

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

Report No. 99900053/80-02

Program No. 51300

Anchor/Darling Valve Co.
701 First Street
Williamsport, Pennsylvania 17701

Inspection Conducted: October 27-30, 1980

Inspector:

W. M. McNeill for
V. H. Hunter, Inspector
Components Section I
Vendor Inspection Branch

12/08/80
Date

Other: R. Kiessel, Headquarters Observer

Approved by:

W. M. McNeill for
D. E. Whitesell, Chief
Components Section I
Vendor Inspection Branch

12/08/80
Date

Summary

Inspection on October 27-30, 1980 (99900053/80-02)

Areas Inspected: Implementation of 10 CFR 50, Appendix B criteria and applicable codes and standards, including manufacturing process control and reviewing corrective actions for reported deficiencies under 10 CFR 50. The inspection involved twenty-eight (28) on site by one (1) inspector.

Results: In the two (2) areas inspected there were no apparent deviations or unresolved items identified.

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DETAILS SECTIONA. Principal Persons Contacted

W. G. Knight, Technical Director
*J. W. Marlatt, General Manager
*G. W. Knieser, Quality Assurance Manager
R. O. Husted, Manufacturing Superintendent
J. D. Cartwright, Inspection Supervisor

*Persons who attended the exit interview.

B. Manufacturing Process Control1. Inspection Objectives

The objectives of this inspection were to verify that measures had been established and implemented to control the manufacturing process by the use of a shop traveler, or equivalent with space provided for reporting results of completion of specified operations and check points. Also, to ascertain that procedures are established to maintain identification of materials during the manufacturing process.

2. Inspection Objectives Accomplished by:

- a. Review of Section 12.4 of the ASME accepted QA Manual.
- b. Review of the following documents:
 - (1) ES-4, standard for control of heat and/or serial numbers
 - (2) MES-3, for distribution and control of engineering documents
 - (3) QAS-10, for gage control
 - (4) ES-10, for shop order instructions
 - (5) QAS-3, for preparation and use of the inspection record.
- c. Review of fourteen (14) production release tickets (Shop Travelers).
- d. Observed liquid penetrant test of valve bonnets W. J. 870, 868, and 869 per LP Procedure MQCS-110.
- e. Observed seat and leak test of an 8" 150# swing check valve per procedure EPS-87.

3. Inspection Findings

Within the areas inspected there were no apparent deviations or unresolved items identified.

C. Follow-up of Reported Valve Deficiencies

1. Reported Deficiency Background

On June 17, 1980, Pennsylvania Light and Power (PPL) advised the NRC of a potential deficiency in four (4) valve yokes supplied by the Anchor/Darling Valve Co., in Williamsport Pennsylvania (ADV). Potential deficiencies were described as cracks in the four (4) radii at the yoke mounting flange/yoke vertical section interface on valves in the RHR system of Unit No. 1. On July 7, 1980, PPL further advised the Commission that after evaluation, it was determined that the potential for concurrent failure of the referenced yokes in redundant, safety-related trains of the RHR system constitutes a failure mode whereby all RHR functions could be simultaneously lost.

2. ADV Activity Background

PPL, through Bechtel, advised ADV of the yoke cracking problem. ADV field representative visited the site and returned with a cracked yoke for further evaluation. As a result of physical and chemical analysis conducted on specimen removed from the cracked yoke, ADV determined that the cracking phenomenon was caused by the failure of the yoke material to meet the physical testing requirements of A216-WCB material specification.

The referenced material specification required a tensile strength of 70 to 95 ksi while the investigative test results indicated a 45 ksi with corresponding results for elongation and reduction of area. A review of ADV documentation files disclosed that the failed yoke castings had been purchased from a single source, the Malcolm Company, Inc. of 67 Polk Street, Newark, New Jersey.

The material was supplied to ADV along with "Certificates of Compliance" in accordance with purchase order requirements. The certificates certified that the furnished material met all the requirements of material specification A216-WCB as specified by the ASME Code for non-pressure boundary material. When ADV attempted to contact the Malcolm Company, it was learned that the Malcolm Company had gone out of business and involved personnel could not be located.

ADV then assumed that a possible generic condition existed and further documentation research identified the following:

- a. The Malcolm Company, Inc. had supplied ADV with yoke castings of A216-WCB material for approximately ten (10) months during 1974 and 1975.

- b. During this ten (10) month time frame, ADV had supplied these yokes on valves assigned as follows:
- (1) One hundred and fifty-four (154) to Bechtel for installation in the Susquehanna Units 1 and 2.
 - (2) One hundred and thirty-eight (138) to the Commonwealth Edison Company for installation in LaSalle Units 1 and 2.
 - (3) Ten (10) to the Carolina Power and Light Company for installation in Shearon-Harris Units 1 and 2.
 - (4) Eight (8) to Stone and Webster for installation in the Shoreham Unit.

3. Current Status

ADV has notified the affected organizations listed in paragraph 2 above of the potential defective material and has agreed to examine all referenced yokes. The examination will be performed by ADV field service personnel and will consist of hardness checks on the yokes. Strength levels will be reviewed against yoke seismic analysis to verify adequate material strength. Should any yokes be found unacceptable, ADV will replace them at no cost to the customer.

4. Inspection Findings

- a. It was verified that ADV had:
- (1) Identified the cause of the cracked yokes through physical tests.
 - (2) Identified the source of the material and isolated it to a single source.
 - (3) Notified all applicable customers of the potentially defective material.
 - (4) Negotiated an acceptable fix with the involved customers.
- b. As the Malcolm Company Inc. is no longer in business, the inspector nor ADV could ascertain whether this type of material was furnished to customers other than ADV. Consequently, the NRC staff has issued Bulletin No. 80-21 which requires all power reactor licensees or holders of construction permits to notify the commission if they have received any valve parts cast by the Malcolm Company, Inc.

- c. As a result of ADV investigations, notification of affected customers, on-going corrective actions, and NRC Bulletin No. 80-21 the inspector has no further questions relative to this matter.

D. Exit Interview

The inspector met with management representatives at the conclusion of the inspection on October 30, 1980. The inspector summarized the scope and findings identified during the inspection. Management acknowledged the inspector's comments regarding the scope and findings as presented.