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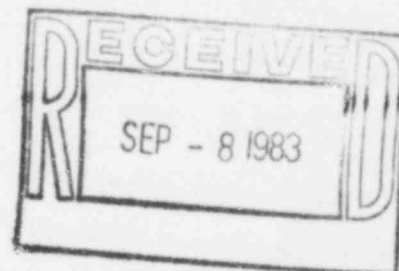
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September 2, 1983

RBG-15,878

File Nos. G9.5, G9.25.1.1

Mr. John T. Collins, Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV, Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011



Dear Mr. Collins:

River Bend Station Unit 1
Docket No. 50-458
Final Report/DR-109

On August 4, 1983, GSU notified Region IV by telephone it had determined DR-109 concerning 3/4 inch, 600-pound, socket-welded globe valves supplied by Velan Engineering, Ltd. to be reportable under 10CFR50.55(e). The attachment to this letter is GSU's final written report pursuant 10CFR50.55(e)(3) with regard to this deficiency.

Sincerely,

J E Booker

J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

J PJD
JEB/PJD/kt

cc: Director of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

R. L. Brown (SRI)

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ATTACHMENT

DR-109/VELAN 3/4-INCH 600-POUND, SOCKET-
WELDED GLOBE VALVES

Description and Background of the Deficiency

This deficiency concerns 3/4-inch, 600-pound, socket-welded globe valves supplied by Velan Engineering, Ltd. (Velan) with socket welding ends whose wall thickness does not conform to the requirements of ANSI B16.11. The bore of the socket welding end was offset from the centerline of the valve body and insufficient machining was completed on the valve end to allow for fillet welding in accordance with the rules of ASME Section III. These conditions were observed during Field Quality Control (FQC) inspection of fitups involving three of the subject valves.

In order to determine the extent of the problem, all of the subject Velan valves were inspected by FQC for hub thickness and the width of the flat area at the end of the hub where the fillet weld is made. Of the 485 valves inspected, 29 were rejected on the basis of having less than 0.168-inch hub thickness as required by ANSI B16.11, and 166 were rejected on the basis of having insufficient flat areas required for fillet welds under ASME III, Section NC 4427, ND 4427.

Safety Implication

A review of pipe classes and valve classes contained in the piping specification shows that 3/4-inch, 600-pound, socket-welded globe valves can be used in Stone & Webster pipe class 611 and below and can be used in conjunction with a maximum of schedule 80 pipe. Since the specific uses of valves of this type are not preidentified, it must be assumed that the valve with the least available wall thickness, whether caused by off-center boring or insufficient machining, would be used at the most severe pressure and temperature and at the highest corrosion allowance.

Since Stone & Webster pipe class 611 allows operating pressures of 1330 psig at 100 F and a corrosion allowance of 0.080 inch, it may be shown by the rules contained in ASME III that the minimum allowable wall thickness for these conditions is 0.125 inch. Where off-center counterboring was the cause for rejection, the minimum wall thickness recorded was greater than 0.125-inch (0.131 inch). In accordance with ANSI B16.11, the minimum width of the machined area should be 0.168 inch. Code Case N-316 was later issued to allow the machined area to be decreased to three-fourths of this value (0.126 inch). When insufficient machining of the valve ends was the cause for rejection, the minimum width of the machined area was less than the allowable 0.126 (0.093 inch). GSU therefore conservatively

assumes that had this condition remained uncorrected, it could have adversely affected the safe operations of the plant.

Corrective Action

Nonconformance and Disposition (N&D) Number 3502 required that valves that did not conform to the requirements specified in the applicable valve specification, be identified and returned to Velan for rework to the specification requirements.

The Velan valve problems were caused by fabrication errors. Insufficient machining was completed on the valve end to allow for fillet welding in accordance with the rules of ASME Section III.

In order to eliminate the protrusion of the radius area into the machined end surface, Velan has changed its forging drawings to require a longer face to face dimension. This should ensure adequate machined area when the machining operation is completed.