Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

New Regimes of Implosions of Larger Sized Wire Arrays With and Without Modified Central Plane at 1.5-1.7 MA Zebra
A.S. SAFRONOVA, V.L. KANTSYREV, A.A. ESAULOV, M.E. WELLER, I. SHRESTHA, V.V. SHLYAPTSEVA, A. STAFFORD, S.F. KEIM, E.E. PETKOV, M. LORANCE, UNR, A.S. CHUVATIN, Ecole Polytechnique, C.A. COVERDALE, B. JONES, SNL — The recent experiments at 1.5-1.7 MA on Zebra at UNR with larger sized planar wires arrays (compared to the wire loads at 1 MA current) have demonstrated higher linear radiation yield and electron temperatures as well as advantages of better diagnostics access to observable plasma regions. Such multi-planar wire arrays had two outer wire planes from mid-Z material to create a global magnetic field (gmf) and mid-Z plasma flow between them. Also, they included a modified central plane with a few Al wires at the edges to influence gmf and to create Al plasma flow in the perpendicular direction. The stationary shock waves which existed over tens of ns on shadow images and the early x-ray emissions before the PCD peak on time-gated spectra were observed. The most recent experiments with similar loads but without the central wires demonstrated a very different regime of implosion with asymmetrical jets and no precursor formation. This work was supported by NNSA under DOE Cooperative Agreement DE-NA0001984 and in part by DE-FC52-06NA27616. Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Company, for the U.S. Department of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

A.S. Safronova
University of Nevada, Reno

Date submitted: 12 Jul 2013 Electronic form version 1.4