Abstract Submitted for the SHOCK17 Meeting of The American Physical Society

Shock Recovery of the High Pressure Phase Bismuth III¹ ZACHARY FUSSELL, OLIVER TSCHAUNER, University of Nevada, Las Vegas, CAMERON HAWKINS, National Security Technologies, CHI MA, California Institute of Technology, JESSE SMITH, Advanced Photon Source, ADVANCED PHOTON SOURCE TEAM, CALIFORNIA INSTITUTION OF TECHNOLOGY TEAM, NATIONAL SECURITY TECHNOLOGIES TEAM, UNIVERSITY OF NEVADA, LAS VEGAS TEAM — Between 0 and 10 GPa there are five different bismuth phases. High-pressure bismuth (Bi) phases have been examined in static compression experiments; however, none could be recovered to ambient conditions. Here we report Bi-III recovery (stable above 3 GPa) to ambient conditions from a shock compression experiment to 5.7 GPa. Bi-III was identified by synchrotron micro-diffraction and backscatter electron imaging. Our work shows shock-compression provides a tool for recovering high-pressure phases that otherwise elude decompression.

¹This work supported by National Security Technologies, LLC, under Contract No. DE-AC52-06NA25946 with the U.S. Department of Energy and by the Site-Directed Research and Development Program. DOE/NV/25946–3070

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Date submitted: 27 Feb 2017 Electronic form version 1.4