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Development on cryogenic valve (V1) for the SNS nEDM experiment ZHAOWEN TANG, TAKEYASU ITO, JOHN RAMSEY, SCOTT CURRIE, Los Alamos National Lab, SNS NEDM COLLABORATION — The goal of the nEDM experiment at the Spallation Neutron Source (SNS) is to search for a neutron electric dipole moment (EDM) with a sensitivity below 5×10^{-28} e-cm as a signature of Charge-Parity violation, which is ~ 50 times better than the current experimental limit. The experiment utilizes polarized ^{3}He as a co-magnetometer and as a method to measure the precession frequency of the neutron in-situ. This method improves both the statistical and systematic sensitivity of the experiment, however, does create many technical challenges. One of these challenges is the cryogenic V1 valve operating at 0.4 K, which isolates the ultra cold neutron (UCN) cell from the ^{3}He transfer system. The valve has to be UCN friendly, mechanically robust, ^{3}He leak tight, friendly to polarized ^{3}He, etc. We will report the progress of the R/D effort of the V1 valve.

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