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Collaborative Efforts between the Medical Isotope Production and the Nuclear Explosion Monitoring Communities

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ABSTRACT

The Medical Isotope Production (MIP) and nuclear explosion monitoring communities are increasingly aware of challenges created by radioxenon effluents from MIP thanks to meetings such as the fifth Workshop on Signatures of Medical and Industrial Isotope Production (WOSMIP), held in Brussels, May 2015. Radioxenon releases during fission based Mo-99 production are similar to signatures from a nuclear explosion. This similarity is attributable to a rapid release of encapsulated radioxenon during dissolution of the uranium target shortly after irradiation. Therefore, MIP inadvertently creates a global radioxenon background that can interfere with nuclear explosion monitoring efforts by the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO). The fifth WOSMIP provided an opportunity for experts from both communities to discuss the radioxenon issue, updates on isotope production methods, technologies used to measure radioxenon (at both MIP facility and monitoring locations), research and development targeted at reducing xenon emissions, and methods for data sharing between the communities.