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SNS Inner Reflector Plug Design and Fabrication Status

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The Spallation Neutron Source is in the process of completing the design and fabricating the third inner reflector plug for the facility (IRP-3). During the procurement of the previous inner reflector plug (IRP-2), several challenges arose that significantly extended the procurement time to approximately nine years. Lessons learned from IRP-2 are being incorporated into IRP-3 to drastically reduce the procurement time to less than four years.

The most notable design changes are the rerouting of the water and cryogenic moderator piping and moving the cadmium coating in the cryogenic moderator area from the moderator exterior to the interior of the housing surrounding the moderator. The rerouting of the piping allows for parallel fabrication of major sub-assemblies and easier leak checking. Relocating the cadmium coating eases the tight tolerance requirements in the moderator area.

To take advantage of the new design flexibility, a different procurement strategy is underway. Instead of the single, fixed-price contract approach used for IRP-2, the new approach is to release multiple contracts for major sub-assemblies to multiple vendors for later final assembly. The approach allows for better matching of vendors' technical abilities for particular sections of the IRP, reduces the risk for any single procurement, and allows for parallel manufacturing activities, ultimately reducing the overall manufacturing time.

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