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## **sensitive measurements that radionuclide laboratories can do for special studies**

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Advanced gamma-spectrometry systems have potential for higher-sensitivity analysis of CTBT relevant radionuclides in IMS samples. These systems include sophisticated multi-detector configurations that are capable of coincidence measurements with Compton and cosmic rejection. They can provide detection sensitivity 2-4 orders of magnitude higher than conventional gamma-spectrometry used for IMS samples. Such systems could be utilized for the re-analysis of selected IMS samples, to provide more accurate measurements with lower uncertainty, improved isotopic ratios, and potentially detect radionuclides not detectable using station or laboratory systems. The advantages of these next-generation systems has been investigated by a collaboration between the Pacific Northwest National Laboratory (PNNL) and Atomic Weapons Establishment (AWE), host to USL16 and GBL15.

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