ID: Type: **Poster**

Radioactive gas metrology at NPL and the development of short-lived gas standards

NPL maintain the UK's primary standards of radioactivity; including radioactive gas standards. Gas standards of H-3, C-11, C-14, Kr-85 and Xe-133 are realised by means of absolute counting using a series of length-compensated internal-gas proportional counters. These standards are used for the calibration of stack, area and environmental monitors. Presented is an overview of NPL's capability in the areas of radioactive gas measurement and radioactivity-in-air monitoring. The overview will include details of a planned inter-comparison of Xe-133 and recent work to produce and standardise the short lived fission and activation product gases Ar-41, Kr-85m, Kr-87, Kr-88 and Xe-135 for the calibration of a Fukushima NPP criticality monitor.

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Track Classification: Theme 3. Verification Technologies and Technique Application