

Washington Public Power Supply System

P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000
February 26, 1982
G0-1-82- 0063

Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, California 94596



Attention: Mr. R. H. Faulkenberry
Chief, Reactor Construction
Projects Branch

Subject: NUCLEAR PROJECTS 1 AND 4
DOCKET NOS. 50-460 AND 50-513
POTENTIAL REPORTABLE CONDITION 10CFR50.55(e)
A-500 RESISTANCE SEAM WELDED TUBE STEEL

Reference: Telecon, ME Rodin, Supply System to
PP Narbut, Region V, Nuclear Regulatory Commission
dated January 26, 1982.

In the above reference, the Supply System informed your office of a potentially reportable deficiency under 10CFR50.55(e).

Attachment "A" to this letter, provides the Supply System's report on the subject condition. Because the Project was able to isolate the deficient condition identified in Attachment "A" to a single heat of material it was decided to reject the entire heat rather than perform an extensive analysis to assure acceptability of the material. Due to the fact that we did not perform an analysis we are unable to accurately ascertain the reportability of the deficiencies in welded tube steel; therefore, we are identifying this situation in a manner commensurate with a reportable 10CFR50.55(e). This will be our final report on the subject condition.

If you have any questions or desire further information, please advise.

D. W. Matur
Program Director

DWM:MER:lm

Attachment

cc: CB Bryant, BPA/399
V. Stello, Director of Inspection, NRC
FDCC/899

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ATTACHMENT A
WNP-1
DOCKET NOS. 50-460
REPORTABLE CONDITION 10CFR50.55(e)
A-500 RESISTANCE SEAM WELDED TUBE STEEL

BACKGROUND

In the course of performing a magnetic particle inspection on an attachment weld to a pipe support fabricated from A-500 Gr. B 4" x 4" x 1/2" tube steel, linear indications were noted beyond the area of interest in the seam weld of the tubing. Additional magnetic particle inspection of the tube steel seam weld revealed intermittent linear indications. As a result, the questionable section of tube steel was removed for further evaluation. The Project considered it to be in its best interest to perform further examination of the subject tube section because of a design concern relative to the in-place thickness of the weld cross section. The original design assumption was that the tube would be welded across its full section.

The tube steel in question was manufactured from heat #W31686 by Welded Tube Company of America and supplied by Dubose Steel, Inc. to JA Jones Construction Company under purchase order 1-8593-391. A total of 960 feet of 4" x 4" x 1/2" A-500 Gr. B tube steel was ordered and received from heat W31686.

DESCRIPTION OF DEFICIENCY

NDE performed on the samples of the 4" x 4" x 1/2" tube steel disclosed a fairly uniform pattern of indications with lengths of approximately 3/8 to 3/4 inches spaced approximately 5/8 to 7/8 inches apart. Metallography of the samples revealed areas of weld cracking and nonfusion in the resistance weld seam. The flaws averaged approximately 10 to 23% of the through wall thickness at the weld seam.

Based on the number of indications found during the NDE evaluation UE&C Engineering considers the 4" x 4" x 1/2" tube steel (heat W31686) to be unsuitable for its intended use. The possibility of the weld cracks propagating during cyclic loading and/or stress concentrations was the prime consideration in formulating that conclusion. It was further concluded based on the results of the metallography and NDE investigations that the cause of the discontinuities was related to control of the welding process, namely voltage fluctuations and forge pressure.

The results of the initial evaluation raised concerns relative to the process control for other sizes of tube steel manufactured by Welded Tube Company of America. In response to that concern a magnetic particle inspection on a total of 240 linear feet of 3/8" and 1/2" thick material representing six (6) different heats was performed and no indications were found. Due to this supplemental bounding assessment, it has been concluded that the conditions identified are limited to the 4" x 4" 1/2" tube steel produced from heat W31686, and that the cause of the discrepancies was a process control problem.

SAFETY IMPLICATIONS

A complete analysis was not performed to confirm if the condition discovered in the tube steel would have resulted in a failure that could have affected a safety related function. Because the discrepant condition was resolved and the subject material rejected, the Project has decided not to perform the extensive analysis that would be required, based on all possible loading combinations and support orientation, to assure structural adequacy of the subject tube section.

CORRECTIVE ACTION TAKEN

The entire heat of 4" x 4" x 1/2" seam welded tube steel has been identified by the contractor and rejected by the engineer. The approximately 30 feet of heat W31686 4" x 4" x 1/2" tube steel that had been installed has been removed. The total quantity of 960 feet on site has been accounted for and placed on hold. The manufacturer has been made aware of our findings and that we are rejecting the entire heat of tubing.