

## Gas Background and Radiopharmaceutical Facilities

Since the introduction of radioxenon measurements in the CTBTO, it was found that radiopharmaceutical facilities are responsible for a large portion of nuclear signatures. Radioxenon usually does not cause radiation threats and since it is difficult to filter out, the emissions are substantially depending on production facility type. This is causing a challenge for the CTBT regime, as the contribution of these facilities need to be understood when monitoring similar emissions caused by a nuclear testing. The problem has been discussed within Workshops of Signatures of Medical and Industrial Isotope Production (WOSMIP). If possible, the reduction of emissions from the radiopharmaceutical facilities would be the optimal solution. Otherwise, the availability of close to real time emission data would help to calculate their contribution to the detections. One possibility is to measure the emission directly at the facility stack and report the measured radioxenon release, for example on hourly basis. If high quality data would be available, the contribution of the emission to the actual measurements could be calculated using atmospheric transport modeling tools. Recently, many organizations have performed background measurements to better understand the radioxenon background in the areas where data were previously not available.

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