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SNS PROTON POWER UPGRADE REQUIREMENTS FOR MAGNET AND KICKER SYSTEMS

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The Spallation Neutron Source (SNS) Proton Power Upgrade (PPU) will double the beam power from 1.4 to 2.8 MW by adding cavities in the superconducting linear accelerator (SCL) which will increase the beam energy from 0.97 to 1.3 GeV and by increasing the average Linac beam current from 26 to 38 mA. Provisions for an accelerator power increase were made in the original SNS project, and these are being leveraged to provide a cost-effective means of doubling the beam power. The magnet systems were originally designed for the higher beam energies with the exception of a few in the injection and extraction regions of the accumulator ring. Three injection region magnets will be redesigned. The eight injection-bump kicker power supplies will be upgraded to permit higher current operation and two additional extraction kicker power supplies and magnets will be added. This paper will review the requirements and options for the magnets and power supplies for the injection and extraction regions.

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