26th Annual International Conference on Soils, Sediments, Water and Energy
October 18-21, 2010
Amherst, MA
Luncheon Presentation

PRESENTER: Annetta Watson, Ph.D. Toxicology and Hazard Assessment, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN

TITLE: Developing Health-Based Pre-Planning Clearance Guidelines for Site Remediation Following a Chemical Terrorist Attack

ABSTRACT:

In the event of a chemical terrorist attack on a transportation hub, post-event remediation and restoration activities necessary to attain unrestricted facility re-use and re-entry could require hours to multiple days. While timeframes are dependent on numerous variables, a primary controlling factor is the level of pre-planning and decision-making completed prior to chemical release. The presenter and co-authors have identified key considerations, critical information and decision criteria to facilitate post-attack and post-decontamination consequence management activities.

The presented clearance decision criteria analyses provide documentation of multi-pathway, health-based remediation exposure guidelines for 3 selected toxic industrial compounds (hydrogen cyanide, cyanogen chloride, phosgene) and 6 chemical warfare agents (5 nerve agents and the vesicant agent sulfur mustard) as well as agent degradation products) for pre-planning application in anticipation of a chemical terrorist attack. Guideline values are provided for inhalation and direct ocular vapor exposure routes as well as percutaneous vapor, surface contact, and ingestion. Target populations include airport employees as well as transit passengers.

This work has been performed by the US Department of Homeland Security as a national case study conducted in partnership with the Los Angeles International Airport and The Bradley International Terminal. All recommended guidelines have been selected for consistency with airport scenario release parameters of a one-time, short-duration, finite airborne release from a single source followed by compound-specific decontamination.

This work was prepared for the Chemical Restoration Operational Technology Demonstration Project of the U.S. Department of Homeland Security under U. S. Department of Energy (DOE) Interagency Agreement No. 2367-T146-06. The Oak Ridge National Laboratory (ORNL) of Oak Ridge, TN is managed and operated by UT-Battelle, LLC, for the U.S. Department of Energy under Contract No. DE-AC05-00OR22725.