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Development of a Thin-Walled Tritium Gas Target System for (γ, p) Measurements[1] FORREST FRIESEN, CALVIN HOWELL, TUNL — The planned ^{3}H(γ, p)nn experiment at the TUNL High Intensity Gamma-ray Source will provide data that test three-nucleon ab-initio calculations, and will enable a determination of the $^1S_0$ neutron-neutron scattering length. This experiment will involve measurement of the emitted protons with energies down to about 1.5 MeV, and requires an overall uncertainty in energy measurements of less than 250 keV in the region of interest. The target will be approximately 230 Ci of gaseous tritium contained in a series of thin-walled cylindrical cells, constructed from 2.5-μm thick Havar foil. We report on methods for building, filling, handling, and leak testing the target cells.

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