

Completion of the Proton Power Upgrade project at the Spallation Neutron Source

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The Proton Power Upgrade (PPU) project at the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory (ORNL) has completed the installation and testing of all project scope required to meet threshold key performance parameters (KPPs), supported beam commissioning in June 2024, and transitioned to operations in July 2024. Increasing the beam energy from 1.0 to 1.3 GeV required the installation of seven additional cry-modules in the SNS Linac along with supporting RF systems. The accumulator ring injection and extraction regions were upgraded, a 2 MW mercury target was developed, and ancillary target systems were upgraded to support high-flow gas injection, mercury off-gas treatment, and ortho-para fraction control in the cryogenic moderator hydrogen loop. Three of four threshold KPPs have been demonstrated, and the project is planning for its final review in early 2025. Beam power on the first target station (FTS) will be ramped up to 2 MW over the next two years. Completion of the PPU project supports increased scientific capability at the FTS and will support operation of the second target station (STS) upon its completion. Lessons learned will be documented and a project closeout report will be written prior to the final closeout of the project.

Footnotes

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Author: CHAMPION, Mark (Oak Ridge National Laboratory)

Co-authors: JOHNS, Glen (Oak Ridge National Laboratory); STEPHENS, Gregory (Oak Ridge National Laboratory); GALAMBOS, John (Oak Ridge National Laboratory); MOSS, John (Oak Ridge National Laboratory); WHITE, Karen (Oak Ridge National Laboratory); CONNELL, Mark (Oak Ridge National Laboratory); HOWELL, Matthew (Oak Ridge National Laboratory); EVANS, Nicholas (Oak Ridge National Laboratory); KIM, Sang-Ho (Oak Ridge National Laboratory)

Presenter: CHAMPION, Mark (Oak Ridge National Laboratory)

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