



## Duquesne Light

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August 20, 1982

United States Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

ATTENTION: Mr. Richard W. Starostecki  
Division of Project and Resident Programs

SUBJECT: Beaver Valley Power Station Unit No. 2  
Docket No. 50-412  
USNRC IE Inspection Report No. 50-412/82-07

Gentlemen:

This is in response to the Items of Violation cited in Inspection Report #50-142/82-07 and listed in Appendix A (Notice of Violation) attached to your letter to Mr. E. J. Woolever, dated July 20, 1982.

### VIOLATION 82-07-01

10CFR50, Appendix B, Criterion XV, XVI, and ANSI N45.2 require that measures to control further processing, or installation of a nonconforming item be established and maintained. The measures shall include, as appropriate, procedures for segregation or tagging, disposition, and notification to affected organizations. In addition, measures are to be established so that nonconformances are properly identified and corrected as soon as practicable.

Contrary to the above, as of June 23, 1982, nine nonconforming hangers were observed without tagging or identification and without notification to all affected organizations to prevent further processing of the item. The nonconforming condition was initially identified approximately eight months earlier on one of the hangers with no subsequent apparent actions being taken.

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

### RESPONSE

#### Immediate Action

Beaver Valley Unit No. 2 (BV-2) on receipt of the above violation (82-07-01) immediately initiated a review of Inspection Reports to establish the status and extent of incomplete reports due to an unsatisfactory condition found and recorded but no corrective action taken or no formal Nonconformance and Disposition Report (N&D) action initiated. This review was first applied to both the Mechanical and Electrical disciplines. The results indicated

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that the number of outstanding Inspection Reports to be 342 for Mechanical and 251 for Electrical as of August 6, 1982. This same review was applied to the Painting/Coating activity resulting in a total of 150 outstanding Inspection Reports, as of August 10, 1982. These figures are subject to change as the corrective action proceeds.

The review indicated that these Inspection Reports could be categorized into the following:

1. Errors in workmanship that required immediate rectification
2. An engineering evaluation required to establish whether the conditions were acceptable or not, and if necessary, the appropriate design documents revised
3. Required a more definitive description of the conditions, as "unsatisfactory" did not accurately describe the condition found. The term "unsatisfactory" had been used to define conditions other than unacceptable workmanship.

#### Short-Term Correction Action

The review made it apparent that the concept of immediate rectification and corrective action had not been followed and that there was a lack of feedback to BV-2 Quality Control (QC) Management. In view of these findings, two instructions were issued jointly by QC Management and Construction. One instruction was issued to Contractors to institute a program for rectifying or correcting workmanship failure identified by the Inspection Reports. The second instruction was to provide the feedback of Inspection Report conditions under appropriate definitions of the conditions, to QC Management.

This review has expedited the process of closing out 115 of the 251 items in the Electrical discipline. These 115 items were waiting for a clarification of two engineering requirements, which have now been received and their closing is now in progress.

#### Long-Term Corrective Action

QC procedures will be appropriately changed to define the feedback method to be used for analysis by QC Management for appropriate control action and trend analysis when unsatisfactory conditions are reported. Construction procedures will also be changed to adequately define action to be taken by Construction when an unsatisfactory condition is indicated by the Inspection Report. N&D reports for engineering evaluation will be implemented on all applicable unsatisfactory items identified during the recent BV-2 reviews.

These actions will be implemented by October 8, 1982, and the results made available to the NRC Resident Inspector upon request.

BV-2 review of all the disciplines affected by this violation and the corrective actions outlined above, should prevent the recurrence of this problem described by violation 82-07-01.

VIOLATION 82-07-02

10CFR50, Appendix B, Criterion V requires that activities affecting quality be prescribed by and accomplished in accordance with appropriate instruction, procedures, and drawings.

Contrary to the above, there were no specific written procedures for determining containment liner compliance with specification dimensional requirements. Previous inspections by the contractor to determine compliance were inappropriate in that they failed to disclose out-of-tolerance conditions. A reinspection performed by the licensee at the request of NRC disclosed 10 areas on the containment liner which exceeded specification requirements as of June 21, 1982.

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

RESPONSE

The tolerance criterion, for containment liner dimensional requirements was specified in 2BVS-65 to ensure that the containment liner, after erection, would generally be free of abrupt changes in geometry and would be true to the theoretical form (circular or spherical, as the case may be), as can be reasonably expected. At the time the liner was designed and specified, the ASME III, 1971 edition including Winter 1972 Addendum did not address concrete-backed containment liners. Therefore, the tolerance criterion for metal containment (NE-4220) and sound engineering judgement was applied.

During construction of the cylindrical portion of the containment vessel, some degree of weld distortion was observed. As a result, welded wind girders to all liner rings and circumferential reinforcement around all liner openings were installed to minimize this distortion. These precautions were more than adequate to minimize the weld distortions as evidenced by the survey reports submitted documenting compliances with specification 2BVS-65 and revealing that all areas of the Reactor Containment liner plate were within the  $\frac{1}{4}$ " in 14" tolerance.

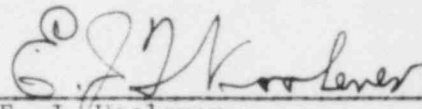
Although there are areas out-of-tolerance at this time, BV-2 believes that they are few in number relative to what would be expected if the liner had not been erected in a careful and professional manner per the requirements of specification 2BVS-65.

There are two conditions considered to be possible causes for the current out-of-tolerance areas:

1. Because of internal reinforcing-plate and wind-girder interference, the local areas out-of-tolerance may have been obscured at the time of the survey. BV-2 has photographic evidence and layout sketches of each of the involved areas showing the relationship of reinforcing to the bulges. This evidence is available for review by the NRC Resident Inspector upon request.
2. Thermal transients of the liner due to ambient heating and cooling between the times of the survey and the concrete pour could have moved previously in-tolerance bulges to out-of-tolerance conditions. In general, the out-of-tolerance areas had a two-month or longer time-frame between the survey and concrete placement.

A calculation to evaluate the acceptability and safety implications of exceeding the specified tolerance has been made. Of the ten areas determined to be out-of-tolerance as stated in Violation 82-07-02, the worst case,  $\frac{1}{2}$ " bulge, was considered. The analysis considers the liner to be a series of rectangular plate panels, with dimensions corresponding to the anchor stud spacings. The effect of the  $\frac{1}{2}$ " bulge is accounted for by using an equivalent reduced plate rigidity when determining the critical buckling stress. The maximum containment design loadings, as specified in the PSAR (section 15), were used. Results of the calculation indicate that the critical buckling stress of the liner panels is in excess of the calculated liner stress in the area of the deformation. Therefore, the liner plate panels will not buckle, demonstrating the structural adequacy of the liner plate and the anchor stud system. The liner will properly function as a leaktight membrane, under design conditions, with no detrimental effects on safety. The calculation is being independently reviewed and will be made available upon request to NRC Resident Inspector after October 8, 1982.

DUQUESNE LIGHT COMPANY

By   
E. J. Woolever  
Vice President

SDH/wjs

cc: Mr. G. Walton, BV-2 NRC Resident Inspector  
Ms. E. Doolittle, NRC Project Manager

COMMONWEALTH OF PENNSYLVANIA )  
  ) SS:  
COUNTY OF ALLEGHENY    )

On this 20 day of AUG, 1982, before me,  
ALAN B. BANAS, a Notary Public in and for said Commonwealth  
and County, personally appeared E. J. Woolever, who being duly sworn, deposed,  
and said that (1) he is Vice President of Duquesne Light, (2) he is duly  
authorized to execute and file the foregoing Submittal on behalf of said  
Company, and (3) the statements set forth in the Submittal are true and  
correct to the best of his knowledge, information, and belief.



Notary Public  
ALAN B. BANAS, NOTARY PUBLIC  
ROBINSON TWP., ALLEGHENY COUNTY  
MY COMMISSION EXPIRES APRIL 12, 1986  
Member, Pennsylvania Association of Notaries