

Participation in IAEA Proficiency Test to Analyse Cobalt, Strontium and Caesium in Seawater Using Direct Counting and Radiochemical Techniques

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Abstract—Radiation monitoring in the environment and foodstuffs is one of the main responsibilities of Office of Atoms for Peace (OAP) as the nuclear regulatory body of Thailand. The main goal of the OAP is to assure the safety of the Thai people and environment from any radiological incidents. Various radioanalytical methods have been developed to monitor radiation and radionuclides in the environmental and foodstuff samples. To validate our analytical performance, several proficiency test exercises from the International Atomic Energy Agency (IAEA) have been performed. Here, the results of a proficiency test exercise referred to as the Proficiency Test for Tritium, Cobalt, Strontium and Caesium Isotopes in Seawater 2017 (IAEA-RML-2017-01) are presented. All radionuclides excepting ^3H were analysed using various radioanalytical methods, i.e. direct gamma-ray counting for determining ^{60}Co , ^{134}Cs and ^{137}Cs and developed radiochemical techniques for analysing ^{134}Cs , ^{137}Cs using AMP pre-concentration technique and ^{90}Sr using di-(2-ethylhexyl) phosphoric acid (HDEHP) liquid extraction technique. The analysis results were submitted to IAEA. All results passed IAEA criteria, i.e. accuracy, precision and trueness and obtained 'Accepted' statuses. These confirm the data quality from the OAP environmental radiation laboratory to monitor radiation in the environment.

Keywords—International atomic energy agency, proficiency test, radiation monitoring, seawater.