

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

NOTICE
2 NOV 1978

AS OF _____
REGION I HAS NOT OBTAINED PROPRIETARY
CLEARANCE IN ACCORDANCE WITH 10 CFR 2790

Report No. 50-334/78-27

Docket No. 50-334

License No. DPR-66 Priority -- Category C

Licensee: Duquesne Light Company

435 Sixth Avenue

Pittsburgh, Pennsylvania 15219

Facility Name: Beaver Valley Power Station

Inspection at: Shippingport, Pennsylvania

Inspection conducted: October 16-18, 1978

Inspectors: *D.L. Caphton for*
J. C. Higgins, Reactor Inspector

10/31/78
date signed

date signed

date signed

Approved by: *D.L. Caphton*
D. L. Caphton, Chief, Nuclear Support
Section No. 1, Reactor Operations and Nuclear
Support Branch

10/31/78
date signed

Inspection Summary:

Inspection on October 16-18, 1978 (Report No. 50-334/78-27)

Areas Inspected: Routine, unannounced inspection by a regional based inspector of the containment integrated leak rate test procedure and local leak rate testing. The inspection involved 23 inspector-hours on site by one NRC regional based inspector.

Results: No items of noncompliance were identified.

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DETAILS

1. Persons Contacted

The below listed technical and supervisory level personnel were contacted.

R. Balcerek, Maintenance Supervisor
*R. Conrad, Senior Engineer
J. Frenn, Test Engineer
*W. Glidden, QA Engineer
*J. Hrivnak, Station QA Engineer
L. Krasicki, Computer Engineer
*F. Lipchick, Station QA Engineer
**W. Robinson, Test Engineer
*L. Schad, Operations Supervisor
*T. Slavic, I&C Engineer
*J. Werling, Station Superintendent
*H. Williams, Chief Engineer
R. Zabowski, Technical Supervisor

* denotes those present at the exit interview.

** attended pre-exit interview review of findings.

The inspector also talked with and interviewed several members of the engineering staff, instrument technicians and health physics personnel.

2. Containment Integrated Leak Rate Test (CILRT)

a. General

The inspector reviewed the following procedures associated with the CILRT:

- BVT 1.1-1.47.1, "Verification of Structural Integrity of the Containment Liner and Concrete Structure" dated February 18, 1978
- BVT 1.1-1.47.2, "Containment Type A Leak Test" dated October 13, 1978

These procedures were reviewed for proper format, technical adequacy and compliance with 10 CFR 50, Appendix J. ANSI N45.4 and Beaver Valley Technical Specifications. With the exception of the below items the inspector had no further questions on the procedures.

b. CILRT Procedure

The below items associated with Procedure No. 1.47.2 are unresolved and are collectively designated as item no. (334/78-27-01).

(1) Computer Program

The procedure does not specify what is to be printed out on the trend and states that the method of data analysis to be used is the total time method. The inspector informed the licensee that analysis method currently accepted by the NRC is the mass point technique.

(2) Acceptance Criteria

Section V.B.3 of Appendix J specifies the requirement for analysis and interpretation of CILRT results. The inspector informed the licensee of the NRC position for the acceptance criteria for the CILRT. The corrected measured leak rate at the 95% upper confidence level must be less than 0.75 La.

(3) Test Pressure

The procedure does not verify that test pressure is greater than Pa (38.3 psig) at the start of the test, after stabilization is completed.

(4) Volume Changes

The procedure contained no provision for conservatively adjusting leakage rates for sump level and pressurizer level changes that could significantly change the containment free volume and could mask CILRT leakage.

(5) Leak Repair

Appendix J, Section III.A.1.(a) states that no repairs or adjustments shall be made after the initiation of the containment inspection so that the containment can be tested in the "as is" condition. The procedure does not contain these prohibitions.

Additionally in the event of leakage during the CILRT that exceeds acceptance criteria, the NRC staff has established the following position. A leakage path identified during

the CILRT may be isolated and the CILRT continued provided that: the leakage path is locally leak rate tested before and after repair; the pre-repair leak rate is added to the CILRT results to determine the success/failure of the initial CILRT attempt; and the post-repair leak rate is added to the CILRT results to determine the final containment acceptability prior to plant startup.

(6) Pump Back

The instructions in the procedure for the amount of air to be pumped back into containment for the verification test do not completely agree with the Technical Specifications.

(7) Instrument Failure

The procedure currently allows continuation of the CILRT with zero dewcells. This is not in accordance with ANSI N45.4, section 7.7, which requires that vapor pressure be monitored during the test.

(8) Weld Channels

The containment has test channels over the liner welds used during plant construction for testing. These present an artificial barrier to leakage which cannot be guaranteed to exist post-accident. The procedure currently does not vent these test channels to containment.

(9) Volume Weighting Factors

The summation of the volume weighting factors for the resistance temperature detectors currently does not equal unity.

The below items will receive further NRC review and are designated as inspector follow item (334/78-27-02).

(10) Cloud Cover

Diurnal cycles have been noted in past CILRT's and have resulted in difficulties in analyzing leakage rate data. The monitoring of external temperature, humidity and cloud cover can assist in this analysis. Currently, the procedure does not log cloud cover.

(11) Data Rejection

During the CILRT data may be rejected as an outlier provided a definitive data rejection criteria has been established. Currently, there is no such criteria in the procedure.

c. CILRT Instrumentation

(1) General

The inspector reviewed calibration procedures, manufacturer's information and various other records associated with the instrumentation to be used during the CILRT. The inspector verified that all calibrations were traceable to the National Bureau of Standards and that data readings would be corrected for instrument error prior to being used for calculation of leakage rates as required by Appendix J, Section III.A.3.(c). With the exception of the below items the inspector had no further questions in this area.

(2) Resistance Temperature Detectors (RTD's)

During a review of the RTD calibration procedures and data the inspector noted that an unofficial data sheet was being used and that the computer input calibration accuracy was questionable. The licensee's representative stated that all RTD calibration information would receive careful review. This item is unresolved. (334/78-27-03)

(3) Dewcel Instrumentation

During a review of the calibrations being performed on the CILRT moisture analyzers (Foxboro Dewcels), the inspector noted that they were being performed using the manufacturer's technical manual vice an approved plant procedure. The licensee stated that procedures would be prepared for the Dewcel calibration. This item is unresolved. (334/78-27-04)

(4) Pressure Instrumentation

The licensee had not yet begun calibration of the pressure instruments to be used during the CILRT. Their calibration data will be reviewed at a future inspection. (334/78-27-05)

3. Local Leak Rate Testing (LLRT)

a. Test Witness

The inspector accompanied licensee personnel in containment during an attempt to conduct a Type C leak rate test on check valve ISI-94 in penetration #113. The test was being conducted in accordance with OST 1.47.70, but was aborted due to excessive water leakage through test boundary valves and due to a flange on the test vent connection not being removed. The licensee's representative stated that the test would be rerun at a later date.

b. Results Review

The inspector performed a sampling review of completed test results for Type C leak rate testing of containment isolation valves conducted during the current outage. Leakage through several valves exceeded the measuring capability of the licensee's instrument (e.g. ISI-13, 14, 451 and 452, MOV-ISI-890A and B, IHY-119 and TV-CC-105EI). The inspector stated that the Technical Specification limit of 0.60 La for Type C leakage had apparently been exceeded. The licensee's representative stated that a plant incident report was being prepared and that the Onsite Safety Committee would review this to determine reportability to the NRC.

c. Instrumentation

The inspector reviewed manufacturer's and on site calibration information for instrumentation used in Type C local leak rate testing. The instruments used included Volumetrics Leak Rate Monitors and various rotameter type flowmeters. The licensee's representative stated that none of the rotameters had been calibrated, but were bought as off-the-shelf items. Three surveillances (OST 1.47.24, 40 and 41) were recently performed with these flowmeters. Quality Assurance Procedure No. OP-12, Revision 2, dated April 8, 1977, paragraph 12.2.3 requires that measuring and test equipment be calibrated against certified equipment having a known valid relationship to nationally recognized standards. This item is unresolved pending proper calibration of flowmeters or repeat of the OST's using suitably calibrated equipment.
(334/78-27-06)

4. Unresolved Items

Items about which more information is required to determine acceptability are considered unresolved. Paragraphs 2.b, 2.c, and 3.c of this report contain unresolved items.

4. Exit Interview

At the inspection's end the inspector held a meeting (see paragraph 1 for attendees) to discuss the inspection scope and findings. The unresolved items were identified.