



Duquesne Light

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October 7, 1983

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. 50-412/83-11

Gentlemen:

This is in response to the Item of Violation cited in Inspection No. 50-412/83-11 and listed in Appendix A (Notice of Violation) attached to your letter to Mr. E. J. Woolever, dated September 9, 1983.

NOTICE OF VIOLATION:

10CFR50, Appendix B, Criterion IX requires that measures shall be established to assure that special processes, including welding and heat treating, are controlled and accomplished using qualified procedures in accordance with applicable codes.

The FSAR, Paragraph 10.3.1.12, defines the applicable code for main steam piping welds as ASME, B&PV, Section IX, 1971 edition. Paragraphs NA 4451 and NB 4620 of this code specify requirements for qualifying weld procedures as well as specific requirements for postweld heat treatment (PWHT) of welds and weld repairs. These include maximum allowable PWHT weld heating rates, a requirement that the weld procedure specification be qualified for the PWHT temperature range that is used, and that components which have received a PWHT shall receive another PWHT following weld repairs. Power Piping heat treatment procedure N-1141-P-8 requires that a sufficient number of temperature recording devices be used during PWHT to assure that individual component welds receive heating within the specified range.

Contrary to the above, as of August 4, 1983, PWHT of main steam piping welds, performed at Power Piping, was not accomplished in accordance with ASME and Power Piping requirements in that the maximum allowable weld heating rates were exceeded, a PWHT temperature was used that exceeded the welding procedure qualification range, a component that had received a PWHT did not receive another PWHT following weld repairs, and

a sufficient number of temperature recording devices were not used to assure that individual component welds were receiving heating within the specified ranges.

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

RESPONSE:

Immediate Action Taken:

A subsequent investigation at BVPS-2 resulted in Duquesne Light Site Quality Control (DLC-SQC) Nonconformance and Disposition Report (N&D) No. 6841 being generated. The N&D stated that pipe spools MSS-043-2, MSS-043-3, MSS-043-6, and MSS-039-2 have PWHT violations similar to the items cited in the infraction. As a result, Stone & Webster Engineering Corp. (SWEC) has directed Power Piping Company (PPCo.) to respond to the following inquiries:

- a. Identify all ASME III Carbon Steel pipe spools which were PWHT per PPCo. procedure N-1141-P-8, Rev. 1.
- b. Identify all ASME III pipe spools where repair welding was performed after PWHT and subsequent PWHT was not performed.
- c. Identify ASME III pipe spools where the heating and/or cooling rate exceeded ASME III code requirements.

A stop-work order was considered but was rejected because all applicable pipe spools have been fabricated and shipped to BVPS-2 site.

To date, a total of 35 pipe spools, including the spools on N&D 6841, have been identified as having PWHT per N-1141-P-8, Rev. 1. These spools are being reviewed to determine if any additional violations exist. The nonconformances will be addressed in N&D's and dispositioned according to applicable requirements.

The specific items cited in Infraction Notice 83-11-01 were reviewed and a preliminary investigation has determined the following:

Spool Piece MSS-043-2:

Discrepancies Cited:

- a. The heating rate was exceeded by 133°F.
- b. Insufficient thermocouples were utilized to monitor component temperature during PWHT. Furnace charts were duplicated and separately issued when more than one component was being PWHT in the same furnace run.

- c. Repair welding was performed prior to PWHT yet the Weld Procedure Specification (WPS) used was qualified without PWHT. The repair weld was subsequently PWHT.

Response to Discrepancy:

- a. The excessive heating rate could have resulted in cracking or unacceptable circumferential linear indications in locations such as undercut or overlap or changes in the thickness of weld or base metal. To ensure that no cracks or linear indications exist, all welds on spools shall be magnetic particle (MT) examined.
- b. PPCo. shall provide furnace survey charts to verify that the furnace temperature distribution is uniform.
- c. PPCo. has SWEC approved WPS's qualified for PWHT. PPCo. has been requested to identify this welding procedure, and revise/resubmit a spool documentation package. As indicated above, the repair weld shall be MT examined.

Spool Piece MSS-043-6:

Discrepancies Cited:

- a. The heating rate was exceeded by 162°F.
- b. Repairs were made on welds and weld build-up on the bend area after PWHT. No subsequent PWHT was performed. A violation of ASME Section IX and Section III exists for components which have been PWHT after repairs.
- c. Component soaking temperature of 1225°F was recorded. The WPS was qualified to a temperature range of 1100-1200°F; a violation of ASME Sections III and IX exists.

Response to Discrepancy:

- a. All welds and repair welds shall be MT examined, see response (a) for Spool MSS-043-2 above.
- b. Repair welds do not require PWHT. Weld repairs performed to meet the minimum wall thickness are considered as base metal repairs. The pipe spool nominal wall thickness is less than 1-1/4 inch, and the carbon content is less than 0.3 percent. Per ASME III Winter of 1973 addenda table NB-4623.1-2, these welds are exempt from PWHT. These weld repairs were performed using weld procedure specification WPS 1021D, Rev. 4, which has PWHT Qualifications. Weld repairs should have been performed utilizing welding procedures without PWHT qualifications. PPCo. shall revise the

documentation package and resubmit incorporating the applicable procedure. Repair weld was performed after removal of slag inclusion using welding procedure specification WPS 1008 E, Rev. 2, and/or 1021 E, Rev. 4. The affected area was preheated to 200°F and did not require PWHT per specification 2BVS-58.

- c. The soaking temperature of 1225°F is below the material transformation temperature of 1330°F and meets the requirements of ASME III 1971 through the Winter of 1973 addenda which allows a temperature range of 1100-1250°F. PPCo. shall revise and requalify the welding procedure specification to meet code and specification requirements.

Discussion:

The NRC Resident Inspector also noted conflicting requirements between the applicable documents to be used for PWHT. The BVPS-2 FSAR states that the applicable code for the construction of the main steam piping is ASME III 1971 edition through the Winter of 1972 addenda. Specification 2BVS-58 states that ASME III 1971 through the Winter of 1973 addenda is the applicable code for PWHT. Originally, the specification invoked the 1971 edition through the Winter 1972 addenda of ASME III for PWHT. PPCo. submitted procedure N-1141-P-8, Rev. 1, for approval addressing preheat (PH) and PWHT of ASME III P-1 carbon steel piping materials. SWEC reviewed and approved the procedure to the 1971 edition through the Winter 1972 addenda of ASME III. It was later determined that the piping fabricator and erector had performed PH and PWHT which was not in compliance with the applicable ASME III code, i.e., PH and PWHT were not properly applied to carbon steel P-1 piping welds. The Winter of 1973 addenda of ASME III eliminated the PH and/or PWHT of P-1 welds, 3/4 inch and less. Subsequently, specification 2BVS-58 was revised to invoke the Winter 1973 addenda of ASME III for PH and PWHT. PPCo., however, did not revise procedure N-1141-P-8 to reflect the revised specification requirements.

The NRC Inspector's review was based upon the 1971 edition through Winter of 1972 code addenda of ASME III as stated in the FSAR and the manufacturers data report, form N-2. The applicable code for PWHT is the 1971 code edition through the Winter of 1973 addenda, as discussed above. SWEC's review of PPCo. procedure and the infraction notice has been based on this premise. The conflict between the BVPS-2 FSAR and 2BVS-58 had earlier been identified in NRC Unresolved Item 83-07-02. This item is currently being reviewed and will be addressed separately.

Corrective Action to Prevent Further Violations:

To preclude further specification violations, the following action will be taken:

1. Inconsistencies between the FSAR and specification 2BVS-58 will be reconciled.
2. PPCo. heat treatment procedure N-1141-P-8, Rev. 1, shall be revised to comply with the specification requirements.
3. PPCo. shall review all fabrication, examination and testing procedures to verify that the procedures comply with applicable specification requirements.
4. PPCo. shall provide furnace survey charts for SWEC review.

A documentation review of the 35 spools identified for having violations will be performed. When the results of this review are available, Duquesne Light Company will issue another report on this subject. It is expected that this report will be issued by March 1, 1984.

DUQUESNE LIGHT COMPANY

By Paul H. Orr - for
E. J. Woolever
Vice President

JMM/wjs

cc: Mr. G. Walton, NRC Resident Inspector
Ms. L. Lazo, Project Manager
NRC Document Control Desk

REFERENCE: NRC letter Docket No. 50-412, dated September 9, 1983

SUBSCRIBED AND SWORN TO BEFORE ME THIS
7th DAY OF October, 1983.

Elva G. Lesondak
Notary Public

ELVA G. LESONDAK, NOTARY PUBLIC
ROBINSON TOWNSHIP, ALLEGHENY COUNTY
MY COMMISSION EXPIRES OCTOBER 20, 1986

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this 7th day of October, 1983, before me, a Notary Public in and for said Commonwealth and County, personally appeared P. H. Orr who being duly sworn deposed and said that (1) he is duly authorized to execute and file the foregoing Submittal on behalf of E. J. Woolever, 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.

Elva G. Lesondak
Notary Public

ELVA G. LESONDAK, NOTARY PUBLIC
ROBINSON TOWNSHIP, ALLEGHENY COUNTY
MY COMMISSION EXPIRES OCTOBER 20, 1985