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Data Quality Objectives for Radionuclide Techniques in an OSI

Under CTBT, many different radionuclide OSI technologies are considered including survey (aerial, vehicle, backpack, and handheld), environmental sampling with laboratory analysis (atmospheric noble gas and particulate, subsurface noble gas, soil, water, and biota), and in situ measurement. Due to the many limitations, such as manpower, time, and field environment, that an OSI will face it is important that the CTBT OSI regime possess well-chosen equipment. By establishing Data Quality Objectives (DQOs) for the various technologies, appropriate equipment and software can be procured or developed, appropriate concepts of operations during an OSI can be developed, as well as appropriate training. This requires a good understanding of the minimum detectable limits (MDLs) for the various techniques and what equipment options are available in terms of performance, power needs, and field operation. Based on measurements and a search of published literature, we have determined the achievable MDLs of the various equipment considered for use in a CTBT OSI and will present this and proposed Data Quality Objectives for radionuclide techniques in an OSI.

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