

Facility Stack Radiological Release Monitor Upgrade

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Collaborators: N/A

Program: Reactor Upgrades

ABSTRACT:

The Rhode Island Nuclear Science Center (RINSC) has been in operation since 1964. The facility has a long history of serving all of the education institutions in and around the state of Rhode Island. The facility's commitment to nuclear science and engineering education extends across a broad level of education, from general public outreach, to graduate level engineering and physics education.

As the facility approached fifty years of operation, the RINSC staff began to work toward upgrading and improving all of the instrumentation associated with the reactor. The upgrade program has followed a master plan. In 2007, the Control Rod Drive System was replaced with a new digital system that uses an Opto-22 architecture. In 2009, the Cooling System was upgraded to an Opto-22 I&C system. In 2011, new digital display systems were installed for the confinement air handling system, radiation monitoring system, power instrumentation trend data, and core and experimental facility status. All of these displays are integrated into the Opto-22 architecture that makes up the backbone of the reactor instrumentation. In 2014, experimental facility area radiation monitors and air monitors were upgraded. Again, these systems were integrated into the Opto-22 display system. This project involves upgrading the facility stack air monitor, which is used to detect any airborne radioactive gas or particulate that is released from the facility. Future projects will include area radiation monitors for reactor cooling system locations that are radiation or high radiation areas during reactor operation, and a portal radiation monitor for the entrance into the confinement building.

The current stack monitoring system is original to the facility and has become difficult to maintain. This instrumentation is required for the operation of the reactor, and therefore is vital for the continued operation of the facility. Consequently, this is the item that is highest on the upgrade priority list.