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## **C1Po1E-06: Liquid Deuterium Cold Source Concept for the NIST Neutron Source**

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The National Institute of Standards and Technology (NIST) Center for Neutron Research (NCNR) houses an aging reactor that serves about 40% of all cold neutron research needs in the U.S. First critical in 1967, the National Bureau of Standards Reactor (NBSR) is now more than 50 years old. NCNR engineers have initiated a design effort for a replacement reactor –namely the NIST Neutron Source or NNS. The NNS is conceived as a 20-MWth light-water cooled and moderated, and heavy-water reflected compact core design. The NNS will include two liquid deuterium cold sources to moderate neutrons. These cold sources will require new cryogenic infrastructure to operate. This report describes a preliminary proposed design concept for the NNS cold sources and associated ancillary infrastructure.

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