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September 6, 1984

Docket Nos. 50-352
50-353

Inspection Report Nos. 50-352/84-26
50-353/84-09

Mr. Richard W. Starostecki, Director
Division of Project and Resident Programs
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Your letter of August 2, 1984, R. W. Starostecki to J. S. Kemper, PECo forwarded Combined Inspection Report 50-352/84-26 and 50-353/84-09. A five-day extension for this response was discussed with A. R. Blough, acting for R. M. Gallo of the NRC staff, and found to be acceptable. We regret any inconvenience this may have caused. Appendix A to your letter addresses certain activities at our Limerick Generating Station which do not appear to be in full compliance with Nuclear Regulatory Commission requirements. These items are restated below along with our responses:

A. 10 CFR 50, Appendix B, Criterion XI and the Startup Activity Section of Volume III of the Limerick Quality Assurance Plan require the establishment of a preoperational test program to assure that systems will perform satisfactorily in service.

FSAR Section 14.2 defines the NRC accepted preoperational test program and specifies the maximum functional criteria to be verified during each system preoperational test.

1. FSAR Section 14.2 and the licensee's response to FSAR Question 640.15 state that the preoperational test program for the standby diesel generators includes three test procedures, 1P24.1, 1P100.1 and 1P100.4, and includes testing to assure each criteria of NRC Regulatory Guide 1.108, Section C.2.a is met.

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Contrary to the above, as of June 18, 1984, the diesel generator test program, as implemented, did not include testing to evaluate each diesel generator unit's response to two event sequences identified in Regulatory Guide 1.108: (1) a complete loss of load; and, (2) a loss of coolant accident coincident with a loss of offsite power which occurs while the unit is undergoing periodic surveillance testing.

2. FSAR Section 14.2 states that procedure 1P59.1 tests the closure times for all automatic valves controlled by the containment isolation and nuclear steam supply shutoff system.

   Contrary to the above, as of June 19, 1984, the final approved version of 1P59.1 did not include closure time testing for 34 automatic valves.

3. FSAR Section 14.2 states that the response of the control room HVAC system to a chlorine isolation event will be evaluated during test 1P32.2.

   Contrary to the above, as of June 12, 1984, the control room HVAC response to a channel A chlorine isolation was not adequately verified as a result of an improperly implemented test change notice (TCN 27).

This is a Severity Level IV Violation (Supplement II).

RESPONSE

The following numbered paragraphs are Philadelphia Electric Company's responses to items identified above. The responses identify the cause of the deficiency and the specific corrective action taken.

1. (1) The preoperational test was not sufficiently detailed to require the tripping of the load from the diesel generator at 100% load and the Startup Engineer was not familiar with the requirements of Regulatory Guide 1.108. The Startup Engineer involved with testing of two of the four diesel generators reduced the load to 50% prior to the trip, consistent with what he believed to be prudent practice to protect the equipment from unnecessary stress. As a corrective action, the preoperational test, 1P100.4, was revised to specifically require tripping of the load from the diesel generator at 100% load. All of the diesel generators have been satisfactorily tested to this condition.

(2) The demonstration of the ability of the Diesel Generators to respond to a loss of coolant accident coincident with a loss of offsite power (LOCA-LOOP), while undergoing periodic surveillance testing was substantiated by performing, in combination, preoperational tests 1P24.1, 1P100.4 and 1P100.1.

The specific test of the response to a loss of coolant accident coincident with a loss of offsite power (LOCA-LOOP), while the diesel generators were supplying power, is satisfactorily demonstrated by the combined testing of 1P24.1 and 1P100.1 as follows:

a) The ability of the Diesel Generator (D-G) output breaker to trip upon LOCA is tested in 1P24.1 (Section 9.4.2 Step (23) for "A" D-G, typical of "B", "C" and "D"). Under this scenario, the D-G continues to run. (Note: "A" and "C" D-G trip test was performed in test change notice (TCN) #12 to 1P100.4.) Under the Design Basis Accident (DBA) LOCA-LOOP, the D-G will see the LOCA first, because the D-G itself will "maintain" the bus voltage until the D-G output breaker trips in response to the LOCA signal.

b) With the D-G running, but not connected to the bus, the ability of the D-G to respond to a LOOP is tested by 1P100.1 Section 6.4.4.

Therefore, as discussed above, the LOCA-LOOP response, during surveillance testing of the D-G, has been demonstrated in that the D-G output breakers trip (in response to a LOCA) and then reclose (in response to the LOOP). The D-G breakers' time to close following LOOP is approximately 2.0 seconds, which is significantly less than the 10.0 second requirement for the D-G to provide power during a DBA.

As a corrective action to this item, the Station Superintendent has instructed the Test Review Board (TRB) to review the preoperational tests, 1P24.1, 1P100.1 and 1P100.4, as a package to ensure that all diesel generator testing incorporates the testing recommendations contained in the FSAR and Regulatory Guides. This review will be completed prior to approval of the preoperational test results.

2. Preoperational Test 1P-59.1 tests only the containment isolation logic and nuclear steam supply shutoff valve logic. Closure time testing requirements are contained in other associated system preoperational tests. The cause of the failure to include closure time testing in Preoperational Test 1P-59.1 occurred because 1P-59.1 was prepared and reviewed independently of the associated system preoperational tests. When the Test Review Board (TRB) approves an individual test procedure which indicates that certain items are included in other system test procedures, this interface is listed on the TRB test exception record. Upon completion of the preoperational test, the TRB then reviews all interfacing procedures against acceptance criteria and at the time this omission would have been identified.

   Of the 34 automatic valves identified in you report, all but six were tested in other preoperational tests of associated systems. It was intended that these six valves be tested in Preoperational Test 1P73.1; however, these valves were never added to 1P73.1. As a corrective action, a Test Change Notice (TCN #1) was added to procedure 1P73.1 to measure the closing times of these six valves. With the inclusion of this TCN, all automatic valves whose closure times are specified by FSAR Table 6.2-17 (identified by a single or double asterisk) will be or have been verified by test. All other closure times presented in FSAR Table 6.2-17 are for information only and are not essential to mitigate high-energy line breaks or do not provide an open path out of containment.

3. The failure to adequately verify the control room HVAC response to the Channel A chlorine isolation occurred because the Test Change Notices to accommodate interfacing systems logic for this test complicated the test. As a corrective action, the entire preoperational test 1P32.2 was revised and a retest performed. This retesting is now complete.

In evaluating the causes of the above problems which occurred prior to the Test Review Board (TRB) review of the results, the following steps have been taken to prevent recurrence:

1) The Startup Administrative Procedures have been revised to reduce the numbers of TCN's.

2) The test summary of the results of preoperational testing and the significant test changes will be

prepared to assist the TRB in their review of the preoperational tests.

3) Permanent plant personnel participate with vendor personnel during the preoperation testing. Changes or modifications to the preoperation testing, as necessary, are reviewed by permanent plant personnel.

B. 10 CFR 50, Appendix B, Criterion V and Section V of Volume 1 of the Limerick Generating Station Quality Assurance Plan require that activities affecting quality be prescribed by appropriate procedures.

FSAR Section 9.4.5 and the licensee's response to FSAR Question 480.7 describe the valve position indicating system for the primary containment vacuum relief valves. This system is stated to be capable of detecting relief valve opening prior to the 0.05 sq. ft. drywell-to-suppression pool steam bypass leakage area limit being exceeded.

Research and Testing Procedure RT-11-00001 was used to calibrate the valve position indicating system.

Contrary to the above, calibration procedure RT-11-00001 was not appropriate in that it did not calibrate the primary containment vacuum relief valve position indicating system to the accuracy specified in the FSAR.

This is a Severity Level IV Violation (Supplement II).

RESPONSE

The cause of this occurence was the lack of sufficient detail in the procedure RT-11-00001 used for initial checkout to meet the unique accuracy requirements specified in the FSAR. At the time of this inspection, surveillance test for the containment vacuum relief valve, ST-2-060-400, "Containment Systems - Suppression Pool, Drywell Vacuum Breaker Setpoint Check and Channel Calibration", was being written. This surveillance test, which must be performed prior to declaring the system operable, requires the use of the procedure, RT-11-00420, "Calibration Procedure for Vacuum Relief Valves, Type CV1-L", which specifies that the vacuum relief valve limit switches are calibrated to meet the required valve lift corresponding to a 0.05 sq. ft. leakage area from drywell to suppression pool. This procedure specifically defines the means by which the limit switches are calibrated to the proper valve lift utilizing a dial indicator.

Calculations are currently being performed to define the allowable tolerance for the 0.060 inch valve lift described in FSAR Section 9.4.5 and FSAR Question 480.7, while maintaining 0.05 sq. ft. leakage area requirements. A representative of the valve manufacturer will be on site beginning 9/7/84 to assist with all adjustments that might be required to meet the defined tolerance. The valves will be calibrated and set points verified before initial criticality.

Use of the above mentioned procedure will ensure the proper calibration of these limit switches and will prevent recurrence of this item.

If you should have any further questions, please do not hesitate to contact us.

Very truly yours,

RJ Laney

cc: Dr. T. E. Murley, Administrator
See Attached Service List

cc: Judge Lawrence Brenner
Judge Peter A. Morris
Judge Richard F. Cole
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