ID: Type: **Oral**

CHAOS during an OSI (applying measurement restrictions to sample characterisation at the BOO)

Wednesday 26 June 2019 16:45 (15 minutes)

A ruggedised, gamma-gamma based system for in-field, real-time measurements of environmental samples has been developed at GBL15. This is specifically designed to enable measurement restrictions, such that it can support OSI activities envisaged under the CTBT. In restricted mode, only the 17 OSI relevant radionuclides are measured, with zero information recorded regarding other radionuclides. All data acquisition, analysis, and reporting is automated, and implemented within a CAEN S.p.A. HEXAGON dual-input Multi-Channel Analyser (MCA). Multiple analysis streams are deployed on the system, including traditional analysis of a histogram for each detector channel (in both full and restricted modes), and coincidence analysis based upon real-time sorting of time-stamped, list-mode events stored in the buffer of the MCA. This multi-faceted approach allows for far greater confidence in the reported results, as all data streams report fully quantified radionuclide activities and uncertainties. The software is fully configurable depending on the level of measurement restriction required; the detail available ranges from the full analysed histograms (with embedded peak fitting, efficiency and shape characterisations) to a simple yes/no traffic light system to denote the presence or absence of an OSI relevant radionuclide.

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