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Automated Testing and Our RASA Software Development Environment

The GDMS Nuclear Monitoring program requires software and hardware testing to support operations, maintenance, upgrades and sustainment of the RASA particulate radionuclide monitoring system. The software is under active development to repair bugs, add enhancements, and support obsolescence of individual hardware components. Prior to this automation effort, GDMS engineers manually tested the RASA software and hardware encompassing three man-days to complete the labor intensive test plan. The test plan also required an additional two-week "hands off" verification period consuming additional scarce hardware and personnel resources. The goal of this project was to provide the necessary tools and tests to improve the quality and reliability of the delivered RASA software and to provide a level of quality assurance of the RASA and its component hardware. GDMS accomplished this by developing the following: 1) software simulators for the RASA and its component hardware, 2) hardware test stands to isolate individual hardware components to reduce the reliance on a fully functional RASA system, and 3) an automated testing framework that is tied into our software build process allowing us to detect errors earlier in the software development cycle and which can easily test the various RASA system permutations.

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