Radiological Emergency Response and the Use of Search Dogs in Contaminated Environments

Abstract: Radiological emergency response is an important facet of nuclear engineering and essential to the continuation of peaceful uses of nuclear technologies. The United States established a robust program in this field almost 50 years ago to combat terrorism and to deal with the consequences of a radiological attack or accident. This talk will discuss aspects of the US mission and its emergency response assets as well as introduce work that researchers at Texas A&M University are currently conducting in this area.

One important subject of research in emergency response is the protection of personnel who respond to radiological disasters. Many studies have been conducted on the effects to humans exposed to radiation fields and contamination. However, no one has explored how animals used in these working conditions would be affected during such emergencies. Urban search and rescue (USAR) teams, for example, utilize dogs to locate victims following manmade or natural disasters. Dog handlers are required to wear respirators to protect them from potential air-borne contaminants. Unfortunately, USAR dogs cannot wear such protection because it would hinder their ability to smell trapped victims under rubble piles.

To better understand the effect on dogs under working conditions, researchers at Texas A&M University developed a procedure to safely expose them to radioactive material and track how digested and inhaled contaminants are transported through the body. This talk will conclude with a description of this research and provide the results of a test conducted with a yellow Labrador retriever. The results of this work are far-reaching and can also be applied to household pets and animals exposed to non-radiological air-borne contaminants.

Biography: Dr. Craig Marianno is the Deputy Director of the Center for Nuclear Security Science and Policy Initiatives (NSSPI) and an assistant professor in the Department of Nuclear Engineering at Texas A&M University. Prior to coming to Texas A&M he worked as a contractor for the US National Nuclear Security Administration for 9 years and was a deployable member for many of their emergency response teams. At Texas A&M his research has been in the areas of nuclear counter terrorism, instrumentation development, radiological consequence management and environmental health physics.

Tuesday, 10/15/2019
12:00 PM, ERB 106