REAEROSOLIZATION OF HAZARDOUS MATERIALS: WHAT GOES DOWN, CAN GO BACK UP AGAIN

Tactics And Methods For Prevention Of Resuspension Of CBR Contaminated Particles

Matthew Magnuson US Environmental Protection Agency/Office of Research and Development/Center for Environmental Solutions and Emergency Response **John Archer** US Environmental Protection Agency/Office of Research and Development **Shannon Serre** US Environmental Protection Agency/Office of Land and Emergency Respond/CBRN Advisory Team **Terry Stilman** US Environmental Protection Agency/Region 4/Superfund and Emergency Management Division

Following a chemical, biological, or radiological (CBR) incident, a safe corridor is needed for movement of military/civilian personnel and material through contaminated areas. To illustrate, secondary resuspension of radioactive particle contamination due to mechanical means, such as troop movements, civilian evacuation, vehicles, foot traffic, wind, etc. may increase personnel exposure and diminish effectiveness of remediation efforts. Our recent literature review, in collaboration with the Department of Homeland Security, of the physics of resuspension of radioactively contaminated particles led to development of tabulated, recommended values for specific conditions in the crisis management phase of a response to help users of plume and dosimetry models to conservatively incorporate the potential radiation dose posed by mechanically induced resuspension.

These physical models can also be used to optimize selection, placement, and application of stabilizing materials, which help to reduce contaminant resuspension. Military and civilian CBR scenarios may be able to utilize stabilizing materials for contaminated surfaces to minimize contaminant resuspension, thereby reducing potential inhalation exposure. However, there are many considerations in the use of stabilizers for real-world scenarios to maximize their operational use.

This presentation will discuss how the physics, chemistry, and characteristics of CBR particles, as well as stabilizers, serve to inform remediation efforts for a particular release scenario and location. It will highlight past, current, and future collaborative efforts by DOD Irregular Warfare Technical Support Directorate (IWTSD), US Environmental Protection Agency (EPA), and international partners. The presentation will include progress over the past decade, publications establishing technical underpinnings, and future plans including field scale testing results.
The impact of these efforts will be inexpensive and rapidly deployable technologies and situation specific application guidelines to:

Stabilize/manage resuspension and tracking of CBR contamination from contaminated areas.
Reduce personnel exposure, spread of contamination, and help prevent protracted or repeated decontamination efforts.
In turn, help reduce the impact of CBR releases on military and civilian missions. For example, an adversary's weapon and strategy for area denial could be rendered ineffective by rapid deployment of appropriate CBR stabilizers.

Disclaimer: Financial support by IWTSD does not constitute an express or implied endorsement of the results or conclusions of the project by either IWTSD, Office of ASD SO/LIC, or the Department of Defense. Any opinions contained herein are those of the authors and do not necessarily reflect those of DHS S&T.