

Abstract Submitted
for the SHOCK19 Meeting of
The American Physical Society

Explosive vessel for Synchrotron Experiments JOSEPH RIVERA,
Los Alamos National Laboratory — Recent experiments at the Advanced Photon Source have been successful in coupling gun systems to the synchrotron to take advantage of the X-ray diagnostics such as X-ray diffraction and X-ray phase contrast imaging (PCI) to examine matter at extreme conditions. There are many experiments that require explosive loading capabilities in addition to gun systems, e.g. detonator and initiator dynamics, small angle X-ray scattering (SAXS), and explosively driven flyer experiments. The current work highlights the qualification and commissioning of an explosive vessel that was designed specifically for use at a synchrotron facility with a requirement to confine up to 15 grams of explosives (TNT equivalent), couple the vessel to the X-ray beam line, and reliably position samples in the X-ray beam remotely. A description of this new, mobile capability including the remote positioning system, the vacuum/venting manifold, and results from qualification testing required to commission the system will be presented.

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Date submitted: 28 Feb 2019

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