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RASA Detector Calibrations: Field Automation and Potential for Factory Calibrations to Replace Field Calibrations

The process of performing RASA high purity germanium (HPGe) detector calibrations in field systems is a labor-intensive and error-prone task. Mistakes and delays in this process commonly result in additional down-time of RASA systems after a detector replacement. At present, human intervention is required for input of detector certificate data, monitoring acquisitions for the appropriate stop time, retrieval of efficiency calculation results from an external source, and manual editing of configuration files to insert calibration results. GDMS is leveraging experience with automated software testing to modernize the RASA detector calibration workflow. In addition to automating manual tasks, the software in development includes a local processing module for on-site calculation of energy, resolution, and efficiency line pairs. Automation and localization of this process will result in faster restoration of RASA systems to operational status after detector replacement. GDMS is also comparing methods to determine if the field calibration process can be eliminated in favor of factory calibrations. Options include a standard RASA calibration performed shortly before deployment, or a vendor solution such as Canberra LABSOCS/ISOCS technology. If these processes prove to be viable replacements to in-field calibrations, the detector replacement process may be shorten to improve data availability.

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