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Sommario/riassunto	Nearly two-thirds of the experiments performed at the NIST Center for Neutron Research (NCNR) utilize cold neutrons with wavelengths greater than 4 Angstroms. This report documents the development of the liquid hydrogen cold neutron source in the NIST research reactor. The source was designed to optimize the flux of cold neutrons transported to the scattering instruments in the guide hall. It was also designed to be passively safe, and operate simply and reliably. All hydrogen system components are surrounded with monitored helium containments to ensure that there are at least two barriers between the hydrogen and the atmosphere. Monte Carlo simulations were used to calculate the cold source performance and estimate the nuclear heat load at full reactor power. Thermal-hydraulic tests in a full-scale mockup at NIST Boulder confirmed that a naturally circulating thermosiphon driven by the 2 meter height of the condenser could easily supply the moderator vessel with liquid hydrogen while removing over 2000 watts. The cryostat assembly was designed to withstand any high pressure generated in a credible accident. It was fabricated to rigorous quality assurance standards, resulting in over 10 years of

leak-free operation.

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