

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

Report No. 99900059/80-01

Program No. 51400

Company: Ametek-Schutte & Koerting Division  
Cornwells Heights, Pennsylvania 19020

Inspection at: Cornwells Heights, Pennsylvania

Inspection conducted: June 4-5, 1980

Inspectors: *J. W. Sutton* 07/01/80  
J. W. Sutton, Contractor Inspector Date  
Components Section I  
Vendor Inspection Branch

Approved by: *D. E. Whitesell* 07/01/80  
D. E. Whitesell, Chief Date  
Components Section I  
Vendor Inspection Branch

Summary

Special Inspection on June 4-5, 1980 (99900059/80-01)

Areas Inspected: Implementation of 10 CFR 50, Appendix B and other NRC requirements, including assessment of the cause, corrective action and generic considerations, relative to a reported potential construction deficiency involving Turkey Point Unit No. 4 Nuclear Plant. The inspection involved eight (8) inspector hours on site.

Results: In the area inspected, no deviations or unresolved items were identified. The reported occurrence is not considered to be generic.

## DETAILS SECTION

A. Persons Contacted

\*J. Grady, Manager of Product Engineering  
E. J. Lux, Manager, Quality Assurance  
R. G. Moore, Engineer

\*Attended the exit meeting.

B. Reported Potential Construction Deficiency1. Missing Valve Internal Partsa. Background Information

Florida Power and Light Company, (FPS&L) informed the Turkey Point, NRC Resident Inspector, on May 7, 1980 that a reportable occurrence had been identified. During a planned inspection of Unit 4, main steam line isolation valves and main steam check valves, the licensee identified a second occurrence where several check valve internal parts were missing. These included the hex nut that attaches the disc to the swing arm, the locking device for the nut and an anti-rotation bolt installed between the nut locking device and the swing arm of the check valve. The discs and disc studs were in their proper positions and the valve was operational. The missing parts had not been found at the time of the report. A similar occurrence had been reported for Unit 3; and had been corrected with a new nut locking device designed by the licensee's Plant Engineering group. A similar repair is planned for Unit 4.

The twelve (12) valves in question, were fabricated to a Bechtel (Gaithersburg) P.O. no. 5610-M-5, dated September 12, 1967, and shipped to the site during 1969. The valves were installed in Units 3 and 4, at the Turkey Point Nuclear Plants.

The valves were fabricated as a combination unit, one air operated check valve and the other a swing check valve. Both were twenty six (26) inch OD, class 600 pound, pressure 1085 psig, temperature 556°F., with a flow rate of 3,300,000 # of steam per hour, at 785 psig, and 516°F. A valve closing rate of five (5) seconds or less, was required by the valve specification. Six (6) valves were installed in Turkey Point Unit No. 3 and six (6) valves in Turkey Point Unit No. 4.

The pressure boundary of the valves were radiographic (RT) examined and magnetic particle (PT) examined.

The valves were fabricated as a modified commercial type valve, under the then existing valve manufacturing requirements.

b. Objectives

The objectives of this area of the inspection were to ascertain the following:

- (1) What caused the malfunction.
- (2) The action proposed or taken to correct the problem.
- (3) The action proposed or taken to prevent recurrence.
- (4) The generic impact and evaluation of the safety significance and reportability of the problem in compliance with NRC Rules and Regulations.

2. Method of Accomplishment

The foregoing objectives were accomplished as follows:

- a. Review of Bechtel Corporation purchase order/specification No. 5610-M-5, dated September 12, 1967 for Florida Power and Light Company (FP&L). Turkey Point Units nos. 3 and 4, main steam isolation valves.
- b. Review of Revisions Nos. 1, 2 and 3, to the above purchase documents
- c. Review of specification requirements establishing the valve capability, and the number of valves required.
- d. Review of Valve Test Reports, Nos. 13 thru 18, dated July 17, 1969, and August 27, 1969, and Nos. 4 thru 9, dated April 18, 1969.
- e. Review of shipping data - shipped to site 1969.
- f. Review of S&K instruction manual no. 68-5-175; for the main steam trip, and isolation valve assembly.
- g. Review of S&K valve drawing no. 68-XC-47.
- h. Review of the valve modification drawing no. 68-XC-47 Revision 1 - and S&K instructions for the field installation of the anti-rotation pins on the discs of the main steam isolation valves, and check valves.

- i. Reviewed P.O. no. 381317, dated April 28, 1976, from Northeast Utilities pertaining to four (4) main steam isolation and check valves for Connecticut Yankee nuclear valves.
- j. Reviewed P.O. no. 439032, dated October 13, 1977.
- k. Reviewed S&K Field Engineers trip report documenting the details of the valve modification on June 3-5, 1976.
- l. Reviewed P.O. no. 601694, from Carolina Power and Light Company, dated March 5, 1974; for the modification of the H.B. Robinson valves.
- m. Reviewed S&K certificates of conformance for the materials used in the valve modifications at the various sites.

### 3. Finding

From the documents reviewed, determinations were made as follows:

- a. The main steam isolation and check valves fabricated for Turkey Point units 3 and 4, H.B. Robinson, and Connecticut Yankee nuclear plants, were fabricated to existing valve manufacturing standards and contract requirements in force at the time of the contracts.
- b. S&K modified commercial check valves to meet the customer's specified design requirements.
- c. S&K was notified by fossil plant operators, that the valve disc as designed, could spin in some instances. The S&K Engineering department reviewed this condition, and determined that the valve disc would have to be pinned to prevent spinning. The Engineering department issued an instruction form modification of the trip and check valves that had been installed in both fossil and nuclear plants.
- d. S&K notified the three (3) nuclear plants concerning the problem and the corrective measures proposed. A Service Engineer was sent by S&K to over-see the valve modifications.
- e. The valves installed at Turkey Point Unit No. 3, was modified by S&K in 1974, and No. 4 in 1975.
- f. H.B. Robinson valves were modified in March 1974, and Connecticut Yankee, in 1976.

- h. The inspector was informed by management that S&K had never been officially notified concerning any valve malfunctions by any of the licensees after the modification of the valves were completed.
- i. Resident inspectors in each of the following identified nuclear plants were contacted by the NRC inspector to obtain information concerning the inspection and condition of the S&K valves, after modifications. The information received is as follows:
  - (1) Turkey Point reported missing parts in Unit No. 3 valves in 79. S&K was not consulted as to the repairs made. In addition, the valves had been modified in-situ in compliance with NRR requirements. The licensee had also performed some welding on the valve seats using Ebasco design and procedures. S&K was not consulted and did not participate in these field modifications.
  - (2) H.B. Robinson Nuclear Plant isolation and check valves have been inspected twice (2) since the S&K modification. No missing parts was evident.
  - (3) Connecticut Yankee has inspected the isolation and check valves since the S&K modification and found no parts missing.
- j. On this basis, it has been determined that the problem is not generic to any nuclear facilities, other than the Turkey Point 3 and 4 facilities.
- k. The cause of the event has been attributed to the valve modifications designed by the Licensee's engineers without S&K's review for comment or approval.
- j. This problem is considered to be an isolated case, without generic impact.
- k. It is S&K's position that they know of no instance where the valves supplied and modified by them had malfunctioned, they had no responsibility for the evaluation of the safety significance of the malfunction experienced at Turkey Point 3 and 4.

C. Exit Meeting

The inspection findings were discussed with the Manager of Product Engineering at the close of the inspection. The findings were acknowledged as being the correct information concerning operated and swing check valves manufactured by them for the nuclear industry during the time frame identified.

D. Comments

The Inspector was informed that the Schutte & Koerting Division of Ametek in Cornwell Heights, Pennsylvania no longer manufactures valves for the nuclear industry. All nuclear valves are now manufactured in the Ametek/Calmeac Division in Pico Riviera, California.