

The Spallation Neutron Source (SNS) produces intense beams of neutrons that are passed through hydrogen cooled moderators. The Cryogenic Moderator System (CMS) consists of a helium refrigeration plant that cools the hydrogen within the circulation loops for the three hydrogen cooled moderators. The helium refrigeration system is rated for 7.5kW at a discharge temperature of 17-K. Recently, the performance of the refrigerator has degraded during operation and this has resulted in beam power reductions and reduced availability of neutrons for research. A task force was appointed to evaluate and analyze the system and produce a plan to return the system to stable operation for 1.4 MW beam power. In addition, the task force was charged with formulating a plan to prepare the system to be capable of 2 MW beam power operation after the Proton Power Upgrade (PPU) is executed.

A review of the plan for the CMS will take place on January 22 and 23, 2020.

In carrying out this charge, the review committee is asked to respond to the following questions. In addition, the review committee should produce a review report that documents findings, comments, and recommendations within two weeks of the review.

1. Is the plan to return the CMS to reliable operation for 1.4 MW beam power by April 2020 reasonable? Are there additional considerations that need to be included?
2. Is the plan to prepare the CMS for reliable operation for the beam power ramp up defined for the PPU culminating in 2.0 MW beam power in Q3 2024 reasonable? Are there additional considerations that need to be included?
3. Are the allocated resources sufficient to execute the CMS plans? Is the organization structure for CMS resources reasonable to carry out the scope of work defined in the operations plans?