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The Need to Support and Maintain Legacy Software: Ensuring Ongoing Support for the Isotopics Codes

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Since about four decades, gamma evaluation codes for plutonium and uranium isotope abundance measurements are a key component of international, regional and domestic safeguards inspections. However, the development of these codes still relies upon a very limited number of experts. This led the safeguards authorities to express concerns, and to request continuity of knowledge and maintenance capability for the codes. The presentation describes initiatives undertaken in the past ten years to ensure ongoing support for the isotopic codes. As a follow-up to the 2005 international workshop, the IAEA issued a roadmap for future developments of gamma codes, followed by a request for support in this field to several MSSP's (namely JNT A 01684). The international working group on gamma spectrometry techniques for U and Pu isotopics (IWG-GST) was launched by the European, French and US MSSPs in 2007, to respond to the needs expressed by the IAEA and other national or international inspectorates. Its activities started with the organization in 2008 of a workshop on gamma spectrometry analysis codes for U and Pu isotopics. The working group is currently developing an international database of reference spectra that will be made available to the community of users and developers. In parallel, IRSN contributes to the JNT A 01684 by advising the IAEA on establishing a procedure for validating a new version of isotopics codes compared to the previous version. The most recent initiative, proposed by the IAEA, consists in organizing an inter-comparison exercise to assess the performances of U and Pu isotopics and mass assay techniques based on medium resolution gamma spectrometry (MRGS).

All these initiatives contributed to the continuity of knowledge and maintenance of the gamma isotopic codes, but further efforts are needed to ensure the long-term sustainability of the codes.

Country or International Organization

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