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Windowless Gas Target for Neutron-based Imaging¹ MICAH S. JOHNSON, J.L. ELLSWORTH, P.J. FITSOS, J.M. HALL, B. RUSNAK, LLNL — National security and safeguards agencies are seeking technologies to image very dense objects. Critical to their mission objectives is the need to measure the geometry and internal components of the dense objects. One possible method is to use neutron-based imaging because of the neutron's long mean path length. Neutrons can be produced in a variety of reactions with a variety of materials. For this presentation, we will discuss our method to use (d,n) production reaction on deuterium gas. A windowless gas target for this particular system is required because of the large power of the 7 MeV, 300 μ A deuteron beams. We will discuss our windowless gas target and its capabilities. We will present measurements and discuss the results and outlook.

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