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April 20, 1983

Director of Nuclear Regulation
Attention: Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Steam Generator Sleeving
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Crutchfield:

By letter dated April 1, 1983 you approved use of sleeves as an acceptable steam generator tube repair technique at Ginna. Your approval was documented in a Safety Evaluation based on our submittal of a Sleeving Design Verification Report on August 31, 1982; and a Design Review Board Meeting on September 15-16, 1982. The basic sleeve design described in these reports is a 26 to 36 inch long, bimetallic tube, explosively welded at the lower end, and brazed at the upper end.

The length of a sleeve that can be installed in a given tube is restricted by the headroom available in the channel head. Since the channel head is hemispherical in shape, this headroom becomes much smaller as you move towards the periphery of the tube bundle. Consequently, it is not possible to use brazed sleeves in the outer rows.

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In order to provide the capability for sleeving these tubes, we have developed a modification to the present sleeve design. This modification, called a tubesheet sleeve (see attached drawing), is explosively welded at both the bottom and top. The present tubesheet sleeve design is 22 inches long. However, we anticipate development of shorter lengths in the future. The tubesheet sleeve is designed to repair tube defects which occur within the tubesheet. The tubesheet sleeve is manufactured from the same 0.745 inch nominal O.D., bimetallic tubing as the sleeves. The lower tubesheet sleeve to tube joint uses the same configuration and explosive weld process as the brazed sleeves.

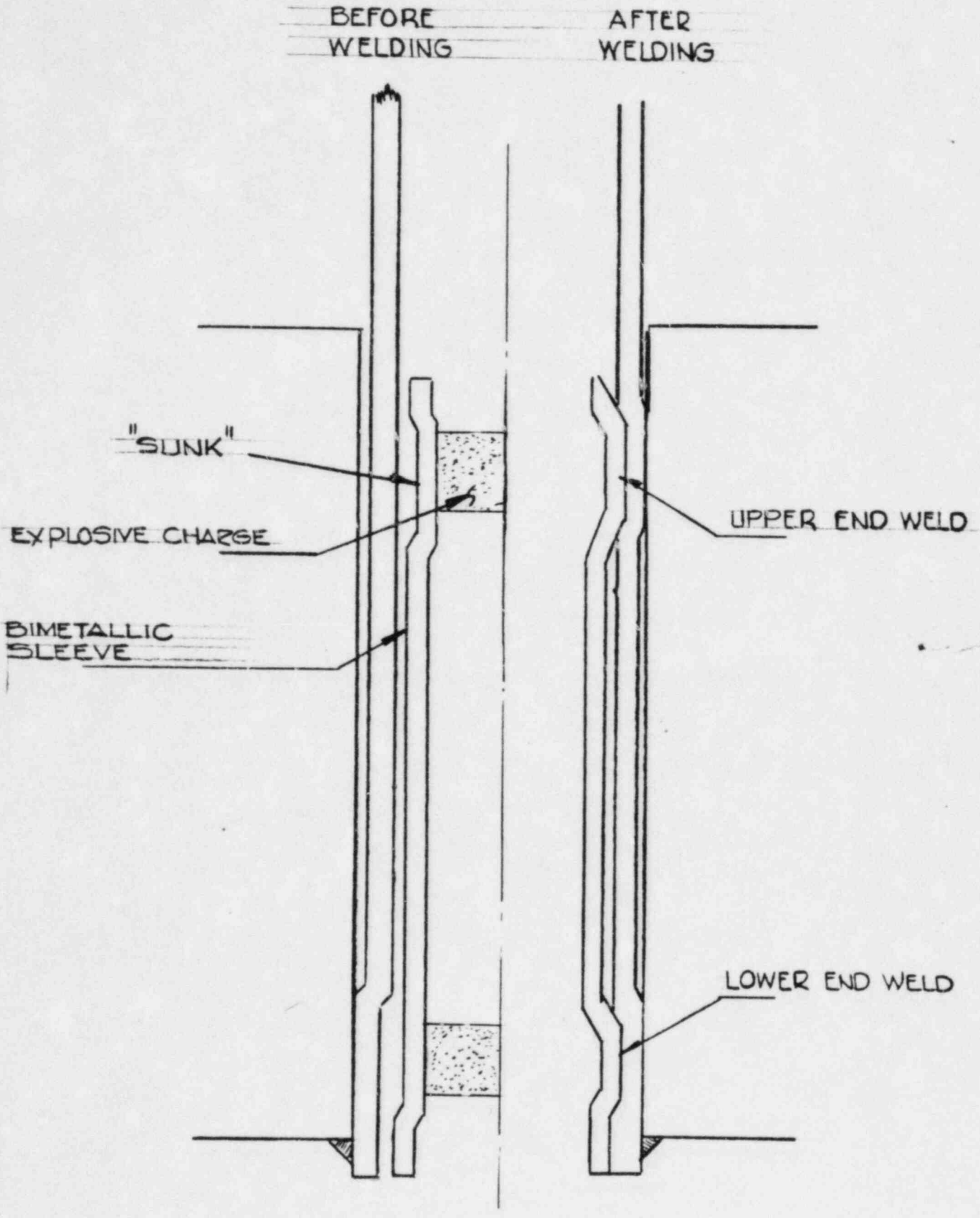
The upper tubesheet sleeve to tube joint also is made using an explosive welding process. The design of this weld is based on the design of the existing lower end joint which was described in our previous submittals. This upper weld is made prior to making the lower end weld using a separate cartridge and detonation. The weld is the same length (0.75 inches) as the lower one, with its upper end a minimum of 1 inch below the top of the tubesheet. The sleeve O.D. is locally reduced over a length of 2 inches at the upper joint to provide the necessary weld standoff distance. The I.D. of the tube to be sleeved is cleaned by honing and dry swabing prior to installation of the tubesheet sleeve. The weld configuration and installation procedure were developed using a series of tests. Weld joints have been sectioned and

evaluated by metallographic examination to confirm their adequacy. The final configuration and welding procedure have been qualified to Section XI of the ASME Code in the same manner as the lower brazed sleeve joint. All qualification specimens achieved the minimum weld length of 0.75 inch.

We have reviewed the tubesheet sleeve design and installation process against our "Steam Generator Rapid Sleeving Program Design Verification Report", dated August 1982. It is our determination that the tubesheet sleeve design and installation procedures are bounded by the analyses and tests described in that report. Review of the tubesheet sleeve installation procedure as required by Technical Specification 6.5 will be performed prior to installation. We request your concurrence that the proposed tubesheet sleeves are an acceptable sleeve repair technique in accordance with our present Ginna Inservice Inspection (ISI) program. We are planning to install approximately 50 of these tubesheet sleeves during our present refueling outage.

Very truly yours,

John E. Maier



TUBE SHEET SLEEVE