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NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-338/92-19 and 50-339/92-19

Licensee: Virginia Electric and Power Company
Glen Allen, VA 23060

Docket Nos.: 50-338 and 50-339 License Nos.: NPF-4 and NPF 7

Facility Name: North Anna 1 and 2

Inspection Conducted: August 17-21, 1992

Inspector: M D Hunt 9/23/92
M. D. Hunt Date Signed

Accompanying Personnel: H. L. Whitener, RII
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Approved by: McKenzie Thomas 9/23/92
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Test Programs Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope

This routine, unannounced inspection was conducted in the areas of the licensee's programmatic activities associated with safety related check valves.

Results

In the areas inspected, violations or deviations were not identified. The inspectors identified a weakness and several strengths.

Weakness

No formalized method existed to determine which valves should be placed into the program nor were there documented bases for the valves that were included.

Strengths

The licensee has been involved with the Nuclear Industry Check Valve Users group (NIC) since its inception, and was also involved in other industry activities related to check valves.

The check valve reliability program appeared to be dynamic and capabable of accepting additional data from inspection, maintenance, and industry activities as it becomes available.

The performance rating criteria matrix was a strength in that factors beyond flow, location and orientation were given consideration in check valve evaluations.

The ongoing use of the check valve database to identify individual valve parameters, summarize valve maintenance history, and recalculate performance rating factors was a strength.

REPORT DETAILS

1. Persons Contacted

*R. Enfinger, Assistant Station Manager, Operations and Maintenance
*S. Hamill, Engineer, ISI
*J. Harper, Corporate Operations and Maintenance Support
*D. Heacock, Superintendent, Plant Engineering
*G. Kane, Station Manager
*S. Kotowski, Maintenance Engineer
*J. Leberstien, Shift Engineer
*P. Leinhart, Supervisor, Training
*A. Parker, Acting Superintendent, Maintenance
*T. Porter, Supervisor, ISI
*P. Quarles, Acting Manager, QA
*B. Shriver, Acting Assistant Station Manager, Nuclear Safety and Licensing
*K. Thorton, Engineer, ISI
*E. Throckmorton, Director Corporate ISI/NDE

Resident Inspector

*M. Lessor, SRO
*D. Taylor, RI

2. Background and Scope

The NRC regulations require that check valves be treated in a manner that provides assurance of their performance. Criterion 1 of Appendix A to 10 CFR Part 50, General Design Criteria for Nuclear Power Plants, states in part, that structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. The quality assurance program (which includes testing) to be applied to safety-related components is described in Appendix B to Part 50, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants.

In addition to the general requirements of Appendices A and B to Part 50, Section 50.55a of the NRC regulations references the ASME Boiler and Pressure Vessel Code. Paragraph (g) of Section 50.55a requires that the provisions of Section XI of the ASME Code be met for inservice testing of components covered by the Code.

On August 29, 1988, the NRC staff issued Information Notice 88-70, "Check Valve Inservice Testing Program Deficiencies," as a result of inspections of check valve activities at

several nuclear power plants. A common finding from those inspections was that not all safety-related check valves had been included in the Inservice Testing (IST) programs. Another finding was that some of the check valves within the IST programs were not being tested in a manner that verified their ability to perform their safety-related functions.

On April 3, 1989, the NRC staff issued Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," to assist licensees in correcting several weaknesses that the staff had found in IST programs. Positions 1 through 4 and 10 address the inservice testing of check valves. Position 11 indicates that certain valves have been erroneously omitted from the IST programs in the past. The position further reminds licensees and permit holders that, while 10 CFR 50.55a delineates the testing requirements for ASME Code valves, the testing of valves is not to be limited to only those components covered by 10 CFR 50.55a. Detailed information on the implementation of Generic Letter 89-04 is provided in the minutes of the public meetings held by the staff to discuss the generic letter.

The Office for Analysis and Evaluation of Operational Data (AEOD) has been performing diagnostic evaluations of check valve activities at nuclear power plants and has found numerous deficiencies in those activities. For example, certain check valves have been improperly omitted from the testing program, testing did not demonstrate all safety functions of check valves, check valve failures were not being tracked, and testing programs were not consistent between plants operated by the same licensee.

The overall NRC staff plans to organize activities aimed at identifying and resolving the concerns about testing and performance of check valves is described in NUREG-1352, "Action Plans for Motor-operated Valves and Check Valves," issued in June 1990. The activities outlined in this document include a discussion of check valve problems and performance, evaluation of adequacy of current regulatory requirements, development of inspection guidance, ongoing staff research, cooperation with industry groups, participation in development of codes and standards with national engineering organizations and evaluation of overall NRC staff and industry efforts.

The staff has developed a draft Temporary Instruction (TI 2515/110) to assess the effectiveness of licensee programs regarding the performance and testing of safety related check valves as part of this action plan. The staff is proceeding with implementation of the action plan as presented during the NRC Regulatory Information Conference held in Washington, D. C., on May 7 and 8, 1991.

Scope

The licensee had performed an extensive study on check valves as part of their evaluation of INPO SOER 86-03, "Check Valve Failures or Degradation." This evaluation was well documented and provided a good basis for identifying specific valves to be included in the check valve program.

The check valve program was formally implemented on October 9, 1989 with the issuance of Procedure VPAP-0805, "Check Valve Maintenance Program," Revision 0. At the time of the inspection, the procedure had been revised to incorporate additional information obtained from a design application review and had been retitled Maintenance Department Procedure MDAP-0013, "Check Valve Maintenance Program," Revision 1, 7/15/91. The procedure established: the basis for the program, the check valves to which the program applied, the inspection methods, the performance criteria, trending requirements, frequency of inspection activities, effectiveness reviews, training requirements, and documentation and maintenance history requirements. The relationship of the program to the ASME Section XI (IST) and Appendix J testing requirements were also established. The inspectors found the procedure to be comprehensive in defining the overall administrative requirements of the program.

3. Management Involvement

The inspectors interviewed site and corporate personnel and reviewed documents provided by the licensee to assess the degree of management involvement in the development and implementation of a comprehensive check valve program. Strong management involvement and support was evidenced by the initiation of an engineering study in late 1986 to define a critical check valve list, a selected sample of a portion of the critical check valves to be inspected during each unit outage in 1989, and an additional check valve design application review conducted in 1989. In addition, the licensee assigned a corporate coordinator for the check valve maintenance program and identified a Maintenance Engineer as a site coordinator for the program. The inspectors found site management to be knowledgeable and involved in check valve program activities and decisions, and found the site and corporate coordinators to be competent and knowledgeable of plant and industry activities related to check valves. The licensee has been involved with the Nuclear Industry Check Valve Users group (NIC) since its inception, and was also involved in other industry activities related to check valves.

4. Check Valve Reliability Program

The check valve program defined by MDAP-0013 incorporated 765 check valves for both units. A total of 18 plant systems, including the nine systems identified in INPO SOER 86-03, were reviewed for the presence of check valves. The review found that valves which functioned as containment isolation, pressure boundary, reverse flow prevention or safety class boundary were included in the program. The list was further screened to include those valves whose failure to function correctly would result in equipment failure, loss of containment isolation, loss of reactor coolant, loss of safety function, personnel injury or water hammer. Each valve had been assigned a performance rating based on the design application review described in Section 5 of this report, and the licensee was in the process of performing inspections of the valves and establishing the PM program requirements that were appropriate for each valve.

As of the date of the inspection, 90 individual check valves on Unit 1 and 96 individual check valves on Unit 2 had been inspected at least once since the program was initiated in 1989. Of the total of 186 valves for both units, 30 were disassembled and inspected as part of the IST program requirements. A total of 128 valves for both units were entered into the check valve PM program and a PM frequency had been assigned for repetitive inspections. The remaining 28 valves of the total of 186 had been inspected based on industry information on specific check valve concerns or had been inspected on a one-time basis and exempted from the PM program based on inspection results and performance ratings. The inspectors reviewed maintenance reports for past refueling outages pertaining to check valve inspection activities, and noted that upgrade modifications had been performed on over 40 additional check valve internals based on vendor or engineering recommendations. Based on the above review, the inspectors concluded that the licensee was sensitive to check valve degradation and failure concerns and was actively progressing in the establishment of a check valve reliability program. The program appeared to be dynamic in its application and capable of being improved as additional data from inspection activities, industry feedback and ongoing maintenance activities became available for input to the program.

During the review of the valves which had been assigned to the PM program, the inspectors found that no formalized method existed to determine which valves should be placed into the program nor were there documented bases for the valves that were included in the program. In addition; frequencies had been identified (e.g., 3rd refueling, 5 years, 18 months, etc.) for performing the PM activities but

no documented method existed for determining the inspection frequencies nor was there an established basis for the frequencies which had been assigned to the valves in the program. The licensee agreed to develop the necessary documentation and incorporate it into their program.

The inspectors also found that not all of the program valves had been assigned to the PM program. MDAP-0013, Section 6.2, Frequency, stated that approximately ten percent of the total number of check valves in the Check Valve Maintenance Program, for a specific unit, should be tested or inspected based on a refueling cycle. Guidelines were provided for determining which check valves require inspection. The inspectors were concerned that no specified end date was stated for establishing the valves to be inspected, or reinspected on a periodic basis, and that valves not already inspected and incorporated in the PM program may receive a lower priority than warranted or may not be inspected for many years based on the ten percent guideline. The licensee agreed to review the program and establish a fixed date for initial categorization of those valves requiring inspection and PM tasks versus those valves which could be inspected on an as-requested basis.

5. Design Application Review

The inspectors reviewed documents prepared by Architect-Engineering (A-E) firms that comprised the engineering studies conducted to select and assess the check valves incorporated into the Check Valve Maintenance Program. The document titled, "Check Valve Listing - Check Valve Inspection Program - North Anna Power Station - Units 1 and 2," dated June 1987, contained a listing of all check valves in the systems selected for review, and then identified from that list those check valves which were considered to be in critical applications (defined such that if check valve failure occurred, reactor, personnel, or equipment safety would be affected). The factors and failures defining critical valves were described in Section 4, above.

Using the results of the 1987 document as a starting point, the licensee conducted an additional design review in 1989. Check valves were grouped per manufacturer, size, model number, fluid medium, operating temperature, and pressure. Calculations of minimum velocity requirements were performed for each group of check valves. A design application review, including unit walkdowns, was performed for orientation and location of the valves. The calculations and design application review followed the guidance contained in EPRI NP-5479 for valve application factors, and input for valve data was obtained from available vendor information, or contacts with vendor representatives where required. A

comprehensive check valve data base was prepared as an application program on the licensee's computer systems, and a "Check Valve Preventative Maintenance Program - Performance Rating Program," was prepared to rate and categorize the program valves.

The Performance Rating Program considered nine categories of check valve performance characteristics, and applied a rating factor for the characteristic within each category (0-5) together with a weighting factor between categories (0-5) in a matrix fashion to arrive at a performance rating for each valve. The characteristics considered were; location and orientation, normal flow vice minimum velocity flow, check valve testing performed, maintenance history, operating condition, normal valve position, flow conditions, check valve function, and consequence of failure. Valves with performance ratings of 81 to 130 were considered "critical" valves that should be considered first in any inspection program. The total number of "critical" valves for both units was observed to be less than 15 valves out of the total of 765 valves. The remainder of the valves were divided into high risk, medium risk and low risk categories.

The licensee had performed inspections of 32 valves to date which were considered to have significant "misapplication" factors of flow, orientation and location. Of this total, 25 exhibited no adverse degradation, while seven exhibited some failures. Of those seven, six were main feed check valves for which a design change was in preparation to correct the problems through valve replacement. The licensee stated that none of the valves studied required relocation, and that the misapplication factors in NP-5479 were felt to be conservative.

The inspectors reviewed the program documents and calculations together with the results of the performance rating program for the valves currently listed in the PM program. No deficiencies were found. The inspectors found the performance criteria matrix to be a strength due to the consideration given to the factors beyond flow, location and orientation as well as the relative significance given to these other factors. The inspectors also reviewed the check valve database and found that its ongoing use in identifying individual valve parameters, summarizing valve maintenance history and recalculating performance rating factors was a strength.

6. Control, Evaluation and Implementation of Industry Information

The inspectors discussed the process of receipt, control, evaluation, and implementation of industry information with

responsible licensee personnel. All NRC generic communications, vendor reports, and industry information is received by the on-site Station Nuclear Safety (SNS) group for immediate action requirements and operability evaluation. This same information is also received at the corporate level by the corporate Nuclear Safety group.

The responsibilities and instructions for evaluation of industry information and station events are established by Virginia Power Administrative Procedure (VPAP) 3002, "Operating Experience Program." This procedure directs the following actions:

Initial screening of industry documents is performed by both the station and corporate Nuclear Safety Departments.

At the station level the documents are distributed and reviewed as appropriate for any required immediate action.

At the corporate level the document is entered into the tracking system.

The corporate level analyzes the information and issues a closure summary if there is no impact on the plant. If the plant is affected an Analysis Report is issued, reviewed and forwarded to the plant station assistant manager.

Upon approval by the Assistant Station Manager the item is entered into the Commitment Tracking System (CTS).

The inspectors reviewed a status list for 29 Industry Operating Experience Review documents that related to check valves. From this review it was determined that the program developed for the purpose of reviewing the industry related information is functioning in an acceptable manner and producing the results for which the program was intended.

7. Check Valve Testing Program

The inspectors reviewed selected check valves in the plant systems. The reviews were conducted to verify that selected valves were properly included in the ASME Section XI (IST) test program; that test procedures reflected testing of all safety-related functions; and that the guidelines and issues of GL 89-04 were adequately addressed in the valve testing.

A total of 65 valves were selected for review from main steam, feedwater and auxiliary feedwater, chilled water, component cooling water, reactor coolant, residual heat

removal, chemical and volume control, service water, safety injection and emergency diesel air start systems. The emergency diesel and associated support systems and the charging pump lube oil, seal and gear box coolers were also reviewed to assess the degree to which safety-related skid mounted check valves were addressed in a testing program.

Testing was being performed under Revision 6 of the IST program, which included relief requests submitted by the licensee and granted on an interim basis by the NRC staff. The program had been revised previously (Revision 5) to incorporate the guidance contained in GL 89-04 and submitted to the NRC for review; the current revision was developed for application during the second 10-year inspection interval. Due to the status of the IST program and the continuing review by the NRC staff, the inspectors review during this inspection was limited to selected valve tests and the skid-mounted packages identified above.

The selected check valves were reviewed against the list of check valves in the IST program, and no deficiencies were identified. For valves not included in the IST program, their inclusion in the check valve maintenance program list was confirmed. Five periodic test procedures were reviewed for safety injection valve open and close testing and no deficiencies were found. Periodic test procedures for the charging, component cooling and service water pumps were reviewed to determine the method for confirming the adequacy of idle pump discharge check valve function in a parallel pump situation, and no deficiencies were identified. The inspectors observed that the licensee confirmed backseating of idle pump valves by assuring that the running pump head and flow characteristics were not degraded, as opposed to observing idle pump suction pressure or reverse rotation. The inspectors concluded that this method of backseat verification is acceptable.

During review of the check valve testing program, the inspectors found that no emergency diesel engine-mounted valves were included. The licensee stated that the only engine-mounted check valves were associated with the keep-warm system, which was not vital to the diesel engine function. These engine-mounted check valves were not considered subject to IST requirements. Other skid-mounted check valves which were associated with the diesel engine support systems (starting air, fuel oil transfer) were appropriately included in the IST program. The licensee also identified 24 check valves in the service water system supply to the charging pump lube oil coolers and the seal and gear box coolers that were subject to IST requirements. The inspectors concluded that the licensee was appropriately addressing skid-mounted check valves in the check valve program.

As part of the IST program development, the licensee was in the process of finalizing a document that addressed each safety-related, ASME Code Class 1, 2, and 3 pump and valve. The document provided the basis for each identified valve's presence in or absence from the IST program and the type of required testing. Development of this type of document had been encouraged by the NRC and had been developed by several other licensees. A draft copy was provided to the inspectors for information during this inspection, and the document was found to be comprehensive and useful. The licensee intended to approve and issue the document in the next several months, and maintain it as a controlled document. The licensee informed the inspectors that the preparation effort had identified additional changes that should be incorporated into the IST program, and that revisions would be submitted to the NRC in the near future.

8. Maintenance Program

Administrative Department and Technical procedures were reviewed to determine that the licensee has established an organized, controlled process to identify and track problems through the pre-maintenance, repair and post maintenance activities. Documentation reviewed included, in part, portions of the following procedures:

VPAP-0801, Revision 2, Maintenance Program,
VPAP-0802, Revision 0, Maintenance History Program,
VPAP-0803, Revision 1, Preventive Maintenance Program,
VPAP-1601, Revision 1, Corrective Action,
VPAP-2003, Revision 3, Post Maintenance Testing Program
MDAP-0013, Revision 1, Check Valve Maintenance Program,
PT-61.3, Revision 17, Containment Type C Test,
0-MCM-0431-01, Revision 1, Mission Duo-check and C&S Dual Plate Check Valve Repair,
0-MCM-0436-04, Revision 4, Rockwell-Edward Stop Check Valve Repair,
0-MCM-0421-03, Revision 1, Crane Pressure Seal Tilting-Disc Check Valve Repair,
0-MCM-0424-01, Revision 1, Crane Belted-Bonnet Swing Check Valve Repair,
0-MCM-0431-01, Revision 0, Repair of Mission "Duo-check" Check Valves,
0-MCM-0438-01, Revision 0, S&K Swing Check Valve Inspection and/or Repair.

The above procedures clearly define the authority and responsibility of departments, groups, and individuals. Adequate details for control of the maintenance process are included.

The maintenance program is work order driven. Any maintenance activity requires a work order which will define; the actual activities, proper preparation, proper procedures, post maintenance testing, and follow up activities. The maintenance activities are generally classified as corrective maintenance (CM), preventive maintenance (PM), and repetitive maintenance (RM). PM in the Check Valve Maintenance Program, is a planned, scheduled maintenance which is performed through a work order package on a periodic basis prior to equipment failure. CM is maintenance to repair or restore the functional capabilities of equipment and requires a specific CM work order. RM is maintenance performed on request and has no assigned frequency. Model work orders have been developed and computerized for all check valve PM and RM tasks.

The data from all PM, CM and RM activities for check valves are captured in the data base. Post maintenance testing (PMT) has been pre-identified for the check valve PM activity and incorporated into the model work order system. This PMT matrix interfaces with other plant programs; such as IST, Appendix J, Appendix R, etc.; to assure that appropriate post maintenance testing is performed.

The inspectors tracked four valves through the problem identification, disassembly and repair, and post maintenance testing. The four check valves were:

2-RS-30 Recirculation Spray Containment Isolation

2-CC-199 Component Cooling Supply to RHR Heat Exchanger

2-FW-11 Feedwater Pump Discharge

2-MS-119 Steam Supply to Terry Turbine

Problems with 2-RS-30 and 2-CC-199 were identified through IST and Appendix J periodic testing. The problem with 2-FW-11 was identified when the associated feedwater pump was observed to rotate backwards. The activity associated with 2-MS-119 was a scheduled PM. The inspectors reviewed the Deviation Reports (DR), DR Responses, assignments of Corrective Action, PM and corrective action work orders, Cause Determination Evaluations (CDE), Root Cause Evaluations (RCE), and post maintenance testing as applicable for the four check valves. The inspectors concluded that the licensee had performed the maintenance activities in accordance with station procedures, the IST program, and PM Check Valve Program.

The post maintenance testing verified the opening, closing and leak tight functions of the check valves.

The PM procedures were well written and contained better than average instructions, clear detailed graphics, and thorough documentation of visual and dimensional findings.

9. Trending

The Virginia Power Administrative Procedures (VPAP) No. 3002, "Operating Experience Program," requires issuance of Trend Reports at least quarterly. Additionally, at least monthly summaries of new DRs are distributed.

VPAP No. 3002 assigns the Station Nuclear Safety (SNS) group responsibility for tracking and trending the DRs in a computer database. It defines the items to be trended and requires that the data base be kept current. The SNS is required to evaluate and identify adverse trends, patterns, or potential common mode failures and issue summary reports to designated management personnel. This trending program is generic to all components and systems at the North Anna Plant.

10. Corrective Action Program

The inspectors reviewed VPAP-1601, Revision 1, "Corrective Action Administrative Procedure" and confirmed that the licensee has delineated the responsibilities and processes for identification, assessment, implementation, tracking and close out of corrective actions. Key elements in the process are DRs and tracking systems, such as the Commitment Tracking System (CTS).

The licensee maintains a low threshold for issuance of DRs which are subsequently screened for significance by the SNS group and assigned to the appropriate department for cause evaluation and development of a corrective action plan. The proposed corrective action plan is concurred in by SNS and the Station Nuclear Safety Operating Committee (SNSOC) and then implemented through the work order system. Long term actions are entered into a tracking system such as CTS to monitor implementation. Both SNSOC and the Management Safety Review Committee (MSRC) review the closed DRs.

The inspectors tracked four valves through the corrective action process and found the documentation adequate. Two valves with seat leakage had no previous history of problems. The inspectors reviewed the DRs, response to the DRs proposing seat repair and return to service, the work order package (including the maintenance procedure implementing the repair), and the post maintenance testing. These were found to have been processed in an adequate and timely manner. For a third valve scheduled for PM; the work order

package, maintenance procedure, and post maintenance test procedures adequately documented the disassembly, inspection, repair, re-assembly and testing involved. The fourth valve, 2-FW-11, had a chronic history of failure due to loose, missing or worn internal parts. In addition to the routine processing, the inspectors found that a Cause Determination Evaluation (CDE) had been performed which recommended a Root Causal Evaluation (RCE). The RCE determined that the tilt-check valve was undersized and located in turbulent flow. The interaction between valve design, turbulent flow, and relatively low fluid velocity resulted in constant disc flutter which caused abnormal internal wear and damage. The valve was found to be unsuitable for the application. Engineering studies of the options available to correct this condition resulted in a decision to replace the tilt-check valve with a different valve design. Designs for a replacement valve are being analyzed.

Based on the sample reviewed, the inspectors concluded that the corrective action program has been effectively implemented for the check valve program.

11. Preventive Maintenance Program

The preventive maintenance program for check valves was in the process of development and was found to have several weaknesses, as discussed in Section 4, above. The valves currently in the PM program had been disassembled and inspected previously, as confirmed by the review of outage and quarterly reports of check valve maintenance activities. A good overlap between the IST program testing and the PM program was noted since over 60% of the PM program valves were also subject to IST requirements. Another noted strength was that the same maintenance procedures were used for disassembly of valves under both the IST and PM programs.

12. Use of Non-Intrusive Test (NIT) Methods

The inspectors reviewed the use of NIT in determining valve position to meet IST program requirements and extension of its use to measure check valve degradation under the PM program. The inspectors found that NIT was being used only on a limited basis by the licensee. Testing services were being supplied by vendors on an as-required basis by the licensee, with no in-house equipment currently in use.

The licensee was an early participant in NIT activities and supported the NIT testing of non-intrusive methods at the Utah State Water Research Laboratory. The corporate Check Valve Coordinator provided the inspectors with several

assessments of check valve NIT methods and status, one that had been issued in early 1991 and another that had been issued in August 1992. The first assessment concluded that NIT was viable, but that additional in-place evaluation of vendors was required prior to purchase of a system. The second assessment reported the results of an evaluation of five vendor test methods and equipment and recommended a system for eventual purchase and interim use on a service basis. Visits were made to vendor facilities to evaluate the test system against the requirements established by the licensee. The recommended testing system combined acoustic and magnetic techniques to provide the maximum amount of information on check valve conditions.

To date, the licensee had not employed NIT in the IST program at this site to confirm valve disc position in lieu of disassembly and inspection. Acoustic monitoring was used successfully at another licensee plant to confirm full open position of accumulator check valves and eliminate the need to disassemble and exercise the valves. Fifteen valves in each unit were disassembled, inspected and exercised as allowed under the relief requests granted in Revision 6 of the IST program.

13. Training

The inspectors reviewed the training provided to personnel involved in the maintenance, inspection, testing, and diagnostic evaluation of check valves. The training for use of non-intrusive testing equipment and the interpretation of test results had not begun, since the licensee was in the process of evaluating test equipment at the time of the inspection.

The training of the craftsmen and technicians is a generic program which provides basic training for all craftsmen in their given field of expertise and then specialized training in the equipment to be maintained, repaired, or inspected. If the craftsman has not completed training on a piece of equipment, the work can be performed under the guidance of a craftsman who has completed the required training.

The inspectors were presented a roster which designated the training requirements for maintenance engineering training, PM program engineering training, PM program non-intrusive testing, PM program operator, and PM program mechanical. The roster contained the names of individuals who have completed various phases of training. Additionally, the licensee had developed a training lab for the training of personnel involved the maintenance and repair of check valves and motor operated valves.

personnel involved the maintenance and repair of check valves and motor operated valves.

The training program and the development of the "hands-on lab" is considered a strength.

14. Walkdown Observations

There was no check valve testing or maintenance being performed during this inspection. Walkdowns were conducted on parts of the reactor feedwater systems and the emergency diesel generators to assess the material condition and installed configuration. No concerns were identified.

15 Licensee Self Assessment

The inspectors reviewed Quality Assurance Inservice Inspection Audit 91-16 report dated January 17, 1992. The audit was completed to verify that valve testing, component support examination, pressure testing, eddy current examinations, and pump testing programs were in compliance with ASME XI, Generic Letter 89-04, ISI Program Submittals to the NRC and the Station's Technical Specifications. The audit did not identify any significant deficiencies. The inspectors review of the audit report and associated documentation verified that the audit findings were correct.

16. Exit Interview

The inspectors met with the licensee representatives, denoted in Paragraph 1, at the conclusion of the inspection on August 21, 1992. The inspectors summarized the purpose and scope of the inspection and the findings. No violations or deviations were identified and no dissenting comments were received from the licensee.