REPORT OF ABNORMAL OCCURRENCE AND/OR INCIDENT

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American Electric Power Co. New York, N.Y. John E. Dolan	9-24-75	10-1-75	XXX			

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Donald C. Cook	1 Signed	0		SENT AEC PDR XXX SENT LOCAL PDR XXX

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DESCRIPTION:

Follow Up Report of an Abnormal Occurrence Concerning a deficiency in the leakage test lines located on the non-essential service water piping.....

(1 Copy Enclosure Received)

PLANT NAME: Cook # 1

ENCLOSURES:

FOR ACTION/INFORMATION SAB 10-3-75

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Regulatory File Cy

AMERICAN ELECTRIC POWER *Service Corporation*

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JOHN E. DOLAN
Executive Vice President
Engineering & Construction

Donald C. Cook Nuclear Plant Unit 1
Docket No. 50-315
License No. DPR-58

September 24, 1975

Mr. J. G. Keppler, Regional Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

This letter is a follow up report of an abnormal occurrence found in the Non-essential Service Water Containment Isolation System. On September 9, 1975 our R. S. Hunter informed your Mr. Fiorelli by telephone that we were in the process of preparing this 30-day licensee event report that was due to be submitted September 10, 1975. We requested, and obtained permission, to extend the filing date two weeks beyond the normal 30-day reporting requirement.

Event Description

This involves a deficiency in the leakage test lines located on the non-essential service water piping which supplies cooling water to the containment ventilation coolers. The purpose of the leakage test lines is to be able to determine whether the isolation valves are functioning properly. The lines are located between the containment building exterior wall and the second outboard containment isolation valve. Two components in this test line are involved:

1. Eighteen 1/2" half couplings were welded to the main pipes without a full penetration weld. This is not in accordance with the AEPSC piping specification DCC PM 103 QCN which requires adherence to the ANSI B 31.1 piping code.

2. Ten 1/2" valves were installed to quality level D rather than to the quality level B required by AEPSC piping specification.

These test lines were installed in the non-essential service water lines during the cold shutdown of Unit 1 on July 3-23, 1975 at the same time that additional outboard containment isolation valves were being added. My letter to Mr. Karl Kniel dated April 14, 1975 discusses the reasons for the addition of the isolation valves. The test line components which are affected by these deficiencies were installed by Power Systems, Incorporated (P.S.I.) and the Plant Maintenance Department using drawings prepared by P.S.I. at the site.

Cause Description

1. Half Coupling Weld Deficiency

A review of the documentation for RFC DC-12-671 by plant Quality Assurance personnel revealed that 18 welded branch connections for the 1/2 inch test lines had not been made with full penetration welds as required by ANSI B.31.1 (1967) paragraph 104.3.1 and clarified by ANSI B 31 Case 101, September 1971. The branch connections were made with half couplings which did not provide for full penetration welds.

The use of half couplings is acceptable; however, the half couplings were not machined to the correct bevel which would have provided for a full penetration weld prior to welding.

Instead of beveling the half-coupling and making a full penetration weld, the half coupling was fillet-welded to the pipe. This error was due to Power Systems' personnel, the I&M Mechanical Construction Department and the Plant Maintenance Department not following the welding requirement for the connections in the AEPSC piping specification DCC PM 103 QCN which refers to the ANSI B31.1 Code for welding of these connections.

2. Valve Deficiency

The ten deficient valves were installed as part of design change RFC DC-12-671. The AEPSC piping material specification designation for these valves signifies a 1/2 inch valve with quality level "B" certifications.

A valve deficieny was identified in a July 7, 1975 audit report performed by the AEPSC Site Quality Assurance Department and two corrective actions were noted in that report. The first correction action was to investigate all valves installed under RFC DC-12-671 to determine their quality level. The documentation for these valves was investigated. Nine of the ten valves were traceable by material certifications and hydrostatic test reports and were determined to be of quality level "B" except that documentation for a magnetic particle or liquid penetrant test as required for quality level "B" was not available. A successful magnetic particle test was conducted on all ten valves. Therefore, one deficient valve remains installed.

The second corrective action noted in the audit report was to review all valves 2" and under in stock in the I&M storeroom to determine whether other valves were mixed in the bin. It was found that during the curtailment of construction for Unit 2, quality level "D" valves were inadvertently mixed with quality level "B" valves when the valves were returned to the I&M Construction Storeroom.

Power Systems, Incorporated and the plant Maintenance Department both had identified the correct valve on the P.S.I. erection isometric drawings and on their material requisition forms. The storeroom personnel (P.S.I. employees) issued the incorrect valves due to improper storage in the bin. Neither the Power Systems Quality Assurance Department, the I&M Mechanical Construction Department, nor the I&M Site Quality Assurance Department discovered this error until after all the valves had been installed.

Safety Evaluation

There is no danger to the health and safety of the public as a result of this occurrence. The welding for all

[illegible]

the valves and branch connections was nondestructively tested during installation. The valves successfully passed normal operating pressure after modification. The hydrostatic test was observed by a third party inspector and a representative from the State of Michigan Department of Labor, Bureau of Safety and Regulation.

The test line is terminated with an appropriately installed capped connection.

Ten of the nonconforming test lines are between the containment exterior wall and the first outside isolation valve. Eight are between the two outside isolation valves. Failure of a half coupling connection would not have an adverse affect on the health and safety of the public either because it is downstream of the isolation valve for any leakage path (in 8 instances), or it would require a simultaneous loss of coolant accident, plus failure of a non-essential service water pipe inside the containment (this is a Seismic Class 2, Quality Stock Level 1 System), plus failure of the half coupling connection (in 10 instances) to yield a 1/2" area leakage path. The design basis earthquake would also have to occur simultaneously with the above chain of events to result in a 1/2" leakage path. This is a highly improbable combination of events.

Corrective Action

To prevent recurrence the following actions were taken:

1. Valve storage has been corrected so that individual storage bins contain valves for each quality level. The importance of correct storage and identification of components has been restressed to I&M and contractor storeroom personnel.

2. At the request of the AEPSC Site Quality Assurance Coordinator, the Cognizant Engineer is providing information sheets which illustrate the proper machining angle to be used for machining half couplings.

3. The Power Systems Quality Assurance Department and the Plant Maintenance Department have been informed to direct closer attention to their use of correct components and correct welding practices on connections as outlined in the AEPSC piping specifications and

the ANSI B 31.1 Piping Code.

4. The Indiana & Michigan Power Company Mechanical Construction Department has been likewise informed.

5. A schedule is being developed to grind out and reinstall the 18 welded branch connections with full penetration welds. The valve with incomplete documentation will also be replaced. The schedule will define those connections that can be repaired during plant operation and those that must be repaired during the first outage at which the plant is in cold shutdown. The 18 welded branch connections will be nondestructively examined monthly until replaced.

Very truly yours,

John E. Dolan

John E. Dolan
Executive Vice President
Engineering and Construction

JED:mla

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R. J. Vollen
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P. W. Steketee
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Enclosure