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, false negatives and false positives: dealing with RN detection in 2019

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Detection of relevant radionuclides in the International Monitoring System absent a nuclear test, and especially radioactive xenon isotopes, has been the subject of concern for over a decade. These relevant radionuclide detections are usually called “backgrounds,” and they are unavoidable due to the peaceful production of radioactive isotopes and other manmade phenomena. However, how we deal with these detections has not been clearly understood. This presentation seeks to explain at a high level how the detection of backgrounds may lead to both false positive alarms and false negative results, if the detections are not understood and accounted for in some way. We will give several easy to grasp examples, as well as report on a detailed study of the false positive rate that could be seen if fission-based isotope production occurred in the United States.

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