U. S. NUCLEAR REGULATORY COMMISSION DCS 50-352-840307
REGION I

Report No. 84-19
84-06

Docket No. 50-352
50-353

License No. CPPR-106
CPPR-107 Priority - Category B
A

Licensee: Philadelphia Electric Company

2301 Market Street

Philadelphia, Pennsylvania 19101

Facility Name: Limerick Generating Station

Inspection At: Limerick, Pa.

Inspection Conducted: April 1 - 30, 1984

Inspectors: [signature] for 5/7/84
S. K. Chaudhary, Senior Resident Inspector date

[signature] 5/7/84
J. F. Wiggins, Senior Resident Inspector date

date

Approved by: W. Bamack for 5/17/84
E. L. Conner, Chief, Reactor Projects date
Section 3B

Inspection Summary: Combined Inspection Report for Inspection Conducted April 1 - 30, 1984. (Report Nos. 50-352/84-19; 50-353/84-06)
Areas Inspected: Routine inspections by resident inspectors of: followup on previous inspection items (Units 1 and 2); followup on IE Bulletins; followup on TMI Action Plan Items; Construction Deficiency Report (CDR) review; service water system water hammer; new fuel receipt activities; QC activities applied to drywell and wetwell coatings; electrical grounding of rotating machinery; preoperational test procedure reviews and verifications, and witnessing; review of licensee's program for evaluation of preoperational test results; review of startup nonconformance reports; and diesel generator testing. The inspection involved 104 hours (Unit 1) and 8 hours (Unit 2) by the resident inspectors.
Results: Three violations were identified: failure to provide formal method to handle discrepant conditions related to building turnover items, NC 4; failure to properly review 3 SNCR's on failed ITT hydramotor HVAC damper operators, NC 5; and failure to revise all drawings affected by design change on HPCI, NC 5. During this inspection, a previous item regarding the acceptability of the core spray pattern was resolved.

Region I Form 12
(Rev. February 1982)

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DETAILS

1. Persons Contacted

Philadelphia Electric Company

J. M. Corcoran, Field QA Branch Head
R. Scott, Construction Engineer
G. Leitch, Station Superintendent
J. Spencer, Director, Start-up
J. Molito, Field Engineer

Bechtel Power Corporation

W. McCullough, Project Start-up Engineer
K. Stout, Project Field QC Engineer
R. Bulchis, Resident Project Engineer

General Electric Company

A. Jenkins, Start-up Operations Manager

2. Follow-up on Previously Identified Items

(Closed) Violation 352/82-05-02: Engineering memoranda for field (EMF) used to initiate design changes for the recirculation pump snubber embeds to the reactor pressure vessel pedestal, thereby bypassing prescribed design change controls. The inspector verified the corrective action taken by the licensee was as described in their response letter to the NRC dated May 6, 1982. This corrective action includes: (1) issuance of an instruction memo to all group supervisors and assistant project engineers, (2) EMF's used to initiate design changes had the design changes incorporated into appropriate documents and (3) cut or damaged rebars were documented on FSK-C-988. This item is closed.

(Closed) Violation 352/82-04-04: Procedure permitted pipe hanger installations being performed with undocumented design changes. The inspector verified Job Rule M-17, Field Control of Pipe Supports, Revision 12, April 16, 1982 was modified to provide for documentation of changes until the design is formally incorporated into drawings.

(Closed) Unresolved Item 352/83-02-03: Reactor vessel level instrumentation system description in the FSAR differs from the actual system installation. The licensee has revised FSAR Section 7.2.1.1.4.2.c to describe the actual level instrumentation system installation and has also included a description of the instrument logic to show no single failure can prevent a reactor scram. This item is considered closed.

(Closed) Violation 352/83-19-02: Failure to follow procedure for the preparation of Nonconformance Reports (NCR). The inspector verified that Project Procedure PSP-G-3.1, Revision 10, December 8, 1983 was revised to provide for reprocessing the original NCR if the existing condition was not resolved or if a new condition was created by the disposition. The PSP was also revised to require a new NCR be generated when additional nonconforming items are discovered. Training sessions covering PSP-G-3.1, Revision 10 were conducted on January 9 through January 10, 1984 for all personnel affected. This item is considered closed.

(Closed) 50-352/81-14-07, 50-353/81-12-05 Unresolved Item: Pertaining to the safety classification of the spray pond concrete, trench, and soil backfills; soil-bentonite lining, rip rap, shotcrete, and rockbolts. The inspector determined that documentation of the licensee's position on these was submitted to NRC as Revision 27, dated 12/83 of Table 3.2-1 in the FSAR. This item is closed.

(Closed) Follow Item 50-352/84-01-03: Revise Reactor Core Isolation Cooling (RCIC) system preoperational test procedure to account for TMI Action Plan changes to the system. The inspector reviewed Revision 1 to 1P50.1 which incorporated changes to test the following features: (1) swapover of suction lineup from the condensate storage tank to the suppression pool; (2) bypass of turbine trips from the remote shutdown panel; (3) the 3 second (nominal) time delay associated with the high steam flow steam line isolation; and, (4) automatic restart of RCIC for a low reactor vessel water level condition which occurs after a level-8 shutdown.

(Closed) Follow Item 50-352/83-23-04: Control Rod Drive (CRD) filter weld integrity. The inspector reviewed General Electric FDDR-HH1-0895 which documented an evaluation of the potential impact of failure of weld on the finger-filters in the CRD Hydraulic Control Units (HCU). GE determined that there would be no potential for an adverse impact on HCU or directional control valve performance.

(Closed) Unresolved Item 50-352/84-10-04: Acceptability of Core Spray Pattern. In a letter dated 3/15/83, General Electric formally notified the licensee that the core spray pattern was acceptable. The inspector questioned the GE Startup organization onsite and representatives of the GE-San Jose office regarding the acceptance criteria used to make this determination.

The GE representatives discussed the criteria in light of core spray testing which had occurred at a test facility in Lynn, Massachusetts. Based on the Lynn tests, GE had determined that pattern uniformity is not a critical attribute for BWR product lines that include a core flooding injection system like low pressure coolant injection. Rather, it is more important that a given flowrate is provided inside the shroud by the core spray systems. The pattern is used to assure that the

spargers and nozzles are clear of obstructions and that the nozzles are correctly installed. The inspector agreed that the pattern met the GE acceptance criteria.

3. Plant Tour

Periodically during this inspection period, the inspectors toured the Unit 1 containment, reactor building, control room and other parts of the plant, and examined completed works, works in progress, equipment storage and handling, and quality control activities. The inspectors also reviewed logs, drawings, procedures, and interviewed cognizant licensee engineers in the startup organization toassess the state of completion of various preoperational tests activities.

Specifically, the inspectors witnessed maintenance on the containment Personnel Airlock, installation of Source Range Monitors (SRM's), and examined HVAC ductwork in diesel generator-D enclosure. The inspectors also visually examined pipe supports and restraints in core spray, HPCI, RCIC, and RHR systems for workmanship, conformance to drawings and suitable protection of snubbers. These items were found acceptable.

4. Followup on IE Bulletins

The licensee's response to the following IE Bulletins were reviewed to assure that the response was timely, complete, technically adequate and accurately reflected those actions actually performed.

(Closed) IE Bulletin 83-07: Apparently Fraudulent Products Sold by Ray Miller, Inc. This IE Bulletin dealt with misrepresentation of the characteristics of products supplied to the nuclear industry by Ray Miller, Inc. The licensee responded to this Bulletin on March 22, 1984 and indicated there were no Ray Miller-supplied products used at the Limerick Generating Station. This result was obtained based on reviews conducted by Bechtel Power Corporation, General Electric and Philadelphia Electric.

The inspector discussed Bechtel Power Corporations actions with a licensee representative to determine the methods used for Bechtel's review. The licensee's representative indicated that Bechtel handled this activity generically for all Bechtel sites (e.g. LImerick, Hope Creek, Susquehanna, etc.). Bechtel identified 455 vendors who have provided material to various projects. Each of these vendors received questionnaires from Bechtel, 70% of which responded. These responses were then reviewed and evaluated. For the remaining 30%, the vendors were contacted by telephone and for some, Bechtel Field Supplier Quality Representatives visited the facilities and reviewed records. For the remainder who did not respond to the questionnaire or the follow-up visit by Bechtel representatives, a Bechtel site document review group reviewed vendor documentation packages on file at Limerick. In no case was any evidence found that indicated involvement by Ray Miller, Inc.

The inspector had no further questions.

(Closed) IE Bulletin 80-03: Loss of Charcoal From Type II, 2 Inch Tray Adsorber Cells. In inspection report 50-352/84-01, the inspector indicated this Bulletin remained open because the necessary tray inspection had not been completed. These inspections were subsequently completed on 3/9/84 and found satisfactory. This IE Bulletin is closed for both Unit 1 and Unit 2.

No violations were identified.

5. Inspector Followup on TMI Action Plan Items

Selected TMI Action Plan requirements were selected for followup verification by the inspector. References used for this review included NUREG-0737, the FSAR and the SER. No violations were identified.

(Closed) Item I.C.7 NSSS Vendor Review of Low Power Test Procedures.

According to Section 13.5.2.3 of the SER, the licensee has acceptably complied with this item's recommendations. The inspector verified direct involvement by General Electric in both the preoperational and Startup test phases at Limerick. Included in GE's involvement are review/preparation of procedures and reviews of test results for NSSS-scoped systems.

(Closed) Item I.A.1.3 Item 1 Shift Staffing

Section 13.1.2 of the SER indicated that NRR's review of this item was completed and the results were acceptable. The inspector verified the procedure A-7 "Shift Operations" was implemented onsite and contained the staffing commitments described in the SER.

(Closed) TMI Items I.A.1.2 and I.C.3

NRC:NRR reviewed a draft of procedure A-7, Shift Operations, and, as indicated in Supplement No. 1 of the Safety Evaluation Report, found that A-7 acceptably implemented the licensee's FSAR commitments regarding TMI items I.A.1.2 and I.C.3. The inspector verified that the licensee formally issued A-7.

(Closed) I.C.2 Shift Relief and Turnover Procedures

In Section 1.13 of the FSAR, the licensee documented the extent of its plans regarding TMI Item I.C.2. NRC:NRR accepted these plans as indicated in Supplement No. 1 to the Safety Evaluation Report. The inspector reviewed procedure A-7, Shift Operations, and found that it acceptably implemented those commitments made by the licensee in the FSAR.

(Closed) I.C.4 Control Room Access

NRC:NRR reviewed a draft of procedure A-7, Shift Operations and found it to acceptably implement the recommendations of TMI Item I.C.4. The inspector verified that a final version of A-7 had been established and implemented which contained those controls which NRC had found acceptable.

(Closed) I.C.6 Verification of Performance of Operating Activities

In Supplement No. 1 to the Safety Evaluation Report, NRC:NRR described a review of a draft of procedure A-41, Procedure For Control of Safety Related Equipment. This draft procedure was found to satisfactorily address TMI Item I.C.6. The inspector verified that a final version of A-41 has been approved and issued and that A-41 includes those actions necessary to address the TMI item.

(Closed) II.K.1.10 Operability Status

In section 1.13 of the FSAR, the licensee committed to implement an Administrative Procedure to address Item 8 of IE Bulletin, 79-08, the IE Bulletin discussed actions to: (1) verify by test or inspection the operability of redundant safety-related system for service; (2) verify the operability of safety-related systems upon their restoration to service following maintenance or testing; and (3) notify reactor operational personnel whenever a safety-related system is removed from and returned to service.

Procedure A-41, Procedure for Control of Safety-Related Equipment, has been approved and issued. In A-41, those actions necessary to comply with Item 8 of IEB 79-08 are described. The actions include charging the shift superintendent with overall responsibility for maintaining cognizance and control of the operability status of safety-related equipment. Further, the procedure establishes verifications of redundant system operability and of system restorations after maintenance and testing. Additionally, A-41 establishes a status sheet maintained by the control operator and the assistant control operator to track the status of systems undergoing tests.

6. Construction Deficiency Report (CDR) Review

The inspector verified completion of the corrective actions for the following CDR reported by the licensee.

Diesel Fuel Oil Tank Coating Failure

The licensee, in a CDR dated 10/5/83, reported the degradation of the internal coating applied to the eight diesel fuel oil storage tanks. The degraded conditions included peeling and flaking of the coating. The licensee attributed the cause of the degradation to improper coating procedures performed by the tank vendor, Buffalo Tank under the direction of Bechtel specifications.

The original coatings consisted of an inorganic zinc primer covered by epoxy phenolic. According to the epoxy vendor, this type of coating was not intended to be used over a primer coat. As a corrective action, the licensee removed the original coating and the primer and recoated the bottom of each tank and the bottom 1 foot of the tank wall height with the epoxy applied over white metal.

Further, in response to NRC questions, a Licensing Document Change Notice (LDCN) was prepared to correct the FSAR to show the current diesel fuel oil tank coating scheme.

7. Service Water System Water Hammer

The inspector reviewed Limerick Generating Station Upset Report 1/84/1 prepared as a result of a water hammer event which occurred in the non-safety-related service water system on 3/7/84. The report included a sequence of events, a discussion of the causes and corrective actions, analysis and recommendations. A brief synopsis of the event follows:

At about 11:40 a.m. on 3/7 the A service water (SW) pump was stopped while electrical power supplies to the 13.2 kv system were swapped from the 20 startup bus to the 10 startup bus. At 11:42 a.m. the A SW pump was restarted with its discharge valve open. Shortly thereafter, workers near the 1AK11 Drywell (DW) chiller reported a loud hammering sound followed by a large quantity of water exiting the tube side of the DW Chiller Condenser at elevation 304. Control Room operators terminated the leak by securing SW after about 5 minutes.

Engineering Analysis after the event determined its cause to have been a water hammer. Because of the elevation difference between the SW suction and the DW Chillers, a water column separation developed when the A SW pump was secured. When the pump was subsequently started, a column of water impacted on the DW Chiller Condenser SW supply manual isolation valve.

Damage resulting from this event included failure of the disc on the manual isolation valve, shearing of the yoke on a temperature control valve between the isolation valve and the Chiller Condenser and gasket damage to a reactor recirculation motor generator set lube oil cooler. Further, 6 electrical buses were wetted due to the water leakage. All of the above conditions have been corrected.

Following the event, the licensee made a systematic inspection of other service water components which could have been damaged. Further, to prevent recurrence, a notation was placed on the SW pump control switches in the control room cautioning operators to close the SW pump discharge valve prior to starting the pumps.

No violations were identified.

8. New Fuel Receipt Activities

The licensee received its first shipment of new fuel onsite on April 10, 1984. The inspector witnessed the receipt activities including radiological surveys on the truck and the shipping containers, security provisions, nuclear material control activities, QA/QC involvement and verified that handling activities were in accordance with established procedures. Further, the inspector judged the individuals involved with receipt activities to be suitably qualified.

Additionally, the inspector witnessed the arrival of another shipment on 4/16/84.

No violations were identified.

9. Quality Control Activities Applied to Drywell and Wetwell Coatings

The inspector reviewed the quality controls being applied by Bechtel and S.W. Kooperman in the performance of coating work in the drywell and wetwell. The bases for this review included the following:

(1) FSAR Section 6.1.2.2, Organic Materials in Non-NSSS Supplied Components

(2) SER Section 6.1.2, Organic Materials

(3) Regulatory Guide 1.54, Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants

(4) ANSI N-101.2-1972, Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities

(5) ANSI N-104.2-1972, Quality Assurance for Protective Coatings Applied to Nuclear Facilities

(6) Bechtel Specification 8031-A-51, Rev. 4, Preparing and Touching-Up of Coatings (Steel and Concrete) Inside Drywell and Wetwell

(7) S.W. Kooperman Quality Control Manual, Field Special Coatings, Limerick Generating Station Units 1 and 2, Rev. 0.

The scope of the review involved identification and verification of those QC activities necessary to assure that the coatings applied in the containment were qualified per ANSI 101.2.

According to the FSAR, coating activities at Limerick are not considered safety-related. Consequently, these activities and associated materials are not Q-listed and the projects quality assurance program does not apply. However, the licensee committed to conform to RG 1.54 and ANSI 104.2 in the practice and procedures for Non-NSSS component (e.g. Containment) coating activities. This approach was accepted by NRC as indicated in SER Section 6.1.2.

Coating activities are performed by a subcontractor, S.W. Kooperman, Inc. who reports to Bechtel. S.W. Kooperman's activities are specified by Bechtel Specification A-51. As required by the specification, S.W. Kooperman is responsible for receipt storage of coating materials, surface preparation and application of the coatings and performance of preparatory and final inspections. Kooperman executes its responsibilities in accordance with its QC manual which has been approved by the responsible Bechtel Subcontracts Engineer. The NRC inspector reviewed this manual and noted evidence of the Bechtel review and noted it being acceptably maintained in the Bechtel Document Control System.

The NRC inspector also reviewed records of the receipt inspection of a shipment of Ameron 90 coating received on 3/20/84. These records included the Receiving Inspection Report and the Product Identity Certification Records (PICR) for the batch numbers received. He noted the PICR's dated 3/23/84 indicated the material was certified. However, he also noted that the Receiving Inspection Record was dated 3/31/84 although the material had been used on 3/25/84.

During discussions with the Kooperman General Foreman, the QC Supervisor and the Bechtel Subcontract Engineer on 4/9/84, the inspector was told:

(1) The material arrived on 3/20/84 without the PICR's for it. Subsequent phone calls with the supplier indicated to Kooperman supervision that these PICR's would be expeditiously forwarded.

(2) At the time of receipt, no Receiving Inspection Records were filled out, although Kooperman supervision was aware of the material's presence onsite.

(3) The material was released for use and applied in the drywell on 3/25 based upon a conditional relcase granted by the Bechtel Subcontracts Engineer by phone and later followed by Speed Letter dated 3/25/84.

(4) After the PICR's were received, the Receiving Inspection Records were completed on 3/31/84.

(5) Kooperman supervision has made verbal arrangements with the coating supplier to receive copies of PCIR's for future shipments two weeks prior to, along with, and after delivery of each shipment.

The inspector reviewed records of other shipments and identified no problems. However, the inspector determined that, although PICR's are received for each batch, nobody in Kooperman or in Bechtel is formally charged to review the information in the PICR's to assure product chemistry is within the specified tolerances. Kooperman supervision agreed to rectify this weakness.

Material is stored in a Kooperman trailer and limited access is provided to it. Storage and issue activities are governed by A-51 and the Kooperman QC manual.

No violations were identified.

10. Electrical Grounding of Rotating Machinery

In response to information provided by a system startup engineer to the NRC inspector regarding an apparent problem with the electrical grounding of vane-axial ventilation fans, the inspector discussed this matter with representatives of the licensee's Startup and Field Engineering Organizations. In addition, the inspector reviewed project specification E 1404 which pertained to equipment grounding. In response to the inspector's concerns, the licensee inspected about 575 equipment installations.

Based on the results of his review, the inspector determined the following:

(1) Electrical grounding is required for all electrical motors rated at greater than 6 horsepower;

(2) Grounding is necessary for personnel safety considerations in the case of power supply faults or motor stator winding problems rather than for equipment operability concerns.

(3) Grounding problems identified during the licensee's review involved skid-mounted equipment which was grounded but not strictly in accordance with E 1404; and,

(4) Because grounding is not essential to satisfy the safety-related aspects of equipment performance, it is typically not inspected during QC inspections of equipment installations.

Per E 1404 for skid-mounted equipment, grounding is to be provided by three mechanisms:

(1) Attachment of the power supply ground fault return line to the motor casing;

(2) Connection of the skid to a ground bus; and

(3) Attachment of the motor casing to the skid.

Out of the 575 equipment installations inspected by the licensee, 13 were found not to fully comply with E 1404. In each case, the connection between the motor casing to the skid was not provided; the other two required ground connections were satisfactorily installed and therefore would probably have provided sufficient personnel protection. However, to bring these 13 installations into complete conformance with E 1404, the licensee intends to complete the motor casing-to-skid connections for each installation.

Additionally, the licensee requested Bechtel to review grounding for all motors in Unit 1 and the common plant to assure it to be in agreement with revision 39 to specification E 1404. This inspection is not expected to be completed until May 15, 1984. The inspector will review the results of Bechtel's inspections.

No violations were identified.

11. Preoperational Test Procedure Reviews and Verifications

The inspector reviewed the below-listed preoperational test procedures to assure they were in conformance with the licensee's administrative instructions and to assure that the procedures adequately fulfilled the test commitments provided in the FSAR and SER.

Reviewed without resulting comment:

1P 3.1 A-D 13.2 kv System
1P 78.1 Startup Range Nuclear Monitoring System
1P 93.2 Main Turbine Control System
1P 99.1 Reactor Enclosure Cranes

Reviewed with resulting comments:

1P 59.3 Suppression Pool, Pool Cleanup and Vacuum Relief System

1P 59.3 Comments

This procedure tests the suppression pool instruments, the pool cleanup system and the wetwell-to-drywell vacuum relief valves. During the course of the review, the inspector determined that tests or calibrations of the actual setpoints of the vacuum relief valve position indicators were not included in the procedure. This matter was discussed with the Project Startup Engineer and NRC review of this procedure will remain open pending a procedure revision to address it. (50-352/84-19-01)

No violations were identified.

12. Preoperational Test Procedure Witnessing

The inspector witnessed portions of the following preoperational tests:

1P 52.1	High Pressure Coolant Injection (HPCI)
1P 53.1	Standby Liquid Control
1P 58.1	Reactor Protection System
SP-GP-001	Operational Hydrostatic Test

In each case, the inspector verified a copy of the approved test procedure was in use, test personnel were sufficiently familiar with the aspects of the test, results were addquately recorded and the system startup engineer was familiar with the requirements regarding test change notices and test exceptions. No specific problems were identified other than one associated with HPCI testing.

During review of the existing test change notices (TCN's) associated with the HPCI test, the inspector determined that TCN 008 was written to address a design change which had been implemented. This design change, provided by General Electric under FDDR-HH1-2679 and installed per Design Change Package (DCP) 232, involved the installation of 4 additional trip units associated with 2 level transmitters. Specifically, the following changes were made:

Transmitter (previously installed)	Trip Units (added)	Function
M42-LT-1N091D	LIS-1N692D	Level 2 Actuation
	LIS-1N693D	Level 8 Isolation
M42-LT-1N091H	LIS-1N692H	Level 2 Actuation
	LIS-1N693H	Level 8 Isolation

However, the inspector noted that the four new trip units were not shown on the latest revision P & ID M42 as required. Further, the licensee was unable to show documentation which indicated a revision to M42 was in progress to address DCP232. Neither the DCP nor the GE FDDR indicated the P & ID should be revised.

The failure to assure all drawings affected by a design change is a violation of 10 CFR 50 Appendix B, Criterion III. (50-352/84-19-02)

The inspector also expressed a concern with the Startup Director and the Project Startup Engineer about the number of TCN's written against several preoperational test procedures. For instance, at the time of the inspector's review of 1P58.1 (RPS), there were 105 TCN's; at the time of the 1P52.1 (HPCI) review there were about 30 TCN's. The inspector stated that the licensee should examine the large number of TCN's to determine if test procedures and test results had been adversely affected. The inspector will continue to monitor this apparent problem.

13. Review of Licensee's Program for Evaluation of Preoperational Test Results

The inspector reviewed the program for test results evaluation implemented by the licensee. Included in this inspection was a review of the governing documents such as the FSAR, the SER, the Quality Assurance Program, Volume III, AD 2.4-2 concerning the Test Review Board, AD 8.3P-0 concerning preoperational test procedure implementation and QADP 28 concerning Electric Production Quality Assurance's (EPQA) review of test results.

According to the above documents, test results packages are reviewed by the individual system Test Director, the Project Startup Engineer then the Test Review Board (TRB). Following TRB review and resolution of TRB comments, EPQA reviews the test results package. The final approval authority rests with the Station Superintendent. Absent from the documents was any reference to those reviews performed by GE and by Bechtel Engineering.

The inspector discussed this concern with the Startup Director. The Startup Director told the inspector that Bechtel Engineering has been tasked with a review of preoperational test results to assure that the acceptance criteria in each test have been met. GE reviews results of NSSS-scoped procedures effectively in place of the Project Startup Engineer. The inspector stated that no procedure exists which describes:

(1) When, in the review sequence, the GE or Bechtel reviews occur

(2) How the results of GE and Bechtel reviews are recorded

(3) How discrepancies developed during the GE and Bechtel reviews are documented and resolved.

Because there has not been an extensive number of test results which have been completely approved (only 1 so far), no safety issues were identified. However, the acceptability of this area remains unresolved pending the licensee providing the administrative controls to address the above listed concerns. (50-352/84-19-03)

Additionally, the inspector discussed TRB activities with the TRB chairman. The inspector determined that a checklist had been developed and implemented to assure uniformity of review by the various TRB subcommittees. Further, the inspector determined that a computer-controlled data base management system has been implemented to track and resolve test exceptions and other open items.

No violations were identified.

14. Review of Startup Nonconformance Reports (SNCR's)

The inspector reviewed three SNCR's, S-414-M, S-346-M and S-347-M to assure the licensee had taken actions to address the cause of the nonconforming conditions identified, to assure corrective action dispositions were adequate and to assure each was appropriately reviewed for reportability to the NRC as Construction Deficiency Reports.

Each of the three SNCR's dealt with the same problem, i.e., the failure of ITT Series N H-90 Hydramotor electro-hydraulic operators for dampers in HVAC systems. The common problem identified involved incomplete operator stroking and/or excessive cycling of the operator's internal hydraulic system as a result of age-related failures of internal seals. Further, the inspector determined that additional Hydramotor failures were identified onsite and the seal failures were being addressed as a generic problem and consequently a decision was made not to issue SNCR's describing further failures. The disposition of the generic concern involved shipment of each operator back to the manufacturer for replacement of the internal seals by ones of a material with a longer service life.

Regarding reviews of each SNCR for reportability to the NRC per 10 CFR 50.55 , Startup Administrative Procedure AD 1.2-2 on SNCR's indicates that Startup Quality Engineering is responsible for reviewing each SNCR to determine if a further reportability review is required. In performance of this review by Startup Quality Engineering, Appendix Z of Volume 1 of the licensee's QA plan is used.

However, the inspector determined that each SNCR was marked to indicate no further reportability review was required. This decision was based on a simplistic analysis which apparently dealt with the specific damper operators which had failed and did not consider the generic aspect of the problems nor the potential for common-mode failures of the operators impacting safety functions of HVAC systems.

An example of a potential common-mode failure involves the Control Room Emergency Fresh Air Supply system. In this system there are two filter trains which can be used to treat supply air needed for post-accident Control Room habitability. Each filter train has inlet and outlet dampers that fail closed. These dampers are controlled by N H 90 series operators. Simultaneous failure of these operators renders the Control Room Emergency Fresh Air Supply inoperable.

As a result of the above analysis, the inspector determined that the failure of these operators should have been reported to the NRC. Failure of the licensee to properly review the conditions identified by the three SNCR's constitutes a violation of 10 CFR 50 Appendix B, Criterion V requirements. (50-352/84-19-04)

Following discussions by the inspector with the Startup Lead Quality Engineer, the licensee's corporate quality organizations commenced a review of the Hydramotor problems for eventual reporting to the NRC.

15. Diesel Generator Testing

During the course of this inspection, the inspector witnessed portions of the initial operations performed on the emergency diesel generators. In each case, the inspector verified that a procedure for the test was in place and being followed and assured that test personnel were suitably qualified to perform the test and were knowledgeable concerning the intent and sequence of events for each test. Also noted were the activities of the diesel generator vendor's representatives and the activities of the licensee's QC organization.

Specifically, the following activities were witnessed:

(1) Loaded and unloaded runs of the C diesel generator including readjustment of the electrical governor; and,

(2) Load runs of the D diesel generator.

No testing-related problems were identified during these inspections. However, one problem related to the acceptability of the C diesel generator enclosure was identified. On April 5, testing of the C diesel generator was temporarily suspended as a result of the generator and various electrical cabinets being wetted down with water. The source of the water was a leak in the C diesel enclosure roof following a heavy rainstorm the previous night.

Based on discussions with representatives of the Startup organization and with another NRC inspector, the inspector determined that the existence of the leaky roof had been identified by Startup prior to this rainstorm. The inspector questioned the system startup engineers and their immediate supervision to determine if formal methods such as nonconformance reports, startup field reports or startup work authorizing documents had been used to track correction of the defect in the roof when it was initially identified. Apparently no such documents were issued. In the course of these discussions, the inspector also determined that the Startup staff was somewhat confused regarding which of the corrective action systems applied to facility items such as buildings, rooms, areas, etc. Part of this confusion apparently resulted because startup is not involved with accepting facility turnover from Bechtel. Rather, it is the responsibility of the PECO Construction Manager.

The inspector reviewed the administrative documents available to Startup including the Startup Administrative Manual and the licensee's QA Plan. In none of these documents did the inspector find formally established procedures for Startup to identify, track and resolve problems related to items involved in the facility turnover process. Failure to provide such procedures constitutes a violation of 10 CFR 50 Appendix B, Criterion V. (50-352/84-19-05)

16. Unresolved Items

Unresolved items are matters about which more information is necessary to ascertain whether they are violations, deviations, or acceptable items. Unresolved items are discussed in paragraph 13 of this inspection report.

17. Exit Meeting

The NRC resident inspectors discussed the issues and findings in this report throughout the inspection period and at an exit meeting held with Messrs. J. Corcoran, G. Leitch and R. Scott on May 1, 1984.