

Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Impactful Times: Memories of 60 Years of Shock Wave Research at Sandia National Laboratories¹ MARY ANN SWEENEY, Sandia National Laboratories, JAMES R. ASAY, LALIT C. CHHABILDAS, R. JEFFERY LAWRENCE, Sandia National Laboratories, retired — Sandia National Laboratories' origin began during World War II. In July 1945 our forerunner, Sandia Base, was established to develop, test, and assemble non-nuclear parts of weapons. Shock wave research became essential in the 1950s with the advent of supersonic and exoatmospheric missiles. A major concern was effects of radiation-produced shocks on materials. As a result, we developed a wide range of experimental, diagnostic, modeling, and computational capabilities. These have addressed complex issues related to both weapons and basic science. Notable applications have included analysis of the cause of the turret explosion aboard the USS Iowa, predicting the response to the Shoemaker-Levy comet impact on Jupiter, and evidence for an abrupt transition of dense liquid hydrogen from an insulator to a metal at high pressures. Six decades later, our research encompasses all aspects of material science from high energy density physics to low density plasma surface interactions.

¹Sandia National Laboratories is a multi-mission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

Mary Ann Sweeney
Sandia National Laboratories

Date submitted: 02 Jul 2019

Electronic form version 1.4