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Results from New Multi-Megabar Shockless Compression Experiments at the Z Machine JEAN-PAUL DAVIS, JUSTIN BROWN, MARCUS KNUDSON, Sandia National Laboratories — Quasi-isentropic, shockless ramp-wave experiments promise accurate equation-of-state (EOS) data in the solid phase at relatively low temperatures and multi-megabar pressures. In this range of pressure, isothermal diamond-anvil techniques have limited pressure accuracy due to reliance on theoretical EOS of calibration standards, thus accurate quasi-isentropic compression data would help immensely in constraining EOS models. Multi-megabar shockless compression experiments using the Z Machine at Sandia as a magnetic drive with stripline targets have recently been improved. New developments will be presented in the design and analysis of these experiments, including topics such as 2-D and magneto-hydrodynamic (MHD) effects and the use of LiF windows. Results will be presented for selected metals, with comparisons to independently developed EOS. *Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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