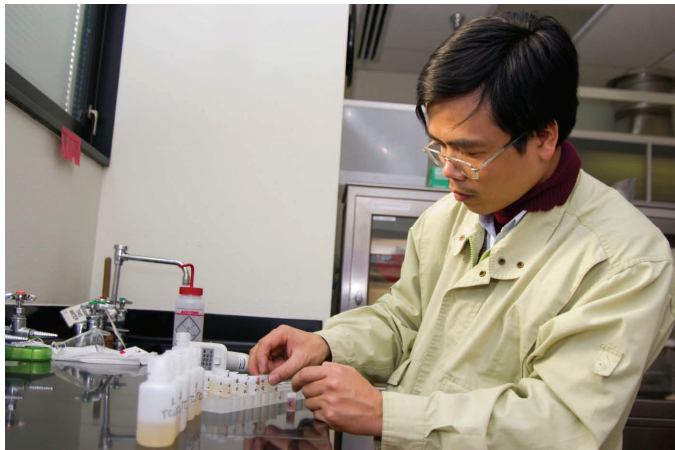




DAT TIEN NGUYEN: VIETNAM

Neutron Activation Analysis and Leaching Procedures with Soil.



Dat Tien Nguyen, a researcher from the Nuclear Research Institute of Da Lat, Vietnam, is currently on an IAEA sponsored three month fellowship. He is training with Dr. Steven Biegalski at the University of Texas at Austin, Nuclear Engineering Teaching Laboratory. The training Nguyen is receiving is part of the IAEA's TC project entitled: Ensuring the Safe Operation of the Dalat Research Reactor and Improvement of its Utilization.

During the first part of Nguyen's fellowship he analyzed heavy metals in soils through two neutron activation analysis (NAA) methods. These included the thermal neutron activation without cadmium filter method and the epithermal neutron activation with cadmium filter method.

He learned how to monitor the neutron flux by using cobalt wire and molybdenum wire, and also how to normalize neutron flux by using sulfur powder for each sample irradiation. Through the use of Compton suppression, instrumental NAA is enhanced for determining some elements such as Cu, Ni, Zn, and Hg. In particular, instrumental NAA can reduce the background or minimize spectral interferences.

In the next phase of his training, Nguyen used leaching procedures available at the laboratory to leach the heavy metals out of soil samples. He used two procedures for this: The first was the Toxicity Characteristic Leaching Procedure (TCLP) and the second was the Sequential Extraction Procedure. TCLP is designed to simulate landfill conditions to predict the mobility of both organic and inorganic contaminations present in solid or liquid wastes. Sequential Extraction is used to look at fractions likely to be affected by various environmental conditions.

In addition to his training at the University of Texas' Nuclear Engineering Teaching Laboratory, Nguyen recently attended the National Organization of Test, Research, and Training Reactors conference in Rockville, MD.

To conclude the fellowship, Mr. Nguyen will write a final report on the results from the NAA experiments that will be compiled and analyzed after extensive quality control and quality assurance investigations are conducted on the data.

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