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YARWAY

September 26, 1985

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Dr. Thomas E. Murley
Regional Administrator, Region 1
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

SUBJECT: Notification of the existence of a defect in accordance with 10CFR, Part 21.

Individuals informing the Commission.

Frank Peszka
Manager, Quality Systems
Yarway Corporation
Blue Bell, PA 19422
(215) 825-2100

Under direction of the Responsible Officer
J. F. Barclay
Vice President and General Manager
Yarway North America
Same address

Identification of the component.

A cracked stem assembly was detected in a 3/4" Yarway Welbond Valve at a non-nuclear facility. Five additional non-nuclear assemblies exhibited leakage at Yarway during hydrostatic test. We conclude from our investigation that the leakage is caused by a void in the bar stock used to manufacture the stems. All six stems were from the same heat of bar material. Our records indicate that valves supplied to Nuclear facilities also contained stems manufactured from this heat of bar stock. No actual failures (breakage) were reported or detected.

The bar stock used to manufacture the suspected stems is 5/8" round bar, AL Tech stainless steel type 416, ASTM A-582-75 condition T, Heat Number 93876. Stems from this lot are identified by Yarway with the heat code "3876" on the outside diameter below the threads.

Identification of the firms supplying the material.

Valves and stems manufactured by Yarway Corporation; no heat treatment of stems performed by Yarway Corporation. Bar supplied by Peter A. Frasse Company, Philadelphia, PA and manufactured by AL Tech Specialty Steel Corporation, Dunkirk, NY.

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Nature of defect and safety hazard that could result.

Examination of a valve stem (Heat Code 3876) at a non-nuclear facility revealed a crack running the entire length of the stem. Micrographic examination at 50X by Yarway Corporation confirmed the crack. Further examination revealed that the crack is extremely tight at the surface (O.D.), yet open on the inside. (See photomicrograph attached.) Hardness inspection determined readings at the upper limit of the specification. A review of the material test report indicates that carbon content and hardness were at the upper limits. One stem that leaked on hydrostatic testing was sectioned and a cracked face was revealed. The conclusion reached is that the crack has resulted from an internal void in the material. Because the crack may be very tight or not open to the surface, the possibility exists that it would not be detectable by liquid penetrant or magnetic particle examinations.

The defect described above could result in leakage through the stem when the valve is in the open position. The determination as to whether or not this would cause a safety hazard would have to be made by the user based on the application.

The stem assemblies found to be defective are from recent production. Stem assemblies used in valves delivered to the Nuclear sites identified later in this report were produced in 1980. It is possible that not all pieces of this Heat Code of bar stock contains the defect; and the earlier manufactured Nuclear valves may be unaffected. We have not received any reports of stem leakage from the Nuclear facilities we have identified.

Date the information was obtained.

The determination that the defect could impact on components shipped to Nuclear facilities was made on 9/25/85.

The number and location of components shipped to Nuclear facilities that are suspect of having such a defect.

The stem is not a pressure boundary part and therefore does not require traceability. Yarway does record heat codes for stem assemblies, but does not maintain any traceability to the valve serial number. It is only through a secondary system that we are able to determine that stem assemblies made from this heat of bar were shipped to the following Nuclear facilities:

Stem Assembly

Part Number
952762

Quantity
70

Facility
Consumers Power
Midland, Michigan
and/or
Mississippi Power & Light
Grand Gulf Nuclear Station
Port Gibson, Mississippi

953585-01

25

Penna. Power & Light
Susquehanna Station
Berwick, Pennsylvania

954613	13	South Carolina Electric & Gas Virgil C. Summer Nuclear Station Jenkinsville, South Carolina
958066-01	Part of 17 (Two heat code in lot of 17)	Illinois Power Clinton Station Clinton, Illinois
TOTAL		125

The suspect bar stock is only used in 1/2" and 3/4" valve sizes.

Corrective action, responsible individual and completion date.

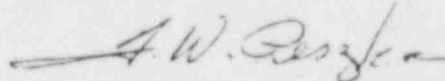
1. Bar stock, stems, stem assemblies and valves for Nuclear application in Yarway's plant will be reviewed for the heat code in question. Future shipments of this heat code will not be made until it is determined that the material is free of defect. The review will commence on 9/26/85. Responsible individual, R. G. Chew, Manager, Quality Assurance.

2. A review of our design will be made to determine what, if any, changes are necessary. Responsible individual: G. Loos, Manager, Product Development, Power Products. Completion date: 11/25/85.

3. A further review of our secondary records will be made to determine if specific valve serial numbers affected can be made. Notification will be made to purchasers. Responsible individual: F. W. Peszka, Manager, Quality Systems. Completion date: 10/25/85.

Confirms verbal report given by telecon 9/26/85 to Mr. J. T. Wiggins, Chief, Materials & Processes by F. W. Peszka.

Very truly yours,



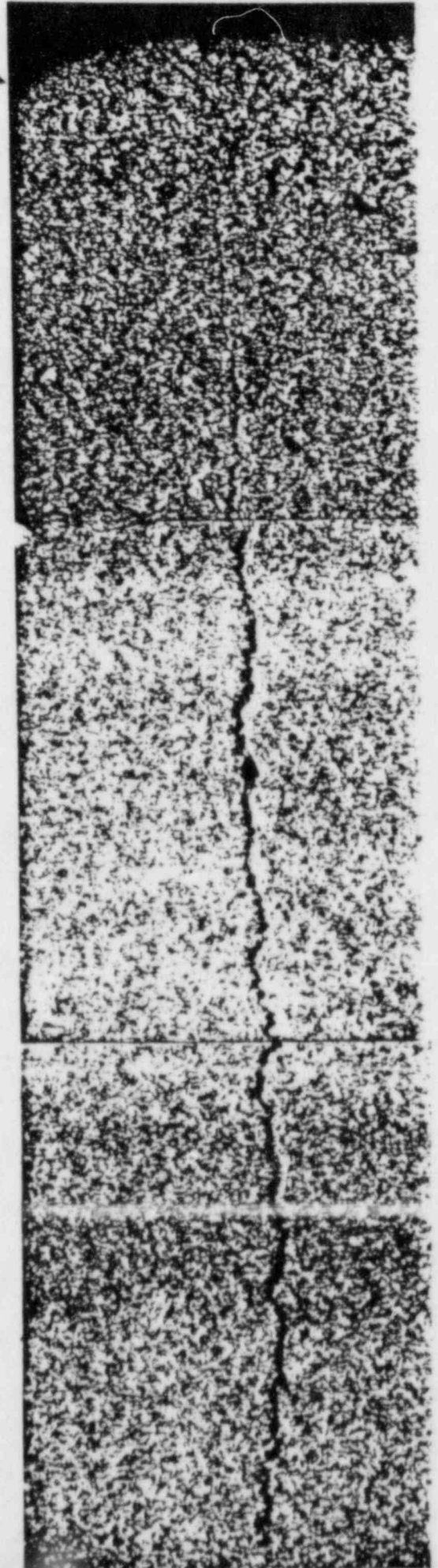
F. W. Peszka
Manager, Quality Systems

FWP:bt

cc: J. F. Barclay
R. G. Chew
G. Loos
R. A. Rose
J. T. Wiggins, NRC Region 1

O.D.

FIGURE 1: Crack 416 stem radial
view. 50X Vilella's
reagent.



Center of Stem