

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

Region I

Report No. 50-334/79-12

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, Unit No. 1

Inspection at: Shippingport, Pennsylvania

Inspection conducted: May 16-18, 1979

Inspectors:

H.H. Nicholas for  
W. A. Rekito, Reactor Inspector

8/6/79  
date signed

J.P. Higgins  
J. C. Higgins, Reactor Inspector

8/7/79  
date signed

Approved by:

D.L. Capiton  
D. L. Capiton, Chief, Nuclear Support  
Section No. 1, RO & NS Branch

8/7/79  
date signed

Inspection Summary:

Inspection on May 16-18, 1979 (Report No. 50-334/79-12)

Areas Inspected: Routine unannounced inspection by regional based inspectors of the Containment Integrated Leak Rate Test Report, local leak rate testing, Licensee action on previous inspection findings, general plant conditions and snubbers. The inspection involved 42 inspector hours on site by two regional based NRC inspectors.

Results: Of the five areas inspected, one item of noncompliance was found in one area (Deficiency - Failure to follow approved procedures, paragraph 5.b.) and no noncompliances were found in the other four areas.

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## DETAILS

### 1. Persons Contacted

- \*R. Balcerek, Maintenance Supervisor
- \*J. Carey, Technical Assistant, Nuclear
- \*R. Conrad, Senior Engineer
- D. Crouch, Shift Supervisor
- R. Druga, Nuclear Shift Operating Foreman
- \*W. Glidden, QA Engineer
- \*R. Hansen, QC Engineer
- \*L. Hutchinson, Station QA (NSC)
- \*F. Lipchick, Station QA
- \*L. Schad, Operations Supervisor
- J. Werling, Station Superintendent
- \*D. Williams, Results Coordinator
- R. Zabowski, Technical Supervisor.

The inspector also talked with and interviewed other licensee employees during the inspection. They included members of the technical and plant operating staffs.

\*Denotes those present at the exit interview.

### 2. Licensee Action on Previous Inspection Findings

#### a. Items Closed

(Closed) Unresolved Item (334/78-13-03): ISI Procedures Number 5.0 and 8.0 have a fluid level acceptance criteria but not a piston setting criteria. The piston setting issue will be tracked under items 77-10-11 and 78-13-02. This item is therefore closed.

(Closed) Unresolved Item (334/78-27-06): The inspector reviewed the calibration records from January, 1979 for the rotameter type flowmeters used for the surveillances in question and noted that they were traceable to nationally recognized standards. This item is closed.

(Closed) Item of Noncompliance (334/79-02-01): The inspector reviewed the licensee's response to the item of noncompliance and associated actions. On 1/18/79, Temporary Operating Procedure 79-3, "Flow Check of RHR Pump on

Recirculation", was performed and satisfactorily compared both RHR pumps' differential (D/P) pressure to the original D/P on the pumps' curves. On March 7, 1979, the Operations Supervisor issued a letter to all Shift Supervisors and Shift Foreman titled "Deviation from the Acceptance Criteria for Operating Surveillance Tests". The letter gave guidance on actions to be taken when limits established in Section XI of the ASME Code are exceeded. This item is closed.

(Closed) Unresolved Item (334/79-02-10): The licensee is sending all relief valves from affected systems to Wyle Laboratories for testing and any required refurbishment during the current outage. This item is closed.

b. Items Remaining Open

(Open) Unresolved Item (334/77-20-07): On April 19, 1979, the licensee submitted a License Amendment Request to the NRC to change Technical Specification (TS) Table 3.7-4 to include all safety related snubbers. This item remains open pending issuance of the new Table.

(Open) Unresolved Items (334/77-20-11 and 78-13-02):  
Snubber Piston Setting: The inspector reiterated the NRC position in this area. Verification of snubber piston settings is an essential element of the TS required snubber visual inspection to determine operability. The inspector stated that procedures should be revised to include these measurements as soon as possible. The licensee's representative stated that appropriate revisions would be made as soon as operations permitted.

(Open) Unresolved Item (334/77-30-02): The licensee has not yet established acceptable bleed rates for Bergen-Paterson (B-P) snubbers but stated that the bleed rates would be defined in time for B-P snubber overhaul and testing to be completed at Wyle Laboratories. This item remains open.

(Open) Unresolved Item (334/77-30-04): The licensee has not yet reset the bleed rates on the two Recirculation Spray snubbers and the Fuel Pool Cooling System snubbers which were not reset during the 1977 functional testing. The inspector noted that the current outage afforded an opportunity to complete the resetting on these snubbers.

The licensee's representative stated that these snubbers would be removed and reset during the current outage. This item remains open.

(Open) Inspector Follow Item (334/78-13-04): The licensee's representative stated that Westinghouse was formulating the program for the Inservice Inspection Program for BVPS for the first 40 month inspection interval. The entire program will be performed during the upcoming refueling outage. This item remains open pending review of the program for inspection of pipe and component supports.

(Open) Unresolved Item (334/78-27-01): The licensee and his architect-engineer (Stone & Webster) have made two presentations to the NRC to demonstrate the post-accident integrity of the containment liner weld channels. A final determination as to the acceptability of the CILRT performed with the channels unvented has not yet been made. This item remains open.

(Open) Unresolved Items (334/79-02-02 through 79-02-09): The licensee has not yet addressed these items but stated that all actions would be completed by January 1, 1980. The inspector stated that an effort should be made to complete the necessary program revisions within three months. The licensee's representative acknowledged this comment. These items remain open.

### 3. Hydraulic Snubbers

#### a. Functional Testing

The licensee is in the process of performing the Technical Specification (TS) 18 month snubber functional testing. Of the first ten randomly selected snubbers sent to Grinnell for testing, one had a low bleed rate (~0.5 inches per minute). The exact cause could not be determined, but the licensee hypothesized that air had been entrapped in the snubber's fluid during transportation to Grinnell for testing. A second ten snubbers were selected for testing and again one snubber exhibited low bleed rate (~0.5 inches per minute). Upon disassembly, very small metal flakes were found obstructing the bleed ports. At the time of the inspection, the licensee was removing a third sample of ten snubbers for testing.

b. Visual Inspection

Based on the results of the last visual inspection, the licensee is currently on an 18 month inspection interval for his Grinnell snubbers. Recently, however, snubber RC-HSS-4 was found completely empty of fluid on a routine tour. The snubber was restored to operability. The inspector informed the licensee that this and any other snubbers found inoperable during an inspection interval must be carried forward and included with the total number of inoperable snubbers found during the next TS required visual inspection. The licensee currently has no mechanism for performing this. This item is unresolved (334/79-12-01).

In a letter from Schwencer (NRC) to Dunn (DLC), dated 11/9/78, the licensee was informed of a limited NRC approval of the P642 seal material for his Bergen-Paterson snubbers. This letter stated that new P642 seals would be installed in all Bergen-Paterson snubbers during the refueling outage about May, 1979 and that a visual inspection interval of 12 months was acceptable. The refueling outage and seal replacement has been delayed; however, discussions with NRR personnel indicate that the 12 month inspection interval will not be affected.

4. Containment Integrated Leak Rate Test (CILRT)

a. Initial Test Failure

The initial attempt at the 1978 CILRT at Beaver Valley Power Station began on November 3, 1978. The unsuccessful test is discussed in the report titled "Reactor Containment Integrated Leakage Rate Test, November, 1978". The primary cause of test failure was excessive leakage through the containment steam jet ejector penetration isolation valves. Damage to the valves was attributed to using the air ejector as an artificial load for the auxiliary boilers, resulting in thermal cycling of the valves. The valves were repaired and a successful retest completed. A letter from the Operations Supervisor was sent to all Shift Supervisors and control room operators cautioning against using these valves as an artificial load in the future. The inspector informed the licensee that the test schedule applicable to subsequent Type A

tests will be subject to review and approval by the NRC, in accordance with paragraph III.A.6.(a) of Appendix J to 10 CFR 50.

b. Satisfactory Test

The second CILRT measured the containment leakage rate as 0.0406%/Day at the 95% upper confidence level versus an acceptance criteria of 0.75 La equal to 0.0750%/Day. This test demonstrated the integrity of the containment in accordance with TS prior to plant startup following the Fall, 1978 outage.

5. Local Leak Rate Testing (LLRT)

a. General

The inspector reviewed the LLRT summary portion of the CILRT report and the following references in support of the LLRT program.

- Appendix J to 10 CFR 50.
- OST 1.47.4, Rev. 11 - "Containment Isolation Valve Leakage Test, Type C."
- Station Log, Sheet C2, "Type B & C Containment Leak Rate Tests."
- OST 1.47.52, Rev. 11 - "Penetration #60 & 62 valve No. MOV-ISI-890A, ISI-13, MOV-ISI-890B, ISI-14, Type C Leak Test."
- S & W Dwg. No. 11700-RM-167A-4, "Safety Injection System P & ID".
- OST 1.47.23, Rev. 11 - "Penetration #27, valve No. TV-ICC-105E1, TV-ICC-105E2, Type C Leak Test."
- OST 1.47.24, Rev. 11 - "Penetration #28, valve No. TV-ICH-200 A, B, C, MOV-ICH-142, TV-ICH-204, RV-ICH-203, Type C Leak Test."
- OST 1.47.40, Rev. 11 - "Penetration #49, valve No. 1 RC-68, TV-IRC-101, Type C Leak Test."



- OST 1.47.83, Rev. 8 - "Personnel Air Lock Type B Test."
- OST 1.47.85, Rev. 6 - "Equipment Hatch Type B Test".
- OST 1.47.86, Rev. 17 - "Fuel Transfer Tube Blind Flange Type B Test."
- OST 1.47.69, Rev. 11 - "Penetration #94 valve No. HCV-ICV-151, HCV-151-1, Type C Leak Test".
- MSP #47.01, Rev. 1 - "Type B Containment Leakage Test - Electrical Penetration".

With the exception of the items below, the inspector had no further questions in this area.

b. Implementation of Procedures

In the course of reviewing the completed test records, the inspector noted the following examples of failure to implement procedures in accordance with Technical Specification 6.8.1:

- OST 1.47.4 requires that rotameters used for tests have a calibration check performed, witnessed by NSQC, and documented weekly. This was apparently not done during the Fall, 1978 LLRT program for rotameters FI-101A, 101C, and 102C.
- OST 1.47.4 and each individual LLRT procedure requires that test results be recorded in the Station Logs, Sheet C2, "Type B & C Containment Leak Rate Tests." Contrary to these requirements, the inspector noted that the Station Log was not updated with the latest test results for OST 1.47.29 and OST 1.47.83. These two examples comprise an item of noncompliance at the deficiency level (334/79-12-09).

c. Type C Test Procedure

(1) Non-Conservative Results

In several of the tests performed using OST 1.47.4, the licensee had recorded the leakage as zero, which is considered to be non-conservative in the reporting of test results in that; (a) the rotameters used to measure leakage are only accurate above a given minimum sensitivity value for the instrument; and (b) the accuracy of leakage measurement using the "downstream method" is not assured because no verification is done for leak tightness of downstream boundaries. This item is unresolved, pending revision of the procedure to specify the use of the test's minimum sensitivity when appropriate and to specify that additional verifications be made when using the "downstream method" of measurement. (Item No. 334/79-12-02).

(2) Individual Valve Leakage Rates

The licensee's procedure does not include individual valve leakage rate acceptance criteria and required comparisons with past leakage rates as required by paragraph IWV-3420(f) of Section XI of the ASME Boiler and Pressure Vessel Code. This was identified in the licensee's ORC Audit 78-5.4-0 as Item No. 180. The inspector noted, however, that the licensee's response to the Audit did not appear to fully address the requirement in that definitive acceptance criteria were not specified. This item will receive further inspector review and is designated Item No. 334/79-12-03.

d. Type B Test Procedure

For many of the pressure decay tests performed using MSP #47.01, the licensee had recorded the leakage as zero. Some of these tests actually indicated an increase in pressure. Procedure MSP #47.01 is inaccurate in computing leak rates for the Pressure Decay Method in that temperatures over the 72 hour



time period are not measured or factored into the calculation. In addition, pressure gages used for test were not calibrated, as required by 10 CFR 50 Appendix B and the Quality Assurance Procedure No. OP-12. This item is unresolved pending revision of the procedure to include changes of temperature in the leak rate calculation and to specify the use of an acceptable pressure gage. (Item No. 334/79-12-04).

e. Report Errors

In the review of the CILRT Report, the inspector noted that the tabulation of the total Type B & C leak rate tests used an incorrect value for the type C tests total leakage and did not include leakage rates obtained from testing penetrations 111 and 112. In addition, the report does not provide test results from all personnel airlock tests performed since the last Type A test as required by Appendix J. This item is unresolved pending correction of the CILRT Report. (Item No. 334/79-12-05).

f. Airlock Door Bypass

During the CILRT, the airlock inner door equalizing solenoid valves leaked by even though they satisfactorily passed their LLRT. In order to establish a containment barrier in this line, the manual isolation 1-VS-153 was shut. In order to ensure containment integrity in the future valve 1-VS-153 must be maintained leak-tight and must be kept closed during plant operation. This item is unresolved pending inclusion of this valve into the Type C LLRT program and incorporation of checks of this valve's closure into a periodic containment integrity verification. (Item No. 334/79-12-06).

6. Electric Penetrations

The inspector toured the electrical penetration area in company with licensee personnel and observed that all pressure indicating gages were isolated and thereby not indicating the status of the penetration canisters or O-ring seals. Several of the isolation valves were opened to check the pressure in the canisters. This check revealed that two of the canisters were at zero pressure and that two others were below 15 psig. The licensee's representative stated that these canisters are normally maintained pressurized above 45 psig, although there

is no routine surveillance performed to verify this. The licensee's representative further stated that any canisters below 45 psig would be repressurized and that a periodic surveillance would be developed to monitor their pressure. This item is unresolved pending review of the above actions. (Item No. 334/79-12-07).

7. Plant Tour

Several times during the course of the inspection, the inspector toured various areas of the facility both in company with licensee personnel and unaccompanied. Items observed included general plant housekeeping, radiological control practices; pipe supports and restraints, hydraulic snubbers, control room operations, selected lighted plant annunciators and plant parameters. The inspector compared various parameters and conditions with procedural and technical specification limits. No unacceptable conditions were identified.

8. Procedural Step Completion

Quality Assurance (QA) Procedure 08-9, step 9.3.1 states that Station Administrative Directives will identify the manner in which procedures are to be implemented; for example, guidance should be included for tasks that require verification of completion by initials or signatures. This specific guidance did not appear to be available in the plant procedures or directives. Additionally, the inspector noted that Surveillance Test OST 1.47.52 was completed in the Fall of 1978 with several steps requiring restoration of systems to normal not initialled as complete. The licensee's representative stated that the system was restored to normal under the CILRT procedure and that this method of procedural completion was permitted by Chapter 48 of the Operating Manual. This type of partial procedure completion and the requirement of QA Procedure 08-9 will receive further inspector review. (Item No. 334/79-12-08).

9. Unresolved Item

Items about which more information is required to determine acceptability are considered unresolved. Paragraphs 3, 5 and 6 of this report contain unresolved items.

10. Exit Interview

At the inspection's end, the inspectors held a meeting (see Detail 1 for attendees) to discuss the inspection scope and findings. The Item of Noncompliance and unresolved items were identified.