

Release Mitigation Spray Safety Systems for Chemical Demilitarization Applications

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Sandia National Laboratories has conducted proof-of-concept experiments demonstrating effective knockdown and neutralization of aerosolized CBW simulant clouds using charged DF-200 decontaminant sprays. DF-200 is an aqueous decontaminant, developed by Sandia National Laboratories and procured and fielded by the US Military. Of significance is the potential application of this fundamental technology to numerous applications including mitigation and neutralization of releases arising during chemical demilitarization operations.

Sandia National Laboratories has recently secured funding from the Project Manager for Non-Stockpile Chemical Materiel (PMNSCM) to investigate use of these mitigation spray systems for chemical demil applications. In the non-stockpile processes, mitigation spray systems co-located with the current Explosive Destruction System (EDS) will provide security both as an operational protective measure and in the event of an accidental release. Additionally, "tented" mitigation spray systems for foreign remediation will contain accidental releases arising from removal of underground, unstable CBW munitions. A mitigation spray system for highly controlled stockpile operations will provide defense from accidental spills or leaks during routine procedures.

Our project will first investigate candidate decontaminant chemistries for compatibility with current chemical monitoring systems. We will then model, analyze and test to design an optimized spray safety system that will effectively mitigate release in an operational geometry and environment. A prototype spray system will be built, characterized and demonstrated. Finally, a prototype spray mitigation safety system will be installed and tested in the selected Pine Bluff Arsenal operational environment, for protection in the demilitarization process of German Traktor Rockets.

Operational Benefit: A release mitigation spray safety system will remove airborne contaminants from an accidental release during operations, to protect personnel and limit the spread of contamination.

