Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379

December 12, 1995

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - REQUEST FOR ADDITIONAL INFORMATION - RELIEF REQUESTS 1-ISI-22 AND 2-ISI-22

Enclosed is the additional information requested to support NRC review of two TVA relief requests (1-ISI-22 and 2-ISI-22). The additional information was discussed verbally between SQN's inservice inspection staff and NRC technical reviewers during a telephone conference call on November 16, 1995. The enclosed information provides details concerning the ultrasonic examination coverage on SQN's steam generator nozzle-to-safe end welds associated with the subject relief requests.

Please direct questions concerning this issue to D. V. Goodin at (423) 843-7734.

Sincerely,

R. H. Shell

R. H. Shell
Manager
SQN Site Licensing

Enclosure
cc: See page 2

A030
1/1

cc (Enclosure):

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NRC Resident Inspector
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Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323-2711

ENCLOSURE

The reasons for the limited American Society of Mechanical Engineers Code examination coverage of the subject welds are listed below:

a. Sequoyah Nuclear Plant (SQN) Units 1 and 2 steam generator (S/G) bottom head is a single piece casting, (SA-216 material) with integral cast nozzles. The Westinghouse Electric Corporation design of the nozzle safe-end welds consist of approximately 0.5-inch layer of TY-308-L weld material (buttering) applied to the nozzle weld edge preparation surface. During the first interval, TVA identified the safe-end as an examination Category B-F weld, separate from the adjacent examination Category B-J circumferential pipe weld. Because of the safe-end-weld configuration, access was extremely limited (see Sketch #1).

b. The design configuration of the nozzles does not permit scanning from the nozzle side of the safe-end-weld (see Sketch #2).

c. The primary loop piping connections at all eight S/G nozzle safe-ends are elbows (i.e., nozzle to static cast stainless fitting) causing an ultrasonic coupling problem when utilizing the large "foot-print" transducers that are required to penetrate the cast stainless material. No examination credit was taken when transducer lift-off was observed due to the rough surface condition of the cast elbow.

d. Because of the location of the safe-end weld relative to the transducer location during circumferential scans, no examination credit was taken for the circumferential scans due to the "squint" angle of the transducers not allowing the sound beam to impinge on the area of the safe-end weld (see Sketch #3).

The ultrasonic examination (UT) techniques used are as follows:

a. The optimum techniques available were utilized (i.e., large, low frequency, 45-degree longitudinal wave in the pitch catch mode). Because of the high levels of attenuation and noise from scanning at grain boundaries, no other techniques available would increase the coverage.

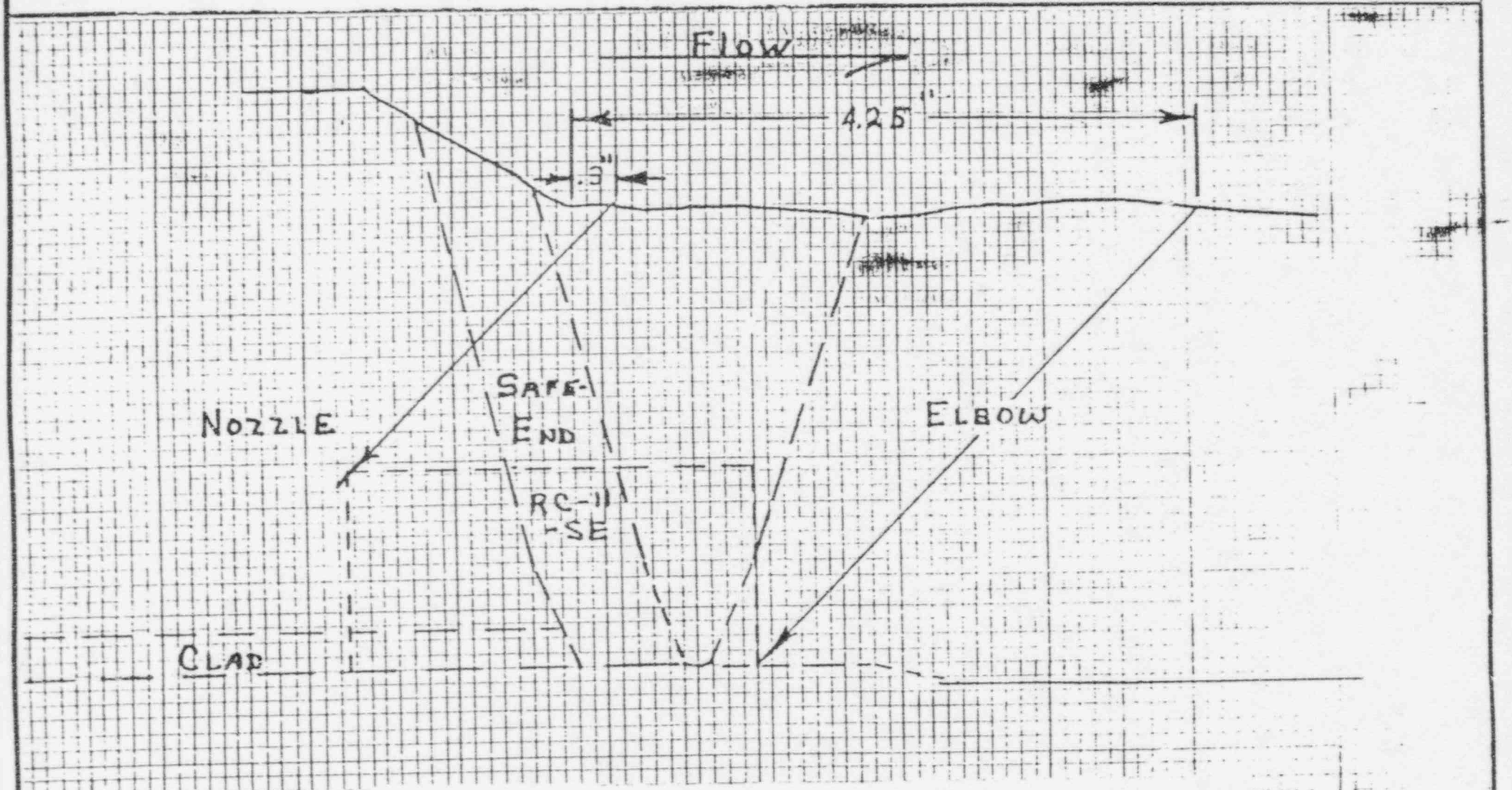
b. The UT examination was performed utilizing two, one-inch diameter, one megahertz transducers that produced a 45-degree longitudinal wave in the part. The transducers were mounted on a Lucite wedge in a side-by-side, dual, pitch-catch configuration (see Sketch #4).

c. The calibration was established utilizing the half-vee technique. The calibration block material was SA-351 GR CF8A, and was the same nominal thickness and diameter as the piping examined.

d. Scans were performed in the axial direction from the elbow side of the weld. No credit was taken for the circumferential scans due to the "squint" angle of the dual transducers.

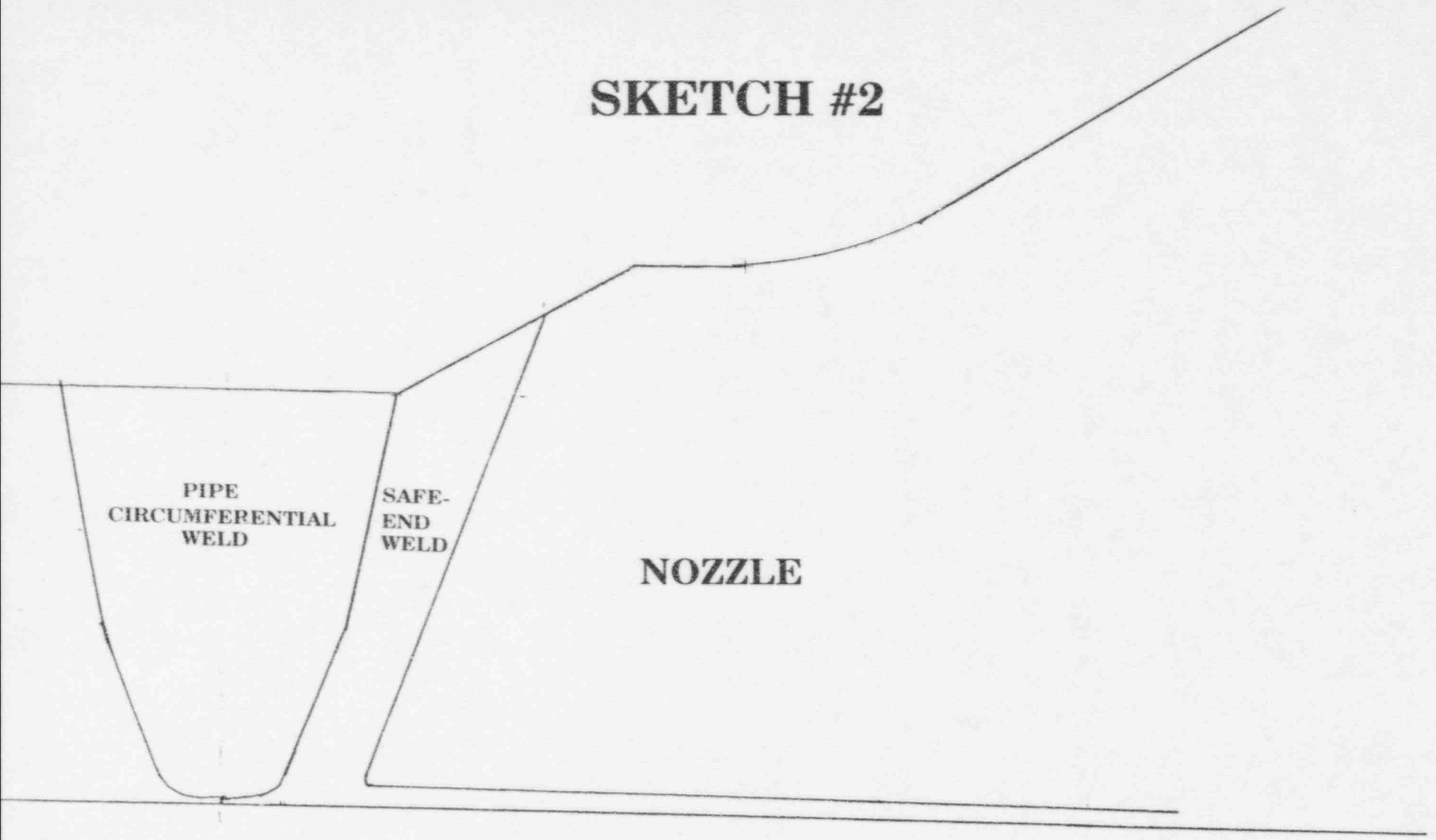
TVA
Office

SKETCH #1

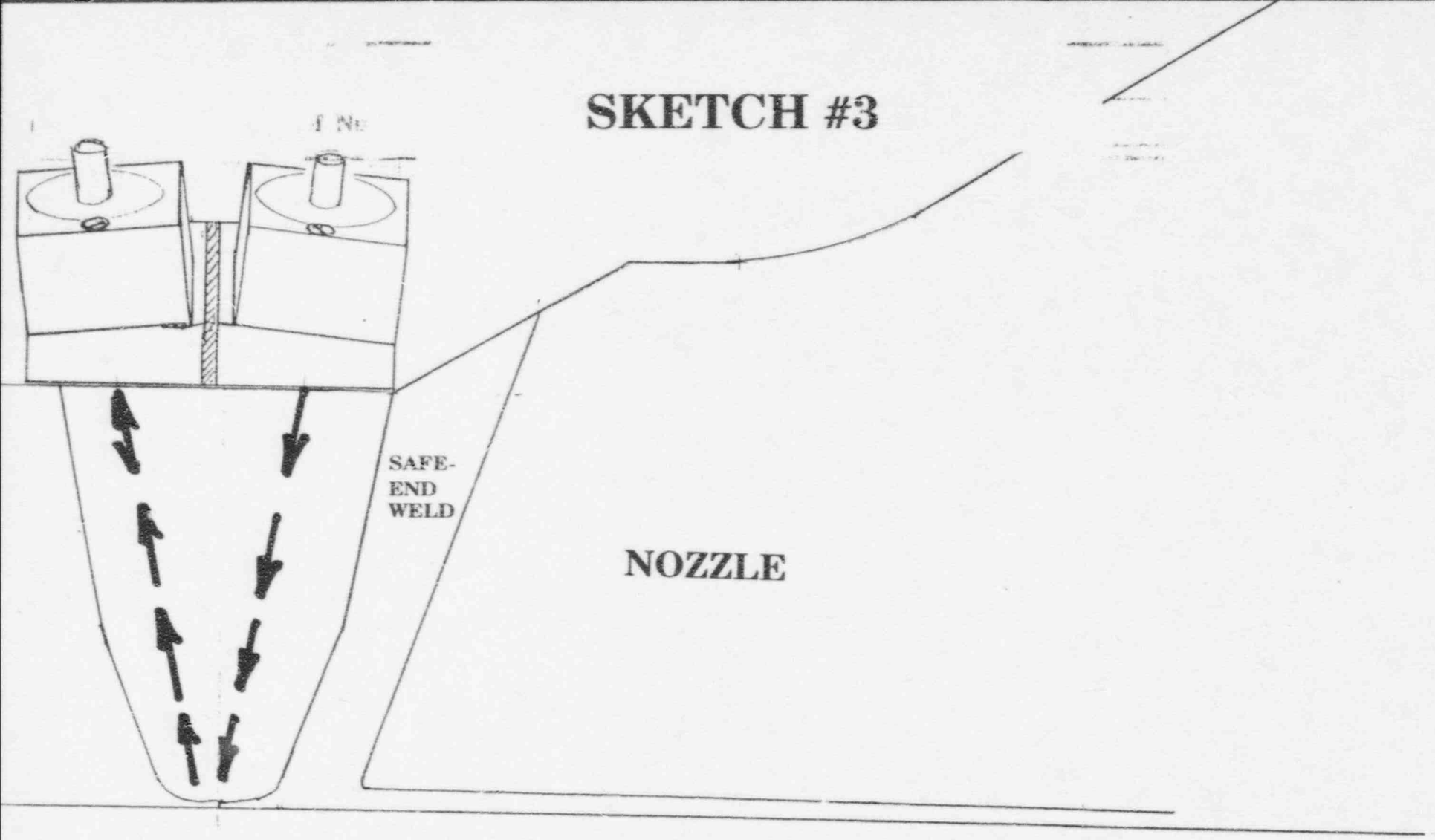


TYPICAL 8 SAFE-END WELDS

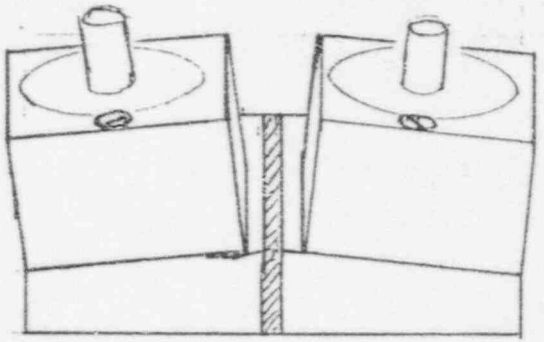
SKETCH #2

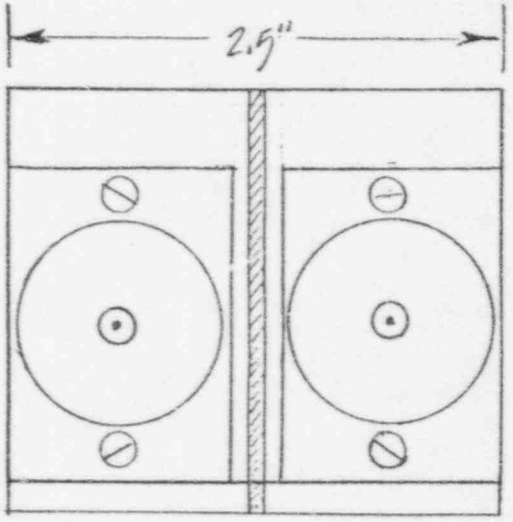


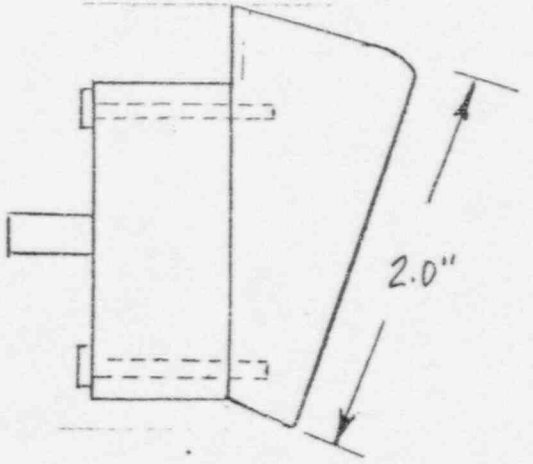
SKETCH #3



TVA Office of Nuclear Power	SKETCH #4	REPORT NO.:







ACTUAL SIZE OF TRANSDUCERS USED