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Measurement cell development for the neutron EDM experiment W.C. GRIFFITH, S.M. CLAYTON, M.D. COOPER, S.A. CURRIE, T.M. ITO, M.F. MAKELA, J.C. RAMSEY, A. SAUNDERS, Los Alamos National Laboratory — An experimental search for the neutron electric dipole moment is under development for installation at the Oak Ridge Spallation Neutron Source. The experiment will use ultracold neutrons (UCN) produced in superfluid helium, along with  ${}^{3}\text{He}$ that will act as a neutron spin analyzer and comagnetometer. The measurement will take place in two 3-liter rectangular acrylic cells coated with deuterated tetraphenyl butadiene (dTPB) in a deuterated polystyrene (dPS) matrix. It is crucial for the ultimate sensitivity of the experiment that UCN survive many (~  $10^5$ ) wall collisions without being lost. We are currently testing the UCN storage properties of dPS+dTPB coated acrylic cells at the LANSCE solid deuterium UCN source. The test cell is filled with UCN through a 1 cm diameter opening, sealed with a valve carefully designed to have very low UCN losses, and then after waiting for between 20-1000 seconds the valve is opened and the remaining UCN are counted. Measurements are carried out from room temperature to below 20 K to determine the temperature dependence of the UCN wall losses. We will discuss cell construction techniques and present recent UCN storage measurements. This work is supported by the U. S. Department of Energy.

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