U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-352/84-46

Docket No. 50-352

License No. CPPR-106 Priority -- Category B

Licensee: Philadelphia Electric Company

2301 Market Street

Philadelphia, Pennsylvania 19101

Facility Name: Limerick Generating Station, Unit 1

Inspection At: Limerick, Pennsylvania

Inspection Conducted: August 15 - September 7, 1984

Inspectors: J E Briggs
L. Briggs, Lead Reactor Engineer — 10/1/84 date

N. Blumberg
N. Blumberg, Lead Reactor Engineer — 10/1/84 date

D. Florek
D. Florek, Lead Reactor Engineer — 9/28/84 date

Approved by: L A Bettenhausen
L. H. Bettenhausen, Chief, Test Programs Section, Engineering Programs Branch — 10/1/84 date

Inspection Summary:
Inspection on August 15 - September 7, 1984 (Report No. 50-352/84-46)

Areas Inspected: Routine, onsite, unannounced inspection by three region-based inspectors (106 hours) of follow-up of previously identified items, preoperational test procedure results evaluation, quality assurance of preoperational testing, startup test program, QA for startup program, determination of reactor power at low power level and plant tours.

Results: No violations identified.

DETAILS

1. Persons Contacted

Philadelphia Electric Company (PECO)

#D. Clohecy, Quality Assurance Engineer
#C. Endriss, Regulatory Engineer
R. Hennessey, Quality Control Engineer
K. Hunt, Reactor Engineer
G. Lauderback, Quality Assurance Engineer
#G. Leitch, Superintendent, Limerick Generating Station
*A. MacAinsh, Quality Assurance Site Supervisor
#K. Meck, Quality Assurance Engineer
#J. Rubert, Lead Quality Control Engineer
#J. Spencer, Startup Director

General Electric (GE)

*A. Jenkins, Startup Test Program Supervisor
*P. Pagano, Lead STD and A Engineer
K. Picard, General Electric Startup Test Engineer
L. Wink, General Electric Startup Engineer

Bechtel

#G. Bell, Quality Assurance Engineer
*P. Fleckser, Startup Test Program Planning Engineer
*J. Murphy, Power Ascension Supervisor

NRC

#J. Wiggins, Senior Resident Inspector, Limerick, Unit 1
#*R. Borchardt, Reactor Engineer

*Denotes those present at August 25, 1984 exit meeting.
#Denotes those present at August 31, 1984 exit meeting.

2. Follow-up of Previous Inspection Findings

(Closed) Violation (352/84-16-01) Inadequate Test Control, Emergency Diesel Generator Run Without Cooling Water. The inspector verified licensee corrective actions stated in the July 9, 1984 response to this item. In addition, the diesel generators have been fully tested in accordance with applicable preoperational test procedures with no further examples of lack of test control.

(Closed) Unresolved Item (352/84-25-01) Licensee to Clarify Snubber Preoperational Test (PT) IP-100.3A through 100.3E. The licensee has cancelled

the 1P-100 series of snubber tests. Technical Test (TT)-1.30 replaced and incorporated the testing requirements of the IP-100 series with testing conducted at the component level rather than the system level.

The inspector reviewed TT-1.30 and verified that all comments relating to IP-100.3A thru E had been incorporated into the new test procedure.

(Closed) Violation (352/84-25-03), Failure to Tag Residual Heat Removal Service Water System as Required by AD6.1-6. The inspector verified licensee action as stated in their August 16, 1984 response. In addition, this problem has not been identified on other systems by the inspector or the Senior Resident Inspector during various tours of the facility conducted since the violation was identified.

3. Procedure Review for Test Results Evaluation

3.1 Scope

The 30 completed test procedures listed in Attachment A were reviewed to verify that adequate testing was conducted in order to satisfy regulatory guidance and licensee commitments and to ascertain whether uniform criteria were being applied in the evaluation of completed preoperational tests in order to assure their technical and administrative adequacy.

The inspector reviewed the test results and verified the licensee's evaluation of test results by review of test changes, test exceptions, test deficiencies, "As-Run" copy of test procedures, acceptance criteria, performance verification, recording conduct of tests, QC inspection records, restoration of systems to normal after tests, independent verification of critical steps or parameters, identification if personnel conducting and evaluating test data, and verification that the test results have been approved.

3.2 Findings

No discrepancies or unacceptable conditions were noted in the review of these procedures. The following test exceptions were noted as being open at the end of the inspection on September 7, 1984.

Procedure Number	Short Title	Exception Number	Scheduled Completion
IP-2.2	125/250 VDC	019	By Fuel Load
IP-5.1	Safeguard 440VAC LC	001 and 002	By Fuel Load
IP-6.1	Safeguard 44VAC MCC	034	By Fuel Load
IP-18.1	Instr. Air System	001 and 007	By Fuel Load
IP-25.1	Pri.Cont.Instr.Gas	001, 002 and 004	By Fuel Load

Procedure Number	Short Title	Exception Number	Scheduled Completion
IP-32.1	Control Room HVAC	001,003,004,006 012, 013 and 014	By Fuel Load
IP-34.2	Refuel Area HVAC	008	By 100% Power
IP-39.1	Fuel Pool Cooling	002	By 100% Power
IP-49.1	RHR	019,029 and 030	By Fuel Load
IP-51.1	Core Spray System	011,013,014,017 054,056,059,064 and 065	By Fuel Load
IP-56.1A	RMCS	017	By Fuel Load
IP-57.1	Uninterruptible AC	001	By Fuel Load
IP-61.1	Reactor Water Cleanup	015	By Fuel Load
IP-66.1	Reactor End Coolers	001 and 002	By Fuel Load
IP-80.1	Reactor Vessel Instr.	029	By Fuel Load
IP-81.1	Fuel Handling System	007	By Fuel Load
IP-100.2	Loss of Instr. Air	001,002,003,004 005,006,007,011 012 and 013	By Fuel Load

These test procedure and the licensee's corrective action to resolve the listed test exceptions will be examined during a subsequent inspection. These are collectively designated as an unresolved item. (352/84-48-01)

In addition, the inspector and the senior resident reviewed the licensee's Test Results Review Action List which establishes their priority for resolution of open test exceptions. The priority established by the licensee (on the September 3 listing) was determined to be acceptable.

4. Quality Assurance of Preoperational Testing

The inspector reviewed 2 quality assurance (QA) audits conducted by PECO Quality Assurance of Startup Activities. The results and findings were discussed with the responsible Quality Assurance Engineer. The following were reviewed:

-- Quality Assurance Audit Report (QAAR) No. M-500, Surveillance of High Pressure Coolant Injection Turbine Lube Oil Flush, conducted December 30, 1983 through May 22, 1984. No deficiencies were identified.

-- Quality Assurance Audit Report (QAAR) No. M-497, Surveillance of Post Turnover Work Activities, conducted December 13-15, 1983. The audit identified numerous violations of Job Rule JR-M-21 during Startup Work Order (SWO) activity. The violations primarily were in the area of cleanliness and protection of equipment undergoing maintenance or repair such as not being covered while disassembled and lack of pipe caps and end plugs. Finding report G-376 was issued to effect corrective action. The report was closed on April 25, 1984 following completion of an indoctrination training program for Startup Department craft personnel and their supervisors.

The audit also identified a violation of Job Rule JR-G-26 when 2 unit 2 feedwater isolation valves were installed without proper identification tagging. Finding report M-650 was issued and subsequently cleared on February 20, 1980 following proper identification tagging of the valves and correction of associated documentation.

No unacceptable conditions were identified.

5. Startup Test Program

The NRC inspector held discussions with the Startup Test Program Supervisor and members of his staff. The supervisor described the program and provided the inspectors with the following administrative procedures:

-- A.200 "Startup Test Procedure Format and Content", Revision 1 dated June 27, 1984;

-- A.201 "Startup Test Procedure Control", Revision 1 dated June 27, 1984;

-- A.202 "Startup Test Implementation", Revision 1 dated July 10, 1984; and,

-- A-203 "Startup Test Program Personnel Training and Qualification", Revision 0 dated May 30, 1984.

During review of the administrative procedures, the inspector identified a difference in the description of the independent review of the test results by an independent test engineer and that obtained in the discussion with the Startup Test Group Supervisor. He agreed to review this situation and stated that his verbal description was the intent of the administrative procedure.

The Startup Test Group Supervisor provided to the inspector a copy of the overall test schedule which indicated Test Condition 6 testing would be completed in 132.6 days, assuming all activities are successful.

As of August 17, 1984, 20 of the 37 startup procedures were approved by the Plant Superintendent. Of the 22 startup procedures required for fuel load, 17 have been approved by the Plant Superintendent.

The licensee provided copies of the startup procedure to the inspector for subsequent review.

The Startup Test Group Supervisor indicated that the startup test group organization had not yet been finalized but would be presented to PECO management the week of August 27, 1984. General Electric is responsible to PECO to complete the technical and administrative aspects of the startup program. Bechtel is responsible for portions of the program. PECO technical personnel will be involved on a selected basis.

The inspector interviewed the Reactor Engineer to obtain plans for start-up. The licensee has a lead reactor engineer and four graduate reactor engineers. The engineers have been onsite for at least one year. Two individuals have been reactor engineers at other sites. No unacceptable conditions were identified in the scope of this review.

6. Quality Assurance For Startup Program

The inspector held discussions with members of the Quality Control organization regarding their plans for startup. Quality Control is reviewing all startup test procedures and identifying witness points. They have required each startup procedure to contain a prerequisite that Quality Control is informed of the performance of the test to perform their identified witness activities. Quality Control has a three shift coverage and has five quality control engineers dedicated specifically to startup testing. No unacceptable conditions were noted in the scope of this review.

The inspector met with the quality assurance site supervisor and discussed audit activities for the startup test program. The licensee has plans to conduct a quality assurance audit of startup in the early implementation stage and has allocated the resources to perform the audit. No unacceptable conditions were noted in the scope of this review.

7. Determination of Reactor Power Level at Low Power Levels

The inspector reviewed STP-12.1 "Constant Heatup Rate APRM Calibration" Revision 0 dated June 1, 1984, to determine that, subsequent to performance of STP-12.1, the APRMs would conservatively represent core thermal power. Based on discussions with the Lead STD and A Engineer and independent calculations performed by the inspector, the inspector verified that the APRM's would conservatively represent core thermal power following this calibration using STP-12.1.

8. Plant Tours

The inspectors made several tours of various areas of the facility to observe work in progress, housekeeping, cleanliness controls and status of construction and preoperational test activities.

No violations were identified.

9. Unresolved Items

Unresolved items are matters about which more information is needed to determine whether they area violations, deviations, or acceptable. The unresolved item identified during this inspection is discussed in paragraph 3.2.

10. Exit Interview

Management meetings were held on August 25 and 31, 1984 to discuss the inspection scope and findings, as detailed in this report (see paragraph 1 for attendees). At no time during the inspection was written material given to the licensee.

Attachment A

Completed Procedures Reviewed for Test Results Evaluation

-- IP-2.1, Revision 0, 125V (Div. III and IV) DC Safeguard Power System, Results approved June 1, 1984;

-- IP-2.2, Revision 0, 125/250 VDC (Div. I and II) Safeguard Power System, Results Approved August 15, 1984;

-- IP-4.1, Revision 0, 4kv Safeguard Power System, Results Approved August 10, 1984;

-- IP-5.1, Revision 0, Safeguard 440V Load Centers, Results approved June 14, 1984;

-- IP-6.1, Revision 0, Safeguard 440V Motor Control Centers, Results Approved August 6, 1984;

-- IP-11.1, Revision 0, Service Water System, Results Approved August 11, 1984;

-- IP-14.1, Revision 0, Reactor Enclosure Cooling Water System, Results Approved August 6, 1984;

-- IP-15.1, Revision 0, Turbine Enclosure Cooling Water System, Results Approved June 1, 1984;

-- IP-17.1, Revision 0, Instrument AC Power System, Results Approved May 22, 1984;

-- IP-18.1, Revision 0, Instrument Air System, Results Approved August 7, 1984;

-- IP-32.1, Revision 0, Control Room HVAC System, Results Approved August 2, 1984;

-- IP-35.1, Revision 0, Fuel Pool Cooling and Cleanup System, Results Approved August 12, 1984;

-- IP-39.1, Revision 0, Condensate Filter Demineralizers, Results Approved August 2, 1984;

-- IP-46.1, Revision 0, Extraction Steam and Feedwater Heater System, Results Approved August 10, 1984;

-- IP-49.1, Revision 0, Residual Heat Removal (RHR) System (NSSS), Results Approved August 15, 1984;

-- IP-51.1, Revision 0, Core Spray System, Results Approved July 28, 1984;

-- IP-56.1A, Revision 0, Reactor Manual Control System (RMCS) Rod Drive Control System (RDCS), Results Approved August 12, 1984;

-- IP-57.1, Revision 0, Uninterruptible AC Power System, Results Approved August 22, 1984;

-- IP-59.3, Revision 0, Suppression Pool Cleanup and Vacuum Relief System, Results Approved August 4, 1984;

-- IP-61.1, Revision 0, Reactor Water Cleanup (RWCU) System, Results Approved August 21, 1984;

-- IP-78.1, Revision 0, Startup Range Neutron Monitoring, Results Approved August 23, 1984;

-- IP-80.1, Revision 0, Reactor Vessel Instrumentation System, Results Approved August 6, 1984;

-- IP-81.1, Revision 0, Fuel Handling System, Results Approved August 2, 1984; and,

-- IP-100.2, Revision 0, Loss of Instrument Air Test, Results Approved August 16, 1984.

The following completed procedures reviewed for test results are documented in other NRC:RI inspection reports as indicated:

-- IP-25.1, Primary Containment Instrument Gas System, NRC:RI Inspection Report 50-352/84-49;

-- IP-28.1, Diesel Generator Enclosure HVAC System, NRC:RI Inspection Report 50-352/84-44;

-- IP-34.2, Refueling Area HVAC System, NRC:RI Inspection Report 50-352/84-44;

-- IP-66.1, Reactor Enclosure Unit Coolers, NRC:RI Inspection Report 50-352/84-49;

-- IP-52.1, High Pressure Coolant Injection System, NRC: Inspection Report 50-352/84-49; and,

-- IP-55.1, Control Rod Drive Hydraulic System, NRC:RI Inspection Report 50-352/84-49.