

AN INTERCOMPARISON STUDY ON GAMMA SPECTROMETRY METHODS USED BY FDA FOOD EMERGENCY RESPONSE RADIOLOGICAL LABORATORY NETWORK

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Proven analytical methods and a competent laboratory network are essential for the Food and Drug Administration (FDA) to implement food defense and safety measures under the Food Safety Modernization Act (FSMA). With growing risks imposed by global aging nuclear facilities and proliferation of radioactive materials, FDA faces increasing challenges in safeguarding the nation's food supply from radioactive contamination. In order to mitigate the imposing threats to food safety and public health, a radiological food emergency response network (FERN) consisting of federal and state laboratories was established. This network serves to strengthen the FDA's ability to respond to a radiological emergency. FDA's decision-making during a nuclear emergency will be based on large pools of data from diversified analytical methods. Ambiguous findings will inhibit FDA's ability to take prompt action on protecting food safety and public health. Measurement capability, data comparability, and an efficient data reporting mechanism are essential for emergency response when analytical data from cooperative laboratories are used for post-incident risk assessment and management. To evaluate different gamma spectrometry methods currently used by member laboratories for food analysis, an intercomparison study was conducted using water and various food samples containing mixed gamma radionuclides at different radioactivity levels. This presentation details the sample preparation and verification, insightful data analysis on evaluating method performance characteristics, and recommendations for developing harmonized methods for food analysis.