Title	Proficiency Test in the Analysis of Gamma Spectra for Malevolent Radiological Situations (MALRAD)
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Abstract

The MALRAD activity was intended to provide an exercise activity with respect to gamma ray spectrometric response to malevolent situations involving radioactive sources. Such situations can often be characterised by high activity sources in difficult contexts where the response is by necessity conducted with less than optimal instrumentation. Seven scenarios were developed based on previous incidents where possible and gamma spectral data and other information was disseminated to participants who were given one week to respond to each scenario with as much information as possible. In total 14 individual laboratories responded. The majority of laboratories were in a position to satisfactorily identify sources where single sources were used in situations with no complicating factors. For those scenarios involving heavy shielding som difficulties were encountered due to distortion of the spectrum from that which would normally be viewed as characteristic for the isotope in question. Special nuclear materials such as reprocessed enriched uranium and weapons grade plutonium provided different challenges and there were indications in the reponses from participants of unfamiliarity with these materials.

Key words Gamma ray spectrometry, special nuclear materials, sources,