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Validation testing of radioactive Cesium measurement in Decontaminated waste with the Scattering Gamma Equivalent Method – 17238

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ABSTRACT

Canberra Industries, Inc. [CI], Now Mirion Technologies (Canberra) Inc. [MTC], has developed and validated a new Flexible Container Bag or Feed Roll Assay System 'FRAS' for Interim Storage Facilities [ISF] etc. There is an estimated 22 million cubic meters of soil and vegetation from the decontamination efforts around Fukushima. Removed soil and vegetation waste was put into flexible containers called Super Sacks [SS]. These SSs will be transported to ISF by trucks. These SSs will be divided into three categories according to total Cs radioactivity level (RL). This level is 'higher than 100,000 Bq/kg', '100,000>RL>8,000 Bq/kg' and '8,000 > RL >3,000 Bq/kg', respectively. The main uncertainty for SS measuring is internal inhomogeneity and heterogeneous source distribution. Japan Atomic Energy Agency [JAEA] has developed the Scattering Gamma Equivalent Model [SGE model] for decreasing uncertainty derived from these factors. This method was validated by Mirion Technologies (Canberra) KK [MCKK] and JAEA. According to the validation test, the SGE model can reduce the uncertainty of SS measurement from +/- 25% to +/- less than 15%.