

# Aggressive Defense



## Infrastructure Consequence Control

*Actions that limit damage to infrastructures, reduce recovery time from attacks, and mitigate economic impacts to communities*

### Threat vs. Response

Clearly, the perceived threat against our nation and our allies changed on 9/11. We now recognize that our enemies are willing to use the most destructive means available to harm us, including nuclear, chemical, or biological weapons. These materials can be spread using high explosives, a nuclear blast, or other conventional or non-conventional avenues. Any debris plume that is created spreads further with winds. Depending on the

material and weather, plumes can expand for hours or days. The current approach in responding to a spreading plume of contamination is passive or ad hoc. Responders allow the plume to contaminate infrastructure, take samples to determine the extent of the contamination, determine how to decontaminate the infrastructure, and then work to bring the infrastructure back to function.

By taking advantage of the time it takes for a plume to spread, we can undertake well-planned and rehearsed actions that will limit the damage from a spreading plume, thus reducing the recovery time needed to bring critical infrastructures back into service, and more quickly restoring our economic performance. This fight-back approach is used today in many conventional situations such as firefighting or spill prevention. For example, a city will shut intakes of its

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water supply when upstream water is contaminated by a chemical spill. This immediate action limits damage to the water system and reduces or eliminates the time it would take to recover from system contamination.

### The Concept

The INEEL Infrastructure Consequence Control program has been created to identify and develop actions communities must take when faced with a spreading plume of nuclear, chemical, biological or other contaminant substances to protect down-range critical infrastructures. These actions –based on sound engineering principles and built on detailed understanding of each infrastructure – will limit consequences of a plume. Infrastructure Consequence Control is analogous to consequence control of a structural fire. Firefighter stake well-practiced actions to limit structural damage, reducing recovery time for the structure and its functions. The Infrastructure Consequence Control program will develop playbooks that municipali-

ties can use to limit damage and reduce recovery time. The playbooks will provide the basis to train those who operate and maintain our critical infrastructures on how to respond to the threat of a spreading plume, and if necessary, detail actions required to aggressively defend critical infrastructures.

**Infrastructure Consequence Management is a component of the INEEL Critical Infrastructure Test Range – focusing on the larger mission of developing, testing and validating technologies, systems and processes that protect the nation's critical infrastructure.**

The INEEL Infrastructure Consequence Control program will result in a more aggressive approach when responding to the threat of contamination resulting from terrorist or other events that create a plume.

### INEEL Expertise

INEEL engineers have designed, built and operated the complex critical infrastructures supporting

operations on the 890-square-mile site. The Laboratory's scientists, engineers and technicians work with customers on numerous projects that support industry and Department of Defense critical infrastructures. INEEL scientific expertise include chemical agent assessment for the military to nuclear, chemical and biological agent detection and decontamination efforts. INEEL used its disaster response expertise in Olympic exercise support, energy industry exercise support, and response to the New York City 9/11 attacks. INEEL understands plume patterns, environmental interactions, and containment methods. INEEL's Critical Infrastructure Test Range allows customers to do component or full-system tests on a complex, integrated infrastructure to develop data for response to actual infrastructure attacks.

### The Solution

INEEL is the right place to develop critical infrastructure consequence control playbooks to ensure our nation is prepared to actively defend our infrastructures in the event of a nuclear, chemical, biological or other contaminating event. An active defense will allow more rapid recovery, thus limiting *potential* and *predictable* economic damage.

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**An aggressive approach to defending critical infrastructure will limit the consequence of a nuclear, chemical or biological event and allow more rapid recovery.**