Abstract Submitted for the APR12 Meeting of The American Physical Society

A liquid parahydrogen target for the NPDGamma Experiment¹ CHAD GILLIS, WALTER FOX, HERMANN NANN, MIKE SNOW, ZHAOWEN TANG, JOHN VANDERWERP, Indiana University, RICK ALLEN, SEPPO PEN-TILLA, JACK THOMISON, Oak Ridge National Laboratory, JIAWEI MEI, Thomas Jefferson National Accelerator Facility, SATYARANJAN SANTRA, Bhabha Atomic Research Centre, NPDGAMMA COLLABORATION — The NPDGamma Experiment, which is running at the SNS, is in the process of measuring the parity-violating correlation A_{γ} between neutron spin and gamma momentum in the reaction $\vec{n} + p \rightarrow d + \gamma$ with a projected statistics-limited precision of 10^{-8} . To achieve this statistical goal, a polarized cold neutron beam is captured in a 16 liter liquid parahydrogen target which includes a cryogenic system, containment mechanisms designed for safe filling, venting and storage of the hydrogen, and a data acquisition system. We will describe the target system and its performance.

¹Supported in part by National Science Foundation grants PHY-0100348, PHY-0457219 and PHY-0758018.

Chad Gillis Indiana University

Date submitted: 10 Jan 2012

Electronic form version 1.4