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Increasing the Sensitivity of the International Noble Gas Monitoring Network by Mitigating Radioxenon Releases from Radiopharmaceutical Facilities

Noble gases are a key indicator if an explosion was nuclear in nature or not and since World War II the short-lived radioxenon noble gases have been used to detect nuclear activities. In the last 10-15 years with the construction of the International Monitoring System (IMS), the measuring technologies and sensitivities have improved significantly. The sensitivity of the noble gas network is partly determined by the radioxenon background originating from civil nuclear applications. This background comes mainly from a few large medical isotope production facilities. It will be therefore possible to enhance the sensitivity of the radioxenon network by decreasing the global background. Atmospheric releases from medical isotope production facilities are, however, well below any health standards and these facilities have no direct need themselves to reduce these discharges. In the framework of the Joint Action V program the EU is likely to support a study for the mitigation of xenon released by radiopharmaceutical facilities. The goal of this project is to construct a transportable xenon mitigation system for reducing the xenon at specific processes in such facilities. Tests will be performed in real conditions in a production plant, at the Institute for Radioelements (IRE), Fleurus, Belgium.

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