inoperable for an extended period of time, the diesel starting air solenoid valves shall be verified operable by satisfactory performance of the monthly diesel run.