

## **Procurement of Spare Parts for Instrumentation Channels, Electronics Test Equipment, and Power Uprate Study at the Missouri S&T Reactor**

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**Program:** Reactor Upgrades

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### **ABSTRACT:**

The Missouri University of Science and Technology Reactor (MSTR) is a pool-type research reactor built in 1960 on the campus of the Missouri University of Science and Technology. In recent years, ageing equipment has negatively impacted the facility's ability to reliably carry out its educational and research missions. This project has three objectives: 1) to procure spare and replacement parts needed to maintain the reactor's safety and control systems, 2) to develop a suite of electronics test equipment that will provide researchers with the ability to study the performance of electronics under irradiation, and 3) to perform computational analyses needed as part of the process of requesting a power uprate. Currently MSTR is licensed to operate at 200 kW thermal power. By increasing the power to 1 MW or higher, the irradiation capabilities will expand. Together with unique in-situ irradiation testing capabilities, it will be utilized by a greater number of internal and external users from industry, academia, and national laboratories.

Approximately 2500 students, visitors and trainees visit or work in the MSTR each year. The reactor is a powerful tool for recruiting students into the Nuclear Engineering discipline and provides operator training and research experience for students. The continued ability to bring students and visitors through the reactor will be ensured by procuring spare parts and expanding its research capabilities in new directions. With an increase in power and addition of in-situ electronics characterization equipment, the facility will see greater utilization as a research facility from internal and external users.