

DHS Science and Technology Directorate

First Responders Group – Radiological Emergency Management System (REMS)

REMS benefits first responders and the public

The Radiological Emergency Management System (REMS) is a post-event radiation sensor network designed for response and recovery after a release of radiation in an urban area, whether accidental or deliberate. Sensors distributed throughout a city at fixed rooftop sites transmit real-time data to a central command center, where emergency management officials can determine the scope of a radiological incident. Access to this data provides several benefits to emergency management officials, including:

- A *single* picture of the threat in the earliest moments of the incident;
- Critical information about radiation levels *before* responders enter the affected area;
- Guidance on which areas to evacuate and which to shelter-in-place;
- Timely and accurate information for the public about potential radiation exposure to reduce panic and prevent unnecessary evacuations; and
- Predictions of the path of the radioactive plume and advance warnings for affected areas, when integrated with an atmospheric dispersion model.

REMS development, testing, evaluation, and commercialization

Shortly after September 11, 2001, the concept of a city-wide response and recovery system for a radiation emergency was created and put into action. Several designs were tested before the REMS system was proven in a six-year pilot project, during which data was monitored at the New York City Office of Emergency Management. The pilot's success led the New York City Police Department (NYPD) to commit to implement REMS city-wide.

The National Urban Security Technology Laboratory (NUSTL), a U.S. Department of Homeland Security Science and Technology Directorate (DHS S&T) facility, developed the initial concept and design for REMS. Through a Cooperative Research and Development Agreement with a major instrument manufacturer, NUSTL turned this concept into a commercial product. Today, these REMS sensors are being manufactured and installed on buildings throughout the city in a staged deployment, and data is being monitored in real-time at an NYPD command and control center.



REMS sensor installation in New York City

NUSTL supports the NYPD in deploying REMS

NUSTL does not own or operate the REMS network; rather, it provides scientific expertise and services to the NYPD in support of their REMS implementation. NUSTL performs independent sensor testing and has developed a comprehensive test plan to ensure the proper operation of sensors, communications, and system software. The NYPD consults with NUSTL often on issues like choosing optimal sensor locations and making use of the federal reach-back capability.

What's next?

REMS offers an enhanced response and recovery capability for radiological/nuclear incidents, potentially saving lives. REMS may also reduce economic losses by lowering medical treatment costs, reducing the number of “worried well” (people who seek treatment fearing radiation exposure yet were not actually exposed), and diminishing worker productivity losses.

REMS is becoming a model for other U.S. cities. NUSTL recently shared its New York City REMS experience in a detailed lessons learned report and is now seeking to transfer the technology to other cities interested in a post-event radiation detection and monitoring network. Visit the DHS S&T First Responder Communities of Practice (<https://communities.firstresponder.gov>) to view the report and learn more about how to implement REMS in your city.



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To learn more about the Radiological Emergency Management System initiative, contact SandTFRG@hq.dhs.gov or visit <https://communities.firstresponder.gov>.