

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-352/86-12

Docket No. 50-352

License No. NPF-39 Category C

Licensee: Philadelphia Electric Company

Facility Name: Limerick Nuclear Generating Station, Unit 1

Inspection At: Limerick, Pennsylvania

Inspection Conducted: May 27-30, 1986

Inspectors:

Jacques Duan for
Jan W. Chung, Lead Reactor Engineer

7/1/86
date

J. Golla
J. Golla, Reactor Engineer

6/19/86
date

Approved by:

C. J. Anderson
C. Anderson, Chief, Plant Systems
Section, EB

6/19/86
date

Inspection Summary: Inspection May 27-30, 1986 (Inspection Report No. 50-352/86-12)

Areas Inspected: Routine unannounced inspection of test witnessing and preliminary results evaluation of Local Leak Rate Test (LLRT), and facility tour.

Results: No violations or deviations were identified.

DETAILS

1.0 Persons Contacted

- *J. Doering, Superintendent-Operations
- *G. Edwards, Performance Engineer
- B. Epler, Test Engineer
- M. Horton, Test Engineer
- B. Kirkpatrick, QA
- *W. Lewis, Test Engineer
- J. Mcelwain, QA
- K. Moser, Test Engineer
- J. Muntz, Performance Engineer
- L. Percowski, I&C
- *J. Rubert, QA
- S. Wagner, Test Engineer
- *V. Warren, T.E.-Regulatory
- G. Williams, QC

USNRC

- *S. Kurcharski, Resident Inspector

*Denotes those present at exit meeting on May 30, 1986.

2.0 Local Leak Rate Testing(LLRT)

The purpose of this inspection was to ascertain that the LLRT was conducted in compliance with the requirements and commitments referenced in the following sections 2.1 and 2.2, and that the test results met the acceptance criteria specified in the station procedures and Appendix J, 10 CFR 50. The procedures were reviewed for their technical adequacy to perform the intended activities.

2.1 References

- o 10 CFR; Part 50, Appendix J, Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors
- o Limerick Unit 1 Technical Specifications Sections 3/4.6.1, Primary Containment
- o Final Safety Analysis Report (FSAR)
- o ANSI/ANS 56.8-1981, Containment Systems Leakage Testing Requirements
- o USNRC I&E Information Notice No. 85-71; Containment Integrated Leak Rate Tests

2.2 Documents Reviewed

- ST-1-LLR-001-1, The LLRT Program and Accountability Test, Revision 3
- ST-1-LLR-002-1, Primary Reactor Containment Test TAP LLRT, Revision 0
- LGS Nuclear Training Lesson Plan Index
- Engineer Training Program - Integrated and Local Leak Rate Testing
- ST-1-LLR-471-1, "C" RHR LPCI, Revision 4
- PMQ-095-005, Preventive Maintenance Procedure for Q-listed 250 Vdc Magnetic Starters - Westinghouse, Class 9022, Revision 1
- PMQ-500-022, Preventive Maintenance Procedure for Q-listed Limitorque Actuator (SMB-000) Overhaul, Revision 0
- A-26, Procedure for Corrective Maintenance, Revision 8
- Maintenance Request Form (MRF) #8603247, RHR Vacuum Relief Valve, May 29, 1986
- A-26, Appendix 1, Instructions for completing the Limerick Generating Station Maintenance Request Form (MRF) for corrective Maintenance, Revision 3
- A-26, Appendix 2, Instructions for completing the Limerick Generating Station Equipment Trouble Tag, Revision 2
- A-26, Appendix 3, Instructions for completing the Limerick Generating Station Operation Verification Form, Revision 1
- A-26, Appendix 4, Instructions for completing Limerick Generating Station Parts List, Revision 0.

2.3 Test Instrumentation

Calibration records of the leak rate monitors and the mass flow meter were reviewed to assure that all test equipment have been calibrated over the normal range of conditions experienced during the LLRT, and that calibration of instruments used in the LLRT have been performed no more than 6 months before the LLRT. The traceability of calibrations to National Bureau of Standards (NBS) was also evaluated. The following are the calibration records reviewed:

- Leak Rate Monitors: 21-1122 performed 5/16/86, 4/25/86, 9/19/85, 7/20/85, 3/26/85, 2/21/85, 10/30/84, 8/5/84, 7/6/84; 21-1107 performed 5/16/86, 4/25/86, 11/4/85, 8/14/85, 11/12/84, 8/15/84; 21-1108 performed 5/19/86, 5/16/85, 4/25/86, 1/24/85, 7/11/85, 5/11/85; 21-1121 performed 5/16/86, 4/25/86, 1/24/85, 6/23/85, 7/6/84; 21-1106 performed 4/25/86, 11/24/85, 11/13/85, 8/14/85, 5/11/85; 21-1109 performed 5/16/86, 4/25/86, 10/1/85, 7/11/85, 3/5/85; 21-1120 performed 4/25/86, 9/19/85, 8/3/85, 6/23/85, 3/26/85, 8/15/84, 7/6/84.
- Mass Flow Meters: 21-1237 performed 12/31/85; 21-1236 performed 4/3/86.

Findings

The instrument calibration records indicated that "As Left" values and test results met the acceptance limits, and no unacceptable conditions were identified.

The test instruments used for the leak rate monitor calibrations were #25-7493 Heise gage and #21-1237 mass flow meter, and the licensee stated that their certificates of traceability to NBS were kept at the corporate headquarters.

2.4 Test Witnessing

The inspector witnessed the performance of test activities to verify that:

- approved test procedures were available and in use.
- the procedures were adequately detailed to assure satisfactory performance.
- parts and materials were properly identified.
- qualified test equipment and tools were used.

The following tests were witnessed:

- (1) Penetration X-225, RHR Vacuum Relief Valves, HV-51-130 and HV-51-131, performed May 29, 1986.
- (2) Drywell Head Access Manhole, ST-1-LLR-B05-1, Revision 1, performed May 29, 1986
- (3) Penetration X-24, Reactor Enclosure Cooling Water Return, ST-1-LLR-211-1, Revision 2, performed May 28, 1986.

Findings

On May 19, 1986, RHR vacuum relief valves, HV-51-130 and HV-51-131, were air-tested, and the 131 valve failed due to excessive leakage through the valve seating by failing to close fully. A MRF #8603247 was issued, and the 131 valve was retested on May 29, 1986. Again, the valve failed to maintain the test pressure and a MRF #8603483 was issued.

Because of the excessive leakage through the 131b valve the "As Found" running total of the LLRT exceeded the acceptance criterion of 0.6 La. This will be further discussed in the following paragraph 2.5. A local leak test of drywell head access manhole was witnessed at 2:25pm, May 29, 1986. The inspector noted that test personnel were using an approved test procedure, ST-1-LLR-B05-1, and that the test engineer superimposed a known leakage of 84.6 SCCM as per procedural instructions because of a relatively small leak.

2.5 Test Results

As of May 28, 1986, the inspector was informed that LLRT of more than 30 penetrations were not completed, and a running total of "As Found" LLRTs was 100,369.93 SCCM. Acceptance criterion in Technical Specifications 4.6.1.1a for the combined LLRTs (B and C tests) was 0.6 La, which is equivalent to 94,964 SCCM.

The licensee confirmed the failure of the test, and stated that an LER would be issued under 10 CFR 50.73, 30 day reporting requirements.

3.0 Personnel Training and Qualifications

The qualification and training of selected test personnel were discussed with a licensee representative. In addition the inspector evaluated the performance of test engineers during the test witnessing.

The inspector determined that the test engineers qualifications met the requirements specified in ANSI N 18.1-1971 "Selection and training of nuclear power plant personnel". They were knowledgeable of their responsibilities and technical aspects of leak testings.

No unacceptable conditions were identified.

4.0 QA/QC

The inspector discussed with a QA/QC representative their coverage of the LLRTs, and reviewed the following QA/QC audit documents:

- ° QA Detailed Monitoring Checklist, L-OP-15.1, Surveillance Test Performance of LLRT Supplement Flow-in Test Method.

- L-OP-15.2, Surveillance Test Performance of LLRT Supplement Hydro Flow Rate with Pressure Regulator/surge Tank Method.
- QA audit and review of LLRTs performed May 22, 1986.
- QA Monitoring Report LMR-86-0617, L-OP-15 and L-OP-15.1, performed May 21, 1986.

The inspector observed a surveillance inspection by a QC inspector during "C" LPCI LLRT on May 30, 1986.

Based on the above reviews and observations, it was concluded that QA/QC coverage during the LLRT activities was adequate. No unacceptable conditions were identified.

5.0 Tours

The inspector made several tours of the plant including turbine building penetration areas, control room, and refueling floor, in order to monitor the activities related to performance of the LLRTs.

No unacceptable conditions were identified.

6.0 Exit Meeting

Licensee management was informed of the purpose and scope of the inspection at the entrance interview. The findings of the inspection were periodically discussed and were summarized at the exit meeting on May 30, 1986.

Attendees at the exit meeting are listed in Section 1.0 of this report. At no time during the inspection was written material provided to the licensee by the inspectors.