U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket/Report No.	50-277/91-20 50-278/91-20	License Nos.DPR-44 DPR-56

Licensee: Philadelphia Electric Company
Peach Bottom Atomic Power Station
P. O. Box 195
Wayne, PA 19087-0195

Facility Name: Peach Bottom Atomic Power Station Units 2 and 3

Dates: June 9 - July 8, 1991

Inspectors: J. J. Lyash, Senior Resident Inspector
L. E. Myers, Resident Inspector
M. G. Evans, Resident Inspector

Approved By: L. T. Doerflein 7/18/91
L. T. Doerflein, Chief Date
Reactor Projects Section 2B
Division of Reactor Projects

Areas Inspected:

The inspection included routine, on-site regular, backshift and deep backshift review of accessible portions of Units 2 and 3. The inspectors reviewed operational safety, radiation protection, physical security, control room activities, licensee events, surveillance testing, engineering and technical support activities, and maintenance.

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Plant Operations

A fast power reduction and manual reactor scram were performed in response to an isolation of the Unit 2 main condenser offgas system. Actions implemented by the control room staff were prompt and effective in minimizing the severity of the transient (Section 2.2).

During the report period the licensee identified and quickly addressed an uncoupled control rod. The technical analysis developed in support of an exigent Technical Specification Amendment to allow subsequent withdrawal of the control rod appeared thorough (Section 1.1).

The inspector identified two control room ventilation system Technical Specification (TS) deficiencies. The licensee is implementing actions to clarify the interpretation of the TS in the short-term. A TS change has been initiated to resolve the issue permanently (Section 1.2.1).

Maintenance and Surveillance

The inspector found that the licensee had not effectively implemented corrective action in response to a previous NRC violation regarding control, use, and storage of Measuring and Test Equipment (M&TE). In response, the licensee implemented prompt action to establish appropriate controls (Section 4.2, NV4 91-20-001).

The physical condition of plant equipment and general housekeeping observed by the inspectors was good (Section 1.2).

Engineering and Technical Support

The inspector and licensee continued to identify omissions of safety-related equipment from the licensee's Q-List. In addition, the inspector noted that licensee maintenance planners use uncontrolled information sources to supplement the Q-List in determining the classification of safety-related equipment, because the Q-List is incomplete and difficult to use (Section 1.2.1, 1.2.2 and 3.1).

The scope and use of Quality Assurance Diagrams (QAD) was not clearly defined or understood by licensee personnel (Section 9.0).

The inspector identified an improperly processed Nonconformance Report (NCR). The licensee did not perform an appropriate interdisciplinary review of the NCR disposition. The plant staff changed the NCR without processing a NCR revision. As a result, a drawing affected by the NCR was not revised. Engineering management response to this finding was thorough (Section 1.2.2).

The inspector identified several uncontrolled Alarm Response Cards posted at a remote ventilation control panel (Section 1.2.2).

Assurance of Quality

The inspector found that the licensee had not implemented effective corrective action in response to identified Q-List deficiencies . Specifically, the root cause analysis in response to a licensee Corrective Action Request did not address the broad issue of Q-List completeness. As a result, the NRC and the licensee continue to identify Q-List deficiencies. Licensee engineering department and station management coordinated effectively to identify and initiate needed corrective actions (Section 3.1, NV4 91-20-001).

DETAILS

1.0 PLANT OPERATIONS REVIEW

1.1 Routine Observations (71707, 92700)

The inspector completed NRC Inspection Procedure 71707, "Operational Safety Verification," by directly observing activities and equipment, touring the facility, interviewing and discussing items with licensee personnel, independently verifying safety system status and limiting conditions for operation, reviewing corrective actions, and examining facility records and logs. The inspectors performed 10 hours of deep backshift and weekend tours of the facility.

During the inspection period licensee control room operators identified an uncoupled control rod on Unit 3. The plant staff implemented prompt action to insert and disarm the uncoupled rod, and to insert the three symmetrical rods. The licensee's technical staff, with support from General Electric, developed a request for an exigent Technical Specification Amendment to allow withdrawal of the rod at power levels greater than 10%. The inspector determined that the analysis provided in support of the change was thorough. Immediately following the close of the inspection period the Amendment was approved and issued by the NRC. During the time the uncoupled rod was inserted the licensee was unable to achieve 100 % power. The licensee prepared, approved and implemented a special procedure to reduce reactor power, isolate steam to the last stage of feedwater heaters and ascend in power while monitoring feedwater supply temperatures. By reducing the feedwater inlet temperature the licensee was able to return the [illegible] near full power. The inspector reviewed the licensee's Fuel Reload Analysis, the safety evaluation supporting removal of this portion of feedwater heating, and the approved special procedure. This activity appeared to be well reviewed, planned and controlled. The inspector had no further questions.

1.2 Safety-Related Ventilation System Walkdown And Review (71710)

During the period the inspectors evaluated the operational readiness of two safety-related ventilation systems. This evaluation included walkdowns of system components to inspect physical condition; verification of proper mechanical, electrical and instrument line-ups; review of the adequacy of selected operating and surveillance test procedures, and comparison of system design drawings against actual configuration, the FSAR and licensee operator training material. The inspectors' findings for each of the systems reviewed are described in the following sections.

1.2.1 Control Room Emergency Ventilation System

The control room emergency ventilation system (CREVS) supplies treated air and maintains a positive pressure in the control room if high radiation is sensed at the normal

ventilation intake duct. The system consists of two redundant trains. Each train includes two high efficiency particulate air (HEPA) filters, charcoal absorber beds, a fan and dampers. The two trains share common intake and supply ducting. If high radiation is sensed at the ventilation intake, all normal ventilation systems isolate and the CREVS automatically initiates. Two intake radiation monitors provide the inputs to the logic. An isolation/initiation signal is generated if 1) low flow or instrument failure conditions exist for both radiation monitor channels (two out of two logic), or 2) either monitor senses high radiation (one out of two logic). The inspector reviewed relevant sections of the FSAR, Technical Specifications (TS), mechanical design drawings and electrical schematics. The system operating (SO), surveillance test (ST) and special procedures (SP) reviewed as part of the inspection are listed in Attachment I.

Inspector walkdown of system components indicates that they have been maintained in good physical condition. All equipment line-ups were consistent with system operability requirements and procedures. Surveillance test procedures appear to be technically adequate and test status was current. Operating procedures include an adequate level of detail. During the review the inspector identified several discrepancies warranting licensee attention. These issues are listed below:

- The inspector noted that radiation monitor panels 2AC195 and 2BC195, and a number of relays contained in those panels were not listed on the licensee's Q-List. These panels and components clearly serve a safety-related function in that they isolate normal ventilation and initiate CREVS on high radiation. When questioned, the licensee's engineering organization provided recently initiated nonconformance report (NCR) P91412, documenting that the licensee had also identified these discrepancies. The licensee review which generated the NCR was being conducted in response to a series of problems related to the adequacy of the Q-List which are the subject of NRC Unresolved Item 91-16-005. This issue is discussed further in Section 3.1 of this report.

- The TS requires treatment train testing and analysis once per year or every 720 hours of system operation. The licensee performs this testing annually, but no mechanism was in place to track system operating time. Inspector discussion with operators and the system engineer indicated that operating times on the system were minimal. However, in response to the inspector's question the system engineer initiated a procedure, similar to that used for the standby gas treatment system, to log CREVS start and stop times and to initiate testing if 720 hours is reached.

- TS 3.11.4.b requires periodic analysis of a charcoal sample to verify methyl iodide removal effectiveness. A separate surveillance requirement on TS page 234 requires verification of halogen removal efficiency for the sample. The licensee performs the methyl iodide, but not the halogen removal analysis. TS Amendment No. 113/117 dated March 19, 1986, significantly revised the TS for CREVS. The licensee's submittal and the NRC Safety Evaluation discuss the CREVS TS on pages 233 and

233a, but not the related specifications contained at the top of page 234. Although not discussed, the issued amendment contained page 234. The inspector questioned why the halogen test was not being performed. The licensee stated that the TS on page 234 should have been deleted as part of Amendment No. 113/117. The system engineer contacted the charcoal vendor and confirmed that the halogen test was not needed, given the other testing required by the TS. The licensee initiated a TS change to correct the error. The inspector discussed the issue with NRC project management and TS specialists who confirmed that this test should not be required.

- TS 3.11.A.5 requires that at least one of the two control room intake air radiation monitors be operable with the inoperable channel failed safe, or filtration of the control room ventilation air must be initiated. The low flow/monitor failure logic can be failed safe without initiating CREVS. Tripping the high radiation function would result in an automatic CREVS initiation. Since CREVS provides no cooling, initiation of the system quickly leads to an elevated control room temperature. The TS Bases description of logic operation is not consistent with the actual configuration. It appeared to the inspector that the TS were developed based on an incorrect understanding of the system configuration.

  The inspector noted that during performance of two SPs implemented during 1990 the radiation monitors were deenergized one at a time for a period of about 5 to 6 hours, making them inoperable. The SPs directed that the low flow/monitor failure logic be failed safe. The high radiation trip logic channel was not failed safe for the reasons stated above. The inspector questioned if this approach was in accordance with the TS. In this case the duration was short. However, extension of this approach would allow one of the two monitors to be inoperable indefinitely without action to address this single failure vulnerability.

  Subsequently, on July 2, 1991, the "A" radiation monitor drawer failed and caused an automatic CREVS initiation. The licensee reported the actuation to the NRC via ENS. The licensee installed a temporary plant alteration failing the low flow/failure logic safe, but not the high radiation trip, and restoring CREVS to standby status. The inspector again questioned the licensee's interpretation of the TS and the duration that this condition would be allowed to exist. The licensee stated that they interpreted the TS to require tripping only the low flow/failure logic. However, the licensee also indicated that 1) the instrument would be repaired and returned to service as quickly as possible; 2) a Plant Operations Review Committee TS Position would be developed defining the method of "failing safe" the channel, and placing a limit on the length of time a channel could be inoperable without initiating CREVS; and 3) a TS change would be initiated to revise the Specification and Bases to accurately reflect the system design. The licensee later returned the inoperable radiation monitor to service and initiated a TS change to correct TS 3.11.A.5 and the Bases.

Based on the observed physical condition and correct line-up of system components, and the successful completion of routine surveillance tests, the inspector concluded that the CREVS was capable of performing its function. The weaknesses discussed above were acknowledged by the licensee and actions were initiated to address them.

1.2.2 High Pressure and Emergency Service Water System Ventilation

The high pressure and emergency service water (HPSW/ESW) ventilation system supplies cooling and ventilation to the pump rooms housing the HPSW/ESW pumps with sufficient redundancy to ensure proper operation of equipment during normal and accident conditions. The system consists of two redundant trains for each unit. Each train consists of supply and exhaust fans and dampers. The inspector reviewed FSAR Section 10.14, TS, mechanical design drawings, electrical schematics, the Q-List and applicable Quality Assurance Diagrams (QADs). The SOs, STs, Maintenance Request Forms (MRFs), and NCRs reviewed as part of this inspection are listed in Attachment I.

During a walkdown of system components, the inspector noted that the equipment was lined up per the system operating procedures and appeared to be well maintained. The inspector reviewed applicable STs and noted that the procedures appeared to test the system function adequately. However, during the walkdown and procedure review the inspector identified the following concerns.

- Annunciator response cards (ARC) 20(30)C139 1(A-1) and 2(A-2) dated October 27, 1986, and October 31, 1986, located at panels 20(30)C139 in the HPSW/ESW pump rooms appeared to be old and not controlled. The inspector brought this concern to the attention of licensee Document Control Center (DCC) personnel who verified that the ARCs were not controlled. The ARCs for panels 20(30)C139 had been rewritten and replaced by new ARCs 20C139 A-1, 30C139 A-1, 20C139 A-2, and 30-C139 A-2 on April 17, 1990. However, this location (HPSW/ESW pump rooms) was not included on the list of controlled satellite locations. The licensee's prompt corrective action included removing the uncontrolled ARCs and replacing them with the new ARCs, and inspection of other remote locations (such as the cooling towers and outer intake structure) to assure that appropriate controlled procedures were in place. A member of the DCC and the operations staff subsequently walked down all panel locations on site to verify that appropriate ARCs were in place. As a result of this walkdown the licensee identified that ARCs which had been written and approved in mid-January 1991 for the North and South Substations had not been placed at these locations. The DCC list of controlled satellite locations has been appropriately updated and the ARCs were placed at the substations. In a previous inspection, the NRC identified concerns with the licensee's control of documents and this appears to be another example of a weakness in this area (Update UNR 91-08-001) and a weakness in the interface between the Operations and Document Control departments.

- During review of NCR P90584 and the MRFs utilized to correct a HPSW/ESW ventilation logic design deficiency, the inspector reviewed several drawings and noted that electrical schematic E-202, "Electrical Schematic Diagram, Intake Structure Ventilation System," Revision 12, did not depict the changes which had been made under the NCR. In addition, the inspector noted that the file for E-202 did not include a copy of NCR P90584 which identified the required change in the logic, and the Design Change Document Tracking System (DCDTS) did not list NCR P90584 as affecting E-202. Upon further review of the NCR, the inspector noted that (1) the second page of the NCR listed E-202 as a drawing affected by the NCR and (2) the NCR and the 10CFR50.59 review determination for the NCR were prepared and reviewed by mechanical engineering design group personnel and received no interfacing review by electrical engineering design group personnel. The inspector discussed these issues with licensee engineering management who spoke with the personnel involved. A System Engineer (SE) on site had made a list of drawings affected by the NCR and this list was added to the NCR as the second page following approval of the NCR disposition by NED. Since the drawing numbers added on the second page included an additional drawing not identified in the original NCR scope, the NCR should have been revised. A revision would have required subsequent review and approval by NED. The system engineer stated that he did not realize that the NCR could be revised. The mechanical engineer who dispositioned the NCR stated that he considered changing E-202, however, after reviewing the drawing he decided that it did not need to be revised and therefore did not request interfacing group review.

  The inspector reviewed Nuclear Group Administrative Procedure (NGAP) NA-03N001, "Control of Nonconformances," Revision 2, and noted that the process for revision of NCRs appeared to be adequately addressed. However, the inspector noted that minimal guidance is given to the engineer preparing the NCR regarding the need for interfacing group review. The inspector further discussed these issues with licensee management. In response to the problem noted above, NED management immediately initiated a review of dispositioned NCRs for the Peach Bottom and Limerick stations to determine if similar problems existed. Briefings were promptly provided to NED and Technical Staff engineers on the NCR process and the need for interdisciplinary reviews. In addition, NED management committed to revise NCR P90584, to provide further training to the NED engineers regarding interfacing group review, and to review the need to revise NGAP NA-03N001 to provide further guidance. Technical management committed to provide training to SEs regarding the NCR process. Based upon the minor significance of the missed change to E-202, and the actions licensee management has taken or planned to prevent recurrence, the inspector concluded that the licensee appropriately addressed the identified issues.

- The inspector reviewed the Instrument Calibration Data Sheets for temperature indicating controllers (TICs)-20223, -20224-01, and -20224-02 which are identified as

'Q' on the Q-List. The inspector noted that the Instrument Calibration Data Sheets were inconsistent with the Q-List in that TICs-20223 and -20224-02 were not designated as 'Q'. The inspector identified this discrepancy to the licensee and the calibration sheets were corrected to reflect the 'Q' status. However, while discussing this issue with maintenance planners, it appeared to the inspector that the planners use information sources such as the Data Acquisition Q-List, CHAMPS, the Quadrex Reference Document, and Instrument Calibration Data Sheets which are all uncontrolled documents, rather than the Q-List when determining the quality classification of safety-related equipment. The maintenance planners appear to use these other information sources because the Q-List is incomplete and difficult to use. The inspector discussed this issue with Maintenance management who acknowledged the inspector's concerns and promptly provided additional guidance to the maintenance planners regarding use of the Q-List. The licensee indicated that the long-term corrective action to this issue is the implementation of the Master Equipment List (MEL) in the Plant Information Management System. Additional issues regarding the Q-List are discussed in Section 3.1 of this report.

- The inspector noted that pneumatic operators PO-20223-1 to 4 and PO-30223-1 to 4 were identified as 'Q' on Quality Assurance Diagram (QAD) M-896, but were not identified on the Q-list. The licensee determined that a typographical error had occurred which resulted in the pneumatic operators being added to the Q-List as PO-20233-1 to 4 and PO-30233-1 to 4. The licensee initiated an Engineering Change Request (ECR) to correct the Q-List. This issue is also further discussed in Section 3.1 of this report.

The inspector concluded that the high pressure and emergency service water ventilation system was capable of performing its intended function. The specific concerns discussed above were acknowledged by the licensee and appropriate corrective actions were initiated.

2.0 FOLLOW-UP OF PLANT EVENTS (93702)

During the report period the inspectors evaluated licensee staff and management response to plant events to verify that root causes were identified, appropriate corrective actions implemented and required notifications made. Events occurring during the period are discussed individually below.

2.1 Unit 2 Pressure Transmitters Not Seismically Supported

On June 24, 1991, the licensee determined that Unit 2 torus wide range pressure transmitter (PT) 4952 and torus containment atmosphere dilution system (CAD) PT 4955 were not seismically supported. The support for the PTs was mounted on nonseismic floor grating and only one of four anchor bolts was installed.

Prior to the event Modification 5130 had been initiated to replace the PTs with comparable Rosemount transmitters. Engineers walking-down the transmitters in preparation for modification implementation determined that the supports did not meet seismic standard G-14, "Specification for General Project Class I Seismic Requirements for Equipment, Instrumentation, Systems, and Components." The problem was immediately reported to the Shift Manager. The pressure transmitters were isolated at 2:20 p.m. on June 24. The licensee examined other pressure transmitters on both units and found no other discrepancies. Isolation of the PTs does not require entry into a TS LCO. The PTs will remain in this condition until completion of the modification.

2.2 Unit 2 Unplanned Scram Due to Low Condenser Vacuum

At 11:06 a.m. on June 27, 1991, the reactor was manually scrammed after an automatic actuation of the "A" reactor protection system occurred due to low condenser vacuum. The condenser vacuum did not appear to be recoverable, and the reactor was scrammed before the heat sink was lost. Reactor vessel level dropped to -25 inches, initiating a primary containment isolation system (PCIS) Group II and III isolation. All safety systems responded as expected, except for the outboard equipment drain sump isolation valve which continued to indicate open. The reactor operator successfully closed the valve from the control room after the isolation was reset.

The low condenser vacuum condition was caused by trouble shooting activity on the out of service "B" steam jet air ejector (SJAE). System Engineers (SE) were attempting to determine the cause of oscillating "SJAE" steam flow which had been noted during plant startup. The SEs suspected a problem with either the high pressure steam control valve, PIC-2239B, or the relief valve (RV) 2617B located downstream of the control valve. A Troubleshooting Control Form was prepared and approved to pressurize the system to determine which component was the cause of the oscillation. When pressure increased to 110 pounds per square inch gauge (psig) the RV opened. The normal RV set point is 135 psig. The common steam header to both the "A" and "B" SJAEs and the operating jet compressor decreased in pressure. The operator assisting the SE manually closed the "B" high pressure steam control valve. This caused header pressure to increase rapidly, and the operating jet compressor isolated on high discharge pressure.

Before vacuum decreased to the trip point of -23 inches of mercury, the reactor operators entered procedure OT 106, "Condenser Low Vacuum." Reactor power was reduced from 100% to 60% before the scram by reducing recirculation flow and inserting control rods per GP-9-2, "Fast Reactor Power Reduction." After the scram the steam supply was restored to the "A" jet compressor and condenser vacuum was returned to the operating range. Inspector review of operator response to this event indicated that prompt and effective actions were implemented to minimize the severity of the transient.

The outboard equipment drain sump isolation valve was inspected. It was suspected that the solenoid plunger hung-up when the coil was deactivated. The solenoid was replaced

and bench tested. No failure was observed. When the PCIS surveillance was performed prior to startup, valve split indication was observed. Further inspection found the stem position tab bent so that the closed limit switch was not activated. This was repaired, and retesting of the valve was satisfactory. The relief valve on the "B" SJAE was also replaced. The inspector had no further questions.

2.3 Unit 3 Scram Due to a Main Generator Output Breaker Trip

On July 7, 1991, a Unit 3 main generator lock-out and reactor scram occurred following a trip of the main generator output breakers. Severe thunderstorms had been reported before the trip. Lightning strikes near the switchyard and main offgas stack occurred earlier in the day, as indicated by loss of some main stack and meteorological instrumentation. At about 11:12 p.m. the main generator output breakers in the switchyard tripped. A generator lock-out and main turbine trip followed. The turbine control valve fast closure initiated a reactor scram. Reactor pressure reached about 1095 psig and reactor level dropped to about -25 inches during the transient. No safety relief valves lifted. All safety systems responded as expected. The increase in reactor pressure caused a trip of the alternate rod insertion (ARI) system. The ARI TS high pressure trip setpoint is 1120 psig, but the actual setpoint is about 1090.

The licensee investigated the cause of the trip and discovered that the ring bus circuit breaker 65 block switch had been severely damaged. Lightning burned and fractured the switch frame and insulators, and melted and fused the wires terminated on the switch. The damage had been sustained earlier in the day. The damage did not immediately cause a generator lock-out. However, during the next several hours the condition of the switch deteriorated and eventually caused the trip. The licensee replaced the component and related wiring, and performed testing on the remainder of the circuit and devices. The lightning storm also caused several DC electrical system grounds. At the close of the inspection period the licensee was troubleshooting to identify the scope and location of the DC grounds, and activities associated with the block switch replacement were ongoing. The inspector had no further questions at this time.

3.0 ENGINEERING AND TECHNICAL SUPPORT ACTIVITIES (40500, 42700, 35502)

3.1 Omissions From the Licensee's "Q" Equipment List

As discussed in NRC Inspection Report 91-16, during the last several months the inspector or the licensee identified various pieces of equipment required to be treated as safety-related, and some as EQ, that were not contained in the Q-List or treated as EQ. The inspector was concerned that the errors may reflect an underlying weakness in the licensee's program in this area. The item was left unresolved (UNR 91-16-005) pending comple-

tion of the licensee's review of these events and additional assessment by the inspector. During this inspection, additional concerns regarding the Q-List were identified by the inspector including that (1) radiation monitor panels and a number of relays in those panels and pneumatic operators (Section 1.2.1 and 1.2.2) were not listed on the Q-List, and (2) maintenance planners may use information sources other than the Q-List when determining the quality classification of safety-related equipment, because the Q-List is incomplete and difficult to use (Section 1.2.2).

In November 1989, contractor review of Q-List Revision 23 versus the issued P&IDs identified a large number of inconsistencies, including examples where 'Q' equipment was not listed on the Q-List. On December 27, 1989, the licensee wrote NCR P891022 to document these discrepancies and to determine the root cause of the process breakdown that allowed the inconsistencies to develop. On October 23, 1990, the NCR was voided and individual NCRs were written to address the specific technical discrepancies. Corrective Action Request (CAR) Q0000300 was initiated to address the root causes. A root cause analysis (RCA) was conducted, the report was issued on January 17, 1991, and CAR Q0000300 was closed on January 18, 1991. The inspector reviewed NCR P891022, CAR Q0000300 and the RCA and concluded that the root cause of safety-related items on the P&IDs not being on the Q-List was not adequately investigated and addressed. The RCA focused on a limited group of discrepancies related to a particular modification, and did not address the broader issue of Q-List completeness. In addition, as exemplified by the issues listed above, discrepancies still exist in the Q-List. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires in part that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected, and in the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The inspector informed the licensee that failure to appropriately analyze the root cause of the Q-List discrepancies is considered a violation of 10 CFR Part 50, Appendix B, for failure to take appropriate corrective action (NV4 91-20-001).

On June 28, 1991, the licensee initiated Management Corrective Action Request (MCAR) Q0001226, which addresses the concern that the component Q-List appears to be incomplete. The MCAR requires that the RCA associated with CAR Q0000300 be reviewed to determine if the appropriate actions were taken to improve the Q-List program and controls. The inspector found that these actions appeared to be directed at resolution of the issue. The general issue of control of the Q-List, the specific discrepancies with the Q-List identified in this report and in unresolved item 277/91-16-005 will be reviewed during followup to this violation. For documentation purposes unresolved item 91-16-005 is closed.

4.0 SURVEILLANCE TESTING OBSERVATIONS (61726, 71707)

4.1 Routine Observations

The inspectors observed surveillance tests to verify that testing had been properly scheduled and approved by shift supervision, control room operators were knowledgeable regarding testing in progress, approved procedures were being used, redundant systems or components were available for service as required, test instrumentation was calibrated, work was performed by qualified personnel, and test acceptance criteria were met. Daily surveillances including instrument channel checks, jet pump operability, and control rod operability were verified to be adequately performed. The following tests were observed and/or test results were reviewed during the inspection period:

ST-0-007-430-3 Drywell/Torus Vacuum Breakers Operability Test;

ST-0-033-300-2 ESW, ESW Booster, ECW, Pump, Valve and Unit Cooler Fans Functional Inservice Test; and

ST-9.21-2 Jet Pump Operability - Single Loop Operation.

The inspector did not identify any concerns.

4.2 Control of Measuring and Test Equipment

In December 1990, the inspector identified that the licensee had not established and implemented PORC and QA approved procedures for control of Measuring and Test Equipment (M&TE) (NV4 90-22-003). During the current inspection the inspector reviewed the licensee's actions in response to this violation. The inspector reviewed Administrative Procedure A-138, "Control and Use of Measuring and Test Equipment," Revision 0, effective date March 15, 1991. In addition, the inspector toured the areas where calibrated M&TE is stored including the Instrument and Control (I&C) M&TE room, the maintenance tool room, the maintenance hot shop, and the Chemistry and Operations M&TE cabinets, and interviewed cognizant licensee personnel at each location. The inspector looked specifically at the controls established to ensure that work performed is traceable to M&TE, that the M&TE is properly stored, and that sufficient investigation is performed to determine the validity of calibration and test data upon identification of an out-of-tolerance condition.

The inspector found that A-138 appeared to provide adequate controls for the use of calibrated M&TE on site. The inspector also found that I&C and maintenance M&TE was adequately controlled per A-138. The inspector noted that the M&TE was stored in an organized manner and was appropriately logged in and out. The inspector reviewed several out-of-tolerance reports prepared by the maintenance and I&C work groups and found that

the licensee performed sufficient investigation and took appropriate corrective action when required. The program in place comprehensively resolved the concern in these areas. However, the inspector found that the Operations and Chemistry departments were not controlling their M&TE per A-138 as discussed below.

- Following an audit of the Operation's M&TE cabinet and discussions with various operations personnel, the inspector determined that operations personnel were not adequately logging their use of M&TE. For example, the inspector found that at least ten pieces of M&TE were missing from the Operations M&TE cabinet and had not been logged out, several pieces of M&TE were stored in the Shift Technical Advisor's (STA) office near the control room and their usage was not routinely logged, and stop watch usage in the control room was not routinely logged.

- On May 7, 1991, a velocity probe and velocity meter assigned to the Operations department were recalled by the standards laboratory because a calibration standard used for certification of the equipment had been found to be out-of-tolerance. The inspector noted that the required out-of-tolerance report was not completed by the work group.

- The inspector determined from discussions with the issuer of operations M&TE that he had on several previous occasions inventoried the operations M&TE cabinet and noted that pieces of M&TE were missing. He informally documented the findings, however, it appears that no corrective action was taken as a result of the findings.

- The inspector discussed the control and use of Chemistry M&TE with the responsible Chemistry personnel who stated that procedure A-138 did not apply to that M&TE. Following discussion with the cognizant I&C personnel who developed A-138, the inspector determined that A-138 had been intended to apply. The scope of A-138 states that the procedure does not apply to chemistry equipment and instrumentation. However, this statement relates to permanent plant chemistry equipment and instrumentation not M&TE. The inspector noted that the result of this misunderstanding on the part of the Chemistry personnel appeared to be minimal since there are only approximately six pieces of M&TE used by Chemistry and they are used in only a few routine surveillance tests, so usage is relatively traceable.

The inspector brought the above identified concerns to the attention of licensee management. The licensee took prompt corrective action by placing tighter controls on the use of the Operations M&TE by restricting access to the cabinet and requiring the shift STA to issue all M&TE. In addition, shift personnel were made aware during turnover of the requirements of A-138 and the need for stricter control of the M&TE and appropriate steps were taken to complete the required out-of-tolerance report for the velocity probe and velocity meter. Operations and Chemistry management are currently reviewing the M&TE under their control to determine long-term corrective actions necessary to ensure implementation of A-138.

The inspector concluded that the licensee had adequately established a PORC and QA approved procedure for the control and use of M&TE. However, the licensee had not taken adequate corrective action in response to the previous violation in that implementation of procedure A-138 was incomplete. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected and that in the case of significant conditions adverse to quality the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The inspector informed the licensee that the above is considered a second example of a violation of 10 CFR Part 50, Appendix B, for failure to take appropriate corrective action. (NV4 91-21-001). Violation - 90-22-003 is closed.

5.0 MAINTENANCE ACTIVITY OBSERVATIONS (62703)

The inspectors reviewed administrative controls and associated documentation, and observed portions of ongoing work. Administrative controls checked included blocking permits, fire watches and ignition source controls, QA/QC involvement, radiological controls, plant conditions, Technical Specification (TS) Limiting Conditions for Operation (LCO), equipment alignment and turnover information, post-maintenance testing and reportability. Documents reviewed included maintenance procedures, maintenance request form (MRF), item handling reports, radiation work permits (RWP), material certifications, and receipt inspections. The following maintenance activities were observed:

MRF 9161181 — DPI-0568D E4 D/G Fuel Oil Pump Suction Strainer DP Calibration; and

MRF 9161404 — Emergency Diesel Generator E2 Crankcase Vacuum Pressure Switch PS 0623B Calibration and Functional Test.

The inspector did not identify any concerns.

6.0 INDUSTRIAL SAFETY AND HEALTH

6.1 Control of Work Performed in the Vicinity of 500 KV High Tension Line

At about 10:00 a.m. on June 14, 1991, the inspector observed a mobile vehicle-mounted elevating platform, with two workers on the platform, near the Unit 3 500 Kv transmission lines. It appeared from the inspector's vantage point that the platform came as close as about 15 feet to the transmission line. The inspector contacted the Outside Shift Supervisor (OSSV) who immediately stopped the activity when he observed the position of the platform, and that there was no one stationed to direct the movement of the platform from the

ground. All work using the platform was stopped until a review of the safety of the workers and equipment in the vicinity of the lines was completed.

At about 2:00 p.m. on June 17, workers positioned another mobile vehicle-platform in the same location. Two workers were in the platform with a ground safety man to observe and direct the activity. When questioned by the inspector, the ground safety man stated that he did not know the precise distance that the platform must maintain from the lines, but could obtain it from his supervisor. He called the supervisor who stated that the allowable distance was no closer than 14 feet. The inspector again questioned the acceptability of this. The supervisor instructed the workers to move the vehicle out of the area, and to cease further activity around the high tension line until the safety of the activity was resolved.

The workers were moving electrical cables for an upcoming condenser modification and were working under Procedure E-1320 which stated that the clearance from 500 Kv lines must be 174 inches (14.5 feet). On June 17, the inspector pointed out that there was a discrepancy between the PECo Nuclear Group's Industrial Safety and Health (IS&H) Program Manual and Procedure E-1320. The IS&H Program Manual specifies that for mobile cranes a clearance between the line and any part of the apparatus must be equal to or greater than 25 feet for high tension lines rated over 50 Kv.

The inspector discussed this event with the IS&H Supervisor to determine how the implementation of the IS&H Program Manual was coordinated with the existing plant procedures. The IS&H was issued in December 1990. The Program was announced at each Division Safety Meeting with the mandate that all procedures were to be reviewed for compliance with the IS&H. The licensee stated that the effectiveness of that effort would be reviewed.

6.2 Control of Mercury Containing Devices

The inspector reviewed the use of mercury switches in Q applications and questioned the licensee about the handling and disposal of mercury containing devices. Mercury is highly corrosive to stainless steel and was the subject of an NRC Information Notice. General Electric Specifications restrict the presence of mercury in certain critical plant areas. Elemental airborne mercury is extremely toxic in very small quantities, 0.002 milligram per cubic meter. This concentration is easily attainable if mercury is released into a space without adequate air exchange.

The licensee removed large quantities of mercury containing instruments from the plant several years ago. Remaining in the plant were mercury switches, mercury vapor lamps, fluorescent lamps, and other devices containing very small amounts of mercury. Each department replacing mercury containing devices was responsible for the handling and disposal. Later, the plant site developed a program for identification, handling and disposal

of hazardous materials. However, since devices are not clearly identified as containing mercury, the recognition that mercury was being disposed was not apparent.

The licensee immediately initiated development of a more detailed program for handling and disposal of mercury. In the short-term, the IS&H issued a letter to all groups advising them how to handle and dispose of mercury containing devices. The licensee's response was appropriate and the inspector had no further questions.

7.0 RADIOLOGICAL CONTROLS (71707)

During the report period, the inspector examined work in progress in both units and included health physics procedures and controls, ALARA implementation, dosimetry and badging, protective clothing use, adherence to RWP requirements, radiation surveys, radiation protection instrument use, and handling of potentially contaminated equipment and materials.

The inspector observed individuals frisking in accordance with HP procedures. A sampling of high radiation area doors was verified to be locked as required. Compliance with RWP requirements was verified during each tour. RWP line entries were reviewed to verify that personnel had provided the required information and people working in RWP areas were observed to be meeting the applicable requirements. No unacceptable conditions were identified.

8.0 PHYSICAL SECURITY (71707)

The inspector monitored security activities for compliance with the accepted Security Plan and associated implementing procedures, including: security staffing, operations of the CAS and SAS, checks of vehicles to verify proper control, observation of protected area access control and badging procedures on each shift, inspection of protected and vital area barriers, checks on control of vital area access, escort procedures, checks of detection and assessment aids, and compensatory measures. No inadequacies were identified.

8.1 SECURITY GUARD ASLEEP ON JUNE 15, 1991

The inspector found a security guard asleep on the Unit 2 refuel floor at approximately 12:30 p.m. on June 15, 1991. The guard had been assigned to watch a cask which had not been opened and searched. The security guard was relieved of his duties and his site access was suspended pending further investigation. Subsequently, the security guard's employment was terminated.

The inspector reviewed the guard's time sheets for the previous 2 weeks and noted that his work hours were not excessive. The inspector also reviewed the guard's work history at the

site and noted that the guard had previously been disciplined for alleged inattentiveness to duty. Based on this review the inspector concluded that this event was an isolated incident, was handled appropriately by the licensee, and had no further concerns.

9.0 PREVIOUS INSPECTION ITEM UPDATE (92701,92702)

(Closed) NV4 91-003-001, Operation of Recirculation Pump Speed by a Non-Licensed Operator.

The inspector identified that procedure SO.2D.7.A-2(3), "Recirculation MG Scoop Tube Manual Operation," contained instructions which allowed local manipulation of the recirculation MG set scoop tube by a non-licensed operator. Movement of the scoop tube directly affects reactivity by changing core flow. 10 CFR, Part 55.13, does not permit manipulation of controls which directly affect reactivity by anyone who is not a licensed operator or licensed operator trainee. In response to the concern, the licensee immediately processed a temporary change to the procedure requiring performance of the activity by a licensed operator. Shift Managers briefed the operating staff on this change. The licensee subsequently retired the SO and issued AO.2D.2-2(3), "Recirculation MG Set Scoop Tube Operation," permanently incorporating the instructions. The Operations Superintendent initiated a review of operating procedures, and requested other responsible groups to review maintenance, test and reactor engineering procedures, to identify any additional similar problems. Because the licensee implemented prompt action to resolve the issue, the NRC did not require a written response to this violation.

The licensee's review identified several additional procedures which required revision:

- Surveillance Test (ST) 26.7-2, Pressure Regulator Response;
- ST 10.7, CRD Scram Insertion Timing Full In & Full Out Position Indication Check, & Rod Coupling Integrity Check For All 185 Control Rods;
- ST 10.13, CRD Scram Insertion Timing Following A Reactor Scram;
- Routine Test (RT) 3.12, Recirculation Pump 30% Speed Limiter Calibration;
- RT 3.13, Recirculation Pump 60% Speed Limiter Calibration; and
- RT 8.15-3, Pressure Regulator Stability Test.

The inspector reviewed the revised procedures and verified that the licensee implemented appropriate changes clearly requiring reactivity manipulations to be made by licensed personnel. The Operations Support Staff has also initiated revision of two SO procedures used for venting control rod drive hydraulic control units to clarify responsibility for stroking the control rod. The inspector concluded that the licensee has implemented comprehensive corrective action in response to the finding, and had no further questions.

(Closed) Unresolved Item 90-17-02 Follow-up of Licensee Action in Response to the High Pressure Service Water/Emergency Service Water Ventilation Design Deficiency.

On September 13, 1990, the licensee discovered that ventilation for safety-related pumps in the intake structure would fail to operate during a design basis accident. The high pressure service water (HPSW) and emergency service water (ESW) pumps for both units would be affected. The ventilation system for the intake structure consists of two supply and two exhaust fans per unit. The licensee discovered that four pressure switches (PS-20224-1 and 2 for Unit 2 and PS-30224-1 and 2 for Unit 3) that start the ventilation fans would not perform their function if instrument air was lost. The licensee identified the problem as a result of a licensee conducted safety system functional inspection (SSFI) and subsequent follow-up by nuclear engineering personnel.

Generic Letter (GL) 88-14, "Instrument Air System Problems Affecting Safety-Related Equipment," dated August 8, 1988, identified concerns relating to adverse effects on safety-related equipment caused by instrument air system failures. In the licensee review of the issues identified in GL 88-14, the design deficiency with the four pressure switches was not identified, therefore the inspector questioned the adequacy of the licensee's response to the GL.

During this inspection, the inspector discussed the licensee's response to GL 88-14 with the responsible Nuclear Engineering Department (NED) air systems engineer. The engineer stated that for the initial review of the GL, she had identified the components and failure modes for each safety-related component which had an air interface. The review was performed using the Quality Assurance Diagrams (QADs) as the "control document." The engineer stated that she believed that the QADs identified all Q components and that the Project Q-List was not used during the review. The interface components list and failure modes were distributed to each NED responsible system engineer and the station for review and concurrence. Apparently, the actual intent of the QADs is to identify only main flow path mechanical components and not to identify all Q equipment. The error in the study occurred when the HPSW/ESW fan controls, not identified as safety-related on the QAD, were not included on the interface list. A re-review was performed following identification of the design deficiency with the pump bay ventilation using a more thorough methodology.

The inspector concluded that the re-review performed by the licensee appeared to be adequate. However, based on discussions with several licensee personnel it appeared to the inspector that the scope and intended application of QADs was not well defined, and therefore not understood by the licensee staff. The inspector questioned engineering department management regarding the scope of QADs and the use of QADs for performance of evaluations such as GL 88-14. NED management committed to revise a note on the QADs to define the QAD scope and to clarity that component classifications should come from the Q-list. NED management also committed to issue a training bulletin by August 16, 1991, to Peach Bottom and NED staff to better define the scope and use of QADs. Based upon these commitments this item is closed.

(Closed) NV4 90-22-003 Failure to Establish or Implement a Plant Operations Review Committee Approved Procedure Addressing the Control, Storage and Use of Measuring and Test Equipment as Required by the Technical Specifications

This item is discussed in Section 4.2 of this report and is considered closed.

(Closed) UNR 91-16-005 Omission of Safety-Related Equipment From the Q-List

This item is discussed in Section 3.1 of this report. The specific issues identified in unresolved item 91-16-005 will be reviewed during inspector follow-up to violation 91-20-001. Therefore, for documentation purposes, unresolved item 91-16-005 is closed.

(Update) Unresolved Item 91-08-001 Effectiveness of Licensee's Document Control Program

An update to this item regarding weaknesses in the licensee's document control program is included in Section 1.2.2 of this report.

10.0 MANAGEMENT MEETINGS (71707)

10.1 Routine Meetings

The Resident Inspectors provided a verbal summary of findings to the Peach Bottom Station Plant Manager at the conclusion of the inspection. During the inspection, the Resident Inspectors verbally notified licensee management concerning preliminary findings. No draft written material was provided to the licensee during the inspection. This report does not contain proprietary information. The inspectors also attended the entrance and/or exit interviews for the following inspections during the report period:

Dates	Subject	Report No.	Inspector
6/17-6/21	Physical Security	91-19	Limroth/Della Ratta
6/24-6/28	Radiological Controls	91-22	Chawaga
7/8-7/12	Surveillance Program Review	91-23	Taylor/Finkle

10.2 Standby Liquid Control Inoperability Enforcement Conference

On July 2, 1991, an Enforcement Conference was held in Region I to discuss a May 1990 incident which resulted in overheating of the standby liquid control solution storage tank. The initial inspector review of this incident is included in NRC Inspection Report 91-16. The licensee summarized the event, characterized the safety significance, and outlined completed and planned corrective actions. The NRC decision regarding enforcement action for this issue will be transmitted via separate correspondence.

ATTACHMENT I

PROCEDURES REVIEWED DURING VENTILATION SYSTEM WALKDOWNS

SYSTEM OPERATING PROCEDURES

SO 40D.1.A	Startup of Control Room Ventilation System
SO 40D.1.A COL	Control Room Ventilation System
SO 40D.1.B	Setup of Control Room Emergency Ventilation for Automatic Operation
SO 40D.7.A	Restoration of Control Room Ventilation Emergency Ventilation Following a High Radiation Trip
SO 32.1.A-2	High Pressure Service Water System Startup and Normal Operations

SURVEILLANCE TEST PROCEDURES

ST-0-40D-200-2	Control Room Ventilation and Radiation Monitor Functional Test
ST-D-40D-905-2	Control Room Emergency Ventilation Filter Train A Test
ST-0-033-300-2	ESW, ESW Boosier, ECW Pump, Valve and Unit Cooler Fans Functional Inservice Test

SPECIAL PROCEDURES

SP-1393	Coordination of 120 Volt Instrument Panel 20Y035 Power Supply During Installation of Modification 5209
SP-1394	Coordination of 120 Volt Instrument Panel 00Y003 Power Supply During Installation of Modification 5209

MAINTENANCE REQUEST FORMS

MRF 9100738	Intake Building Ventilation Control, Inspect Panel for Separation Criteria Violations.
MRF 91007293	Make TIC-30224-1 and 2 Reverse Acting and Make PS-30224-1 and 2 Normally Closed.
MRF 91007292	Make TIC-20224-1 and 2 Reverse Acting and Make PS-20224-1 and 2 Normally Closed.