



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 165 TO FACILITY OPERATING LICENSE NO. DPR-66  
AND AMENDMENT NO. 47 TO FACILITY OPERATING LICENSE NO. NPF-73  
DUQUESNE LIGHT COMPANY  
OHIO EDISON COMPANY  
PENNSYLVANIA POWER COMPANY  
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY  
THE TOLEDO EDISON COMPANY  
BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-334 AND 50-412

1.0 INTRODUCTION

By letter dated October 1, 1990, (Ref. 1) Duquesne Light Company (DLC) submitted an application to modify the Appendix A Technical Specifications (TS) for Unit 1 and Unit 2 of the Beaver Valley Power Station (BVPS). The proposed amendment would revise the Containment Structural Integrity Surveillance Requirement 4.6.1.6.1 to reflect the wording contained in NUREG-0452 (Ref. 2), the Standard Technical Specifications for Westinghouse reactors. This proposed change would delete the requirement to remove any leak chase channels associated with missing vent plugs or that are damaged.

The containment buildings at the BVPS have a continuously welded carbon steel liner which acts as a leak tight membrane in the event of an accident. All welded seams are covered with continuously welded test channels, called leak chase channels, which were installed to facilitate leak testing of welds during liner erection. Test ports that were provided for weld testing were sealed with vent plugs after the completion of the weld testing.

Surveillance Requirement 4.6.1.6.1 requires, among other things, that the structural integrity of the containment liner plate and concrete shall be determined by visual inspection of accessible containment liner test channels prior to each Type A containment leakage rate test. The surveillance requirement further specifies that any containment liner test channel found to be damaged to the extent that channel integrity is impaired or discovered with a vent plug missing shall be removed and a protective coating shall be applied to the liner in that area.

## 2.0 EVALUATION

The primary purpose of installing leak chase channels is to provide leak tight enclosures for pressure testing of the liner welds during liner erection. The leak chase system is then leak tested during initial installation of the containment liner. After the containment structure is built, it undergoes containment integrated leak rate test (CILRT) periodically. It is the current staff position that the leak chase channel system be vented to permit the detection of potential leak paths in the primary containment liner welds; however, the channels need not be vented if the licensee can demonstrate that (1) the channel welds are qualitatively equivalent to or better than those for the primary containment liner welds, (2) the channels would maintain their integrity when subjected to the loading conditions of a postulated design basis accident as well as during normal operation, and (3) the inspection and reporting of tests should be in accordance with the requirements in 10 CFR Part 50, Appendix J, including the requirement for a visual inspection of the accessible interior and exterior surfaces of the containment structures and components to be performed prior to any Type A test.

In the event of missing vent plugs in some containment leak chase channels discovered prior to a Type A test, those test channels can be considered as vented for CILRT purposes. No removal of those channels is necessary unless apparent changes in appearance or other abnormal degradation are found during the visual inspection of the exposed accessible interior and exterior surfaces of the containment vessel.

The staff has reviewed the licensee's submittal and the justification for the proposed change to Surveillance Requirements 4.6.1.6.1 concerning the removal of the leak chase channels prior to performing the Type A containment leak rate test (Ref. 1). The staff finds DLC's proposed change acceptable for the following reasons:

- a. The existing surveillance requirement will demand an extensive amount of cutting and grinding because of the great length of test channels involved, but this action will not significantly improve the safety of the containment during or after Type A tests. The proposed change specifies only that the structural integrity of the exposed accessible interior and exterior surfaces of the containment vessel, including the liner plates and leak chase channels, shall be determined by performing a visual inspection of these surfaces prior to the Type A leakage rate test to verify no apparent changes in appearance or other abnormal degradation.
- b. Missing vent plugs may permit moisture to enter the test channel and cause corrosion of the liner metal. Should corrosion occur prior to a Type A test, the apparent changes in appearance or other abnormal degradation should be detected and remedial action should be taken in time. A visual examination of the containment liner and the leak

chase channels with missing vent plugs in Unit No. 2 revealed minor corrosion of the liner (Ref. 3). The impact of this corrosion has been evaluated previously by the staff (Ref. 4). The staff believes that the proposed change is adequate to resolve this issue.

- c. The test channels are capable of withstanding all loads that might be imposed on them during normal test and upset conditions without impairing the performance of the containment liner itself. This is consistent with the staff position on leak chase channels with vent plugs installed. The analytical and test results that justify the capability of the test channels have been reported in Stone and Webster (S&W) reports (Ref. 5 and 6).
- d. The channel welds are qualitatively equivalent to those for the primary containment liner welds in both Units 1 and 2, as described in Ref. 5 and 6. All welds complied with the specifications of ASME Boiler and Pressure Vessel Codes Sect. IX and Sect. III, and were 100% visually inspected and pressure tested during construction. This agrees with the staff position on channel welds as stated above.
- e. DLC has demonstrated that the corrosion rates inside the test channel with missing plugs are not large enough to degrade the containment significantly.

Based on a review of DLC's application (Ref. 1) and Ref. 3 - 6, the staff concludes that the proposed change in Technical Specification 4.6.1.6.1 for Containment Structural Integrity to reflect the wording of the Standard Technical Specification (Ref. 2) surveillance requirement for Containment Structural Integrity does not affect the structural integrity and leak tightness of the containment vessel, nor does it increase the risk to the public from design basis accidents. Furthermore, the proposed change is consistent with the current staff position on venting of leak chase channels. Therefore, the staff considers the proposed technical specification change as reasonable and acceptable. We require, however, that the licensee fulfill his commitment to install the missing vent plugs after completion of the type A tests.

### 3.0 ENVIRONMENTAL CONSIDERATION

The amendments change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has issued previously a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding (56 FR 6872). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR

51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

#### 5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

#### 6.0 REFERENCES:

1. Letter from J. D. Sieber (DLC) to NRC, dated October 1, 1990. Subject: Beaver Valley Power Station, Units No. 1 and No. 2. Proposed Operating License Change Request No. 181/45 (TAC Nos. 77638 and 77639).
2. NUREG-0452 (Revision 3), "Standard Technical Specifications for Westinghouse Pressurized Water Reactors," Fall 1981.
3. Letter from J. D. Sieber (DLC) to NRC, dated October 9, 1990. Subject: Beaver Valley Power Station Unit No. 2. Proposed Operating License Change Request No. 46. (TAC 77726).
4. Letter from A. De Agazio (NRC) to J. D. Sieber (DLC), dated October 23, 1990. Subject: Amendment No. 34 to Facility Operating License NPF-73: Containment Structural Integrity (TAC 77726).
5. "Containment Liner Test Channels at Beaver Valley Power Station - Unit No. 1." Stone and Webster Engineering Corporation. March 1, 1979.
6. "Containment Liner Test Channels at Beaver Valley Power Station - Unit No. 2." Stone and Webster Engineering Corporation. September 14, 1983.

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