

DISCUSSION

N. W. Hung¹ (written discussion)—Can you suggest any analytical treatment for the magnitudes and direction of the final residual stresses after a multiaxial proof loading?

R. H. Leggatt and T. G. Davey (authors' closure)—The effects of a multiaxial proof loading could be analyzed using an incremental elastic-plastic analysis, incorporating an appropriate multiaxial yield criterion and plastic flow rule.

N. W. Hung (written discussion)—On one slide, you showed a stress-corrosion induced crack started inside a weld and propagated toward the interior. Is it in conflict with the general thinking that stress corrosion cracking is environmentally induced and usually starts at the outside of a specimen?

R. H. Leggatt and T. G. Davey (authors' closure)—The slide in question showed stress corrosion cracking in a valve body wall. The cracking initiated in a crevice between the inner surface of the valve body and an insert ring attached by a single fillet weld. The presence of the crevice caused an accumulation of chloride ions and a geometric stress concentration. This was a classic case of environmental and geometric factors conducive to the initiation of stress corrosion cracking.

D. J. DePaup² (written discussion)—The subject paper deals with laboratory-type test specimens. To what extent have similar type tests been made on metal steel pressure vessels which have not received a thermal stress relief but which have been exposed to cyclic temperature and pressure following proof loading to reduce residual stresses?

R. H. Leggatt and T. G. Davey (authors' closure)—Measurements of residual stresses in a thick-walled pressure vessel after proof loading were given in the paper by Jesensky and Vargova [5].

¹ Hewlett Packard, Santa Rosa Division, 1400 Fountain Grove Parkway, Santa Rosa, CA 95405.

² Plant Apparatus Division, Westinghouse Electric Corporation, P.O. Box 425, Monroeville, PA.