UNR-Leavitt

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Manufacturers of
Electric Welded Steel Tubing

Division of UNR, Inc.

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September 22, 1992

Mr. Steven W. Andrews
Quality Assurance Manager
Consolidated Power Supply
3556 Mary Taylor Road
Birmingham, AL 35235

FAXED
9.22-92
@ 5:00pm

Dear Mr. Andrews:

REF: 1. Your letter to me dated September 1, 1992
2. Draft report dated August 19, 1992 regarding examination of 4 x 4 x 1/2" ASTM-500 Grade B tubing by John Fox, Metallurgical Engineer Restart Eng. Mechanical/Nuclear Department

This report covers the evaluation of a 4" x 4" x 1/2" wall section of ASTM A-500 Grade B steel tubing heat number T42510 from coil number 924544. This sample was found to have a cracked weld by your customer, TVA/Bechtel at the Browns Ferry Nuclear Plant in Alabama. This tubing was supplied to Consolidated Power Supply on P.O. #S65-17742.

Visual examination of the sample showed a crack in the weld seam on one end of the sample. The other end of the 12" long sample did not show a crack. Photograph #1 shows the as-received condition of the tube. A six inch scale was placed on the sample near the end with the cracked weld. To determine the cause of the crack, a microanalysis was done on each end of the sample. Photomicrograph 1 shows the cracked end at 100X at a point near the outside diameter. It appears the edges did not come in contact to form a weld. Photomicrograph 2 shows the other end of the tube at 100X. The arrow on the photomicrograph indicates the weld line and complete fusion was observed. The end with the crack showed fusion only near the tube inside diameter. In fact, only the bottom 25% of the tube was welded. This indicates that the strips bottom edges came into contact at the point of weld but not enough or no contact was made near the tube outside diameter to fuse these edges together. Photomicrograph 2 does not show this condition. It can be concluded that a mill set-up adjustment was in the process and that this sample represents the piece of tubing which adjustments were made.

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A history of mill production of 4" x 4" x 1/2" tubing was examined. In the last year and a half UNR-Leavitt produced 152,830 feet of this size and thickness. The internal scrap rate was 15,816 feet or 9.4%. A five and a half year history of claims for poor weld was examined for this size and wall. The results show a customer rejection rate of 0.65% on 423,121 feet of tubing shipped.

An examination of Quality Control reports for the date this tubing was produced (11/5/91) shows a weld test was performed on coil 924544. Results were acceptable, however, the inspector noted the inside diameter weld flash was not normal. No action was taken on this.

An examination of other nuclear customers' shipping records shows no tubing was shipped to them on this size, wall and heat number.

The sample represents a portion of a defective tube which in turn represents a portion of the overall 0.65% customer rejection rate due to poor weld for this size and thickness of tubing. The lack of fusion was due to incorrect mill set-up and is not heat or material related.

The corrective action requested by your letter will take the form of reinstructing the mill operator, mill foreman and other mill personnel on the importance of weld quality. If the operator is making an adjustment which could affect weld quality, he is to immediately advise the Quality Control inspector so that weld quality can be examined. This meeting will take place within the next 30 days.

Regarding reportability with respect to 10CFR Part 21, UNR-Leavitt cannot assess that this defect, if went unnoticed would create a substantial safety hazard. UNR-Leavitt, however, will report this defect to the NRC using this and the reference report and letter as the evaluation.

Sincerely,

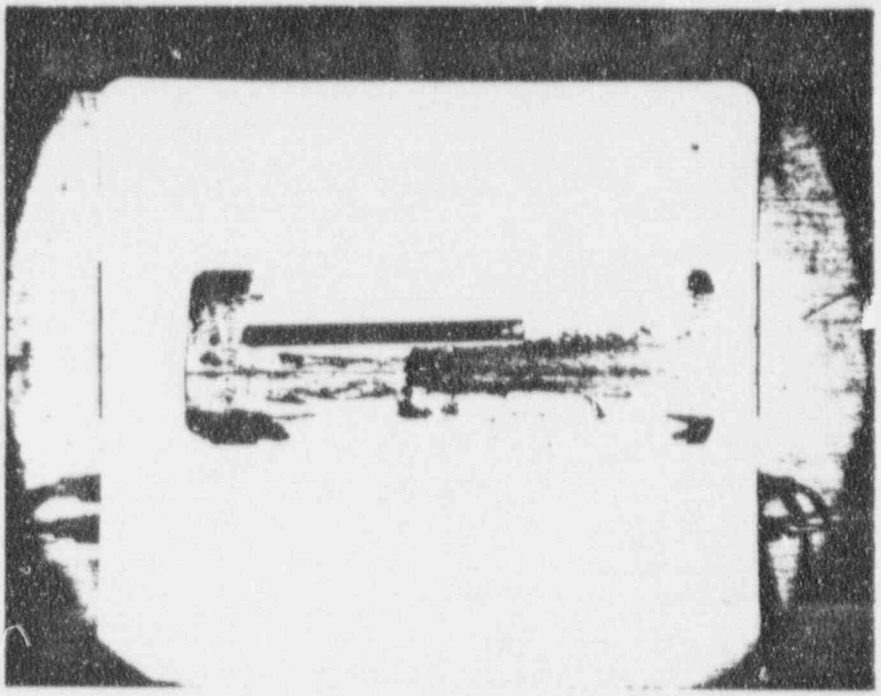
Alex Fojtik
Director, Quality Assurance

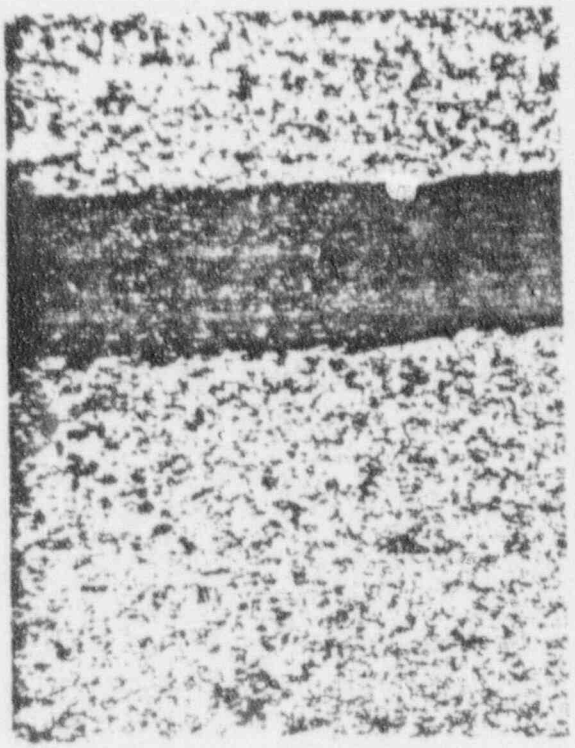
/s

attachment

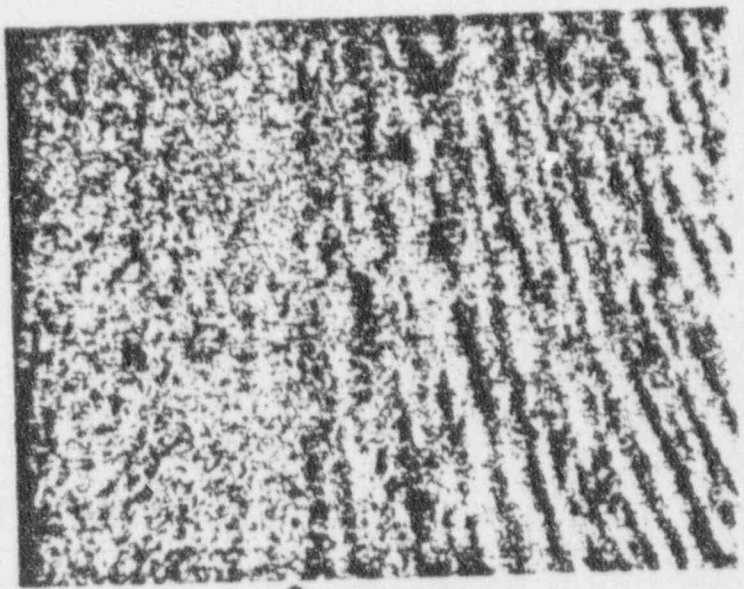
cc: R. Herman, President
R. Hunt, Senior Vice President
P. Katsafanas, Regional Sales Manager

PHOTO GRAPH 1





100 X NEAR O.D.

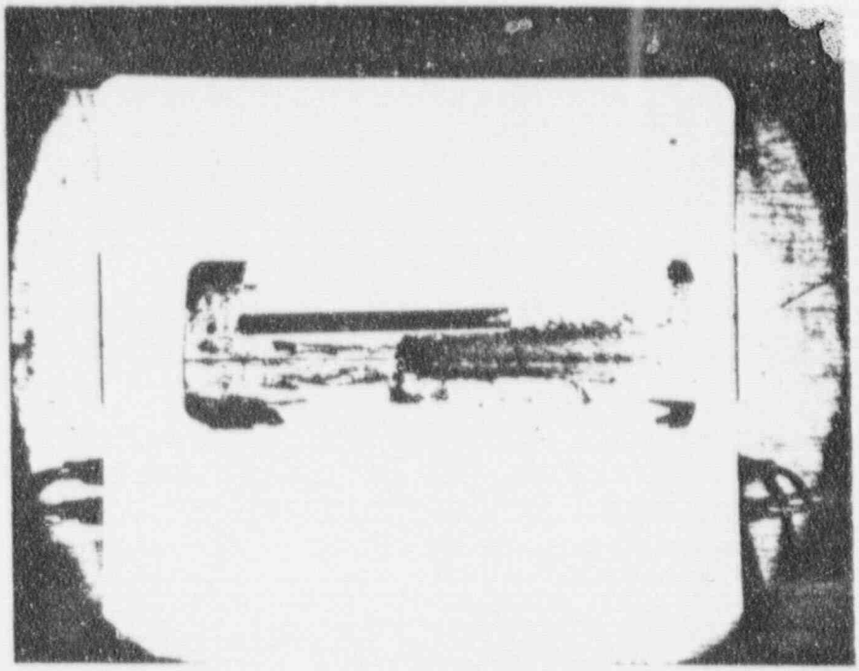


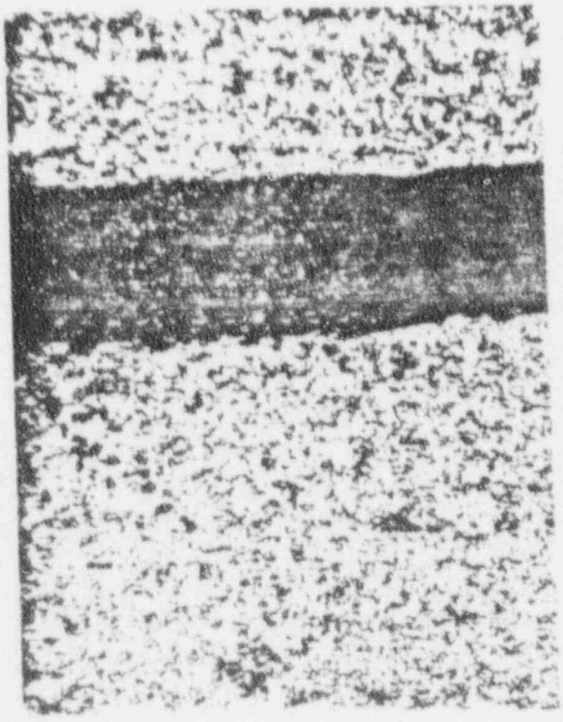
WELDED SECTION

2

1002

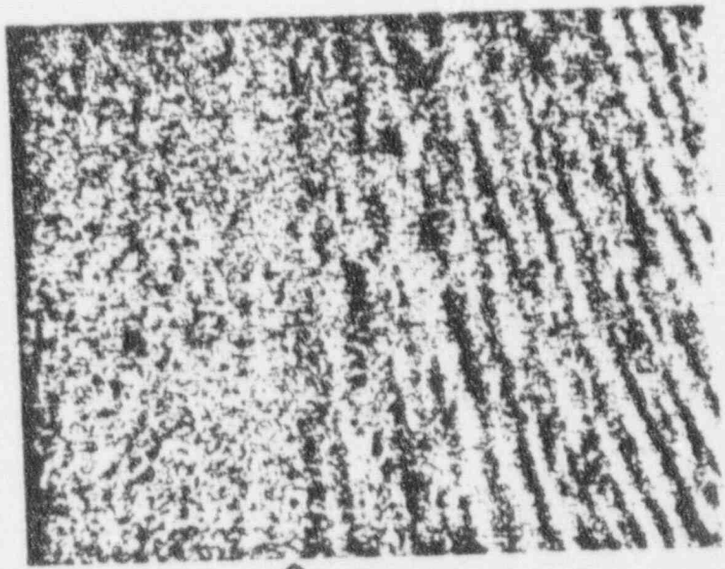
PHOTO GRAPH 1





1

100 X NEAR O.D.



2

WELDED SECTION 100X