

Session 11: Radiological Decontamination Technology Development and Testing at the National Homeland Security Research Center

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Abstract:

There are many challenging issues surrounding the response to a terrorist event involving a radiological dispersal device (RDD) or “dirty bomb”. Although the location of a potential RDD attack is impossible to predict, it is generally believed that it would most likely occur in an urban area because of the high population density, high commercial value of the real estate, the potential to cause economic disruption, and the ability to achieve maximum propagandist effect. Returning the affected area to use as quickly as possible is highly desirable, as well as is minimizing the cost to do so. Of the many important issues surrounding the cleanup process for an RDD event, two of particular interest to the U.S. Environmental Protection Agency (EPA) are (1) how to reduce the total area requiring cleanup (the “footprint”), and (2) how to maximize the effectiveness of cleanup efforts. The Decontamination and Consequence Management Division of EPA’s National Homeland Security Research Center (NHSRC) is currently conducting research and encouraging development of effective technologies for radiological decontamination of buildings and outdoor areas following an incident of radiological terrorism. Several projects being pursued at NHSRC are directly related to enhancing preparedness for, and recovery from, an incident involving an RDD. Project work presented in this paper includes the development of performance requirements and standards for radiological sequestration coatings intended for wide area application to the exteriors of buildings, critical infrastructure, and outdoor areas, and performance testing of commercial off-the-shelf decontamination technologies applicable to these settings.

Biographical Sketch of John Drake:

Mr. John Drake is an environmental engineer with the Decontamination and Consequence Management Division of the EPA’s National Homeland Security Research Center (NHSRC). His principal area of expertise involves radiological decontamination technology development and application. Prior to joining NHSRC in 2005 he was with the US Department of Energy (DOE) West Valley Demonstration Project in New York where he managed the decontamination and decommissioning activities of a former commercial nuclear fuel reprocessing facility. Prior to that he worked for the Department of Defense and was involved in machinery research and development for the US Navy including shipboard environmental and waste processing equipment. Mr. Drake received his B.S. and M.S. degrees in Mechanical Engineering from the Pennsylvania State University, and is a Registered Professional Engineer. John’s current research interests include development and testing of radiological decontamination technologies and processes applicable to buildings and outdoor areas, specifically targeting the urban RDD (“dirty bomb”) and improvised nuclear device (IND) scenarios. He is also pursuing research projects to provide technical information and guidance to support response and recovery operations associated with RDD/IND events.