

# THE SIREN



A First Responders Group (FRG) Newsletter

Fall 2017

## New York Responders Train For Critical Incident Response



Early the morning of October 29, approximately 200 New York City first responders came together in Grand Central Terminal alongside S&T technical experts and observers to conduct a critical incident training exercise and test out some new technologies provided by the Science and Technology Directorate (S&T).

The New York Police Department, the Fire Department of New York, the Metropolitan Transportation Authority Police Department, New York State Police and the National Guard held the exercise to evaluate tactics, techniques and procedures they would use while responding to a critical incident. S&T, through its [National Urban Security Technology Laboratory](#) and [Homeland Security Advanced Research Project Agency](#), inserted relevant technologies into the exercise to assess their capabilities in improving first responders' preparedness and response to a large-scale, urban, critical incident.

"We know that having the right technology in the hands of a first responder can save critical minutes or seconds — and reduce injuries and save lives," said the Senior Official Performing the Duties of the Under Secretary for S&T William N. Bryan. "The needs of responders and the public are at the center of every decision we make as S&T works to leverage new technology to make our nation's first responders better protected, connected and fully aware, regardless of the hazards they face."

S&T has engaged with first responders in seven similar exercises since 2013 in New York, New Jersey and Massachusetts at schools, a movie theater, a synagogue, a subway station, a college and a major league baseball stadium.

"The world we live in today demands that we have the training and capability to respond to incidents in any public environment. The recent horrific mass shooting in Las Vegas has unfortunately demonstrated that this exercise is timely and relevant," Mr. Bryan said.

This exercise provided a valuable platform to evaluate and assess existing and emerging technologies that could be deployed in the future, and made it possible for attendees to evaluate new tactics, techniques and procedures. S&T remains committed to improving the technology and equipment responders use so they can do their jobs more quickly, efficiently and with greater situational awareness — and return to their families safely at the end of their shift.

### In This Issue:

***New York Responders Train For Critical Incident Response***

***P25 CAP: Key Achievements & What's On Deck***

***AUDREY: Assisting Responders Through Artificial Intelligence***

***A Change Marks Three Years of the International Forum to Advance First Responder Innovation***

***FRG Makes a Strong Showing at IACP in Philadelphia***

***New Turnout Ensemble Aims to Reduce Firefighter Cancer Risk***

### Video Spotlight



**View more videos on the [FRG Video Page](#)**



**Homeland Security**

Science and Technology

## FRG in the News

[DHS First Responders Group Develops Mutual Aid Planning Prototype App](#)

[P25 CAP Explores Options for ISSI/ CSSI Testing](#)

[Can IoT Protect Communities When the Next Floods Come?](#)

## Check out the latest FRG Articles

[S&T-funded Tech Aids Search Following Mexico Quakes](#)

[U.S.-Canada to Test Cross-border Communication for Disaster Response](#)

[New Turnout Ensemble Aims to Reduce Firefighter Cancer Risk](#)

[DHS S&T Awards \\$4.8 Million to Center for Innovative Technology to Enhance Smart Cities](#)

**Check out the S&T Newsroom for more Responder News!**

## P25 CAP: Key Achievements & What's On Deck

First responders must exchange communications seamlessly across disciplines and jurisdictions to successfully respond to emergencies. While many products and applications from various suppliers support radio communications, product incompatibilities can compromise response operations.

Project 25 (P25) is a suite of standards that enables interoperability among digital two-way land mobile radio communications products. Congress legislated the P25 Compliance Assessment Program (P25 CAP) to ensure equipment complies with P25 standards for interoperability across suppliers. P25 CAP is a partnership between FRG's Office for Interoperability and Compatibility (OIC), industry and the emergency response community. Focus areas have recently expanded, and the program's momentum has accelerated significantly. The CAP celebrates the following key milestones:

The P25 CAP Advisory Panel (AP)'s membership of 10 was established to provide OIC with federal, state, local, tribal and territorial perspectives on portable, handheld and vehicle-mounted radios and infrastructure equipment. Through the P25 CAP AP, OIC supports the collective interest of organizations that procure P25-compliant equipment. Since its inception, OIC and the AP have closely and robustly collaborated to realize many new stakeholder resources and streamlined processes. The AP holds open meetings for increased transparency.

OIC has had a renewed focus on building and updating the [P25 CAP website](#), which is a popular channel for P25 stakeholders to stay abreast of the latest updates, and is consistently one of the top visited pages on the [First Responders Group website!](#)

OIC and the AP have together produced numerous Compliance Assessment Bulletins (CABs), which serve as guidance and knowledge products for manufacturers and purchasers of P25 CAP compliant products, including a detailed set of Frequently Asked Questions. Draft CABs have been released for public comment period, allowing for ample stakeholder feedback. One stand-out example of a new CAB came about recognizing the numerous challenges posed by the fact that encryption standards had not been part of the initial P25 CAP compliance requirements.

In March of this year, a change in the P25 CAP listing of grant-eligible radio equipment for first responders was announced. In order to be fully compliant with all P25 CAP requirements, radio equipment that requires encryption must use Advanced Encryption Standard (AES) 256. Equipment that uses proprietary or other non-standard encryption capabilities without also providing the AES 256 capability does not meet the requirement specified in the Encryption Requirements CAB. This change would resolve the issue of manufacturers providing non-P25 standard encryption algorithms that would ultimately cause interoperability issues.

## AUDREY: Assisting Responders Through Artificial Intelligence

When responding to an emergency, first responders are faced with overwhelming amounts of information. With the volume of data from next generation communication tools, responders may not have time to synthesize life-saving information to do their job. In October, [Next Generation First Responder \(NGFR\) Apex Program](#) Director John Merrill partnered with NASA Jet Propulsion Laboratory and traveled to Grant County, WA and Sacramento, CA to introduce the [Assistant for Understanding Data through Reasoning, Extraction and Synthesis \(AUDREY\)](#), the state-of-the-art human-like reasoning system developed to assist first responders in synthesizing high-level data, while at the scene of an emergency.

AUDREY gathers all information - from the scene of an emergency to responders' physiological monitoring, to paint a complete picture and provide the necessary data for the first responders on the ground and to those tasked with managing and directing incident response from a higher level. Ultimately, AUDREY provides more comprehensive situational awareness for all involved in responding to an emergency.

Both Grant County's Multi-Agency Communication Center and Sacramento's Cosumnes Fire Department will pilot AUDREY for 12 months and provide feedback on AUDREY's integration with first responder communications within the next six months. The AUDREY pilot continues an established partnership between DHS and Grant County which began earlier this year during the June 2017 Grant County – DHS Technology Experiment.

Cosumnes Fire Department Chief Michael McLaughlin anticipates that the pilot will change how the fire service does business that currently relies on the existing knowledge, skills and abilities of the responders, "AUDREY brings together relevant data that will increase situational awareness that will improve decision making and enhance the safety of our personnel and the citizens we are sworn to protect."

## [A Change Marks Three Years of the International Forum to Advance First Responder Innovation](#)

From October 25-28, the [International Forum to Advance First Responder Innovation \(IFAFRI\)](#), an organization of international government leaders focused on enhancing and expanding the development of affordable, innovative technology for first responders worldwide, held its annual meeting in Tokyo. Since its official launch at the International Association of Chiefs of Police (IACP) in October 2015, IFAFRI has been chaired by FRG Director Dan Cotter. During this year's annual meeting, the IFAFRI accepted the nomination for the European Commission (EC) to assume Chair of the organization.

Although the EC has assumed the Chair position, FRG will continue to capitalize on the relationships and structure of the IFAFRI, to increase the opportunities available to FRG initiatives and efforts. Now, in lieu of managing the day-to-day operation of IFAFRI, FRG's efforts in the organization will focus more on stakeholder and industry engagements, and driving home the development of more affordable, innovative technologies for American first responders. The full transition of the Chair is expected to take place by spring 2018.



Said FRG Program Manager K. Phil Waters, "We have built the structure and partnerships, now is the time to take all of that and to create more opportunities for the American industry and American first responders. By expanding the markets available to both, we are creating multiple opportunities, in real-time."

The next steps for the IFAFRI are to further interact with industry, establish and host a US-based industry event, host a social media campaign, and engage with key stakeholders at the United Kingdom Security and Policing event in March 2018.

## [FRG Makes a Strong Showing at IACP in Philadelphia](#)

FRG participated in the annual IACP Meeting, October 21-24. At the show, FRG Program Managers Angela Ervin, Sridhar Kowdley and Milt Nenneman directed speaking and exhibit outreach engagements. Sridhar kicked off the week by giving a couple presentations to law enforcement officers, commanders and governmental partners. His remarks addressed FRG's impacts on advancing officer safety through technology and training as well as the impact of illegal [electronic jamming](#) on securing communications resilience during emergency response and recovery operations. In an age of technology advances and evolving threats, each discussion served as a reminder of the important FRG work underway on behalf of responders who risk their lives daily to keep us safe.

Another highlight of the week was FRG's exhibit outreach and the various technology demonstrations held in the booth. Angela offered tutorials on the [Lost Person Locator](#), a tool for rapidly initiating lost person searches in wilderness, rural and urban locations by determining the most promising areas to initiate a search.

Milt set up an interactive classroom for law enforcement officials to participate in FRG's complimentary [EDGE \(Enhanced Dynamic Geo-Social Environment\)](#) virtual training. EDGE is an online tool for helping fire, police, EMS and command center personnel train for coordinated responses to emergencies, including active shooter, hostage and fire. The demonstrations showed how EDGE improves coordination and communications while explaining its potential for helping security officials mitigate the loss of lives for both day-to-day and large-scale emergencies. EDGE allows multiple trainees from a single agency or cross-agency disciplines to come together in real-life complex scenarios.



IACP brings together over 16,000 police executives from around the globe, providing a great opportunity for FRG to engage with them, demonstrate key technologies that can help their organizations, inform them of the resources available through FRG, and build new beneficial relationships to continue working towards FRG's mission to help provide responders with the tools and resources they need. Keep up with our upcoming events through our events calendar: <https://www.dhs.gov/science-and-technology/events>.

## [New Turnout Ensemble Aims to Reduce Firefighter Cancer Risk](#)

A new suite of personal protective equipment (PPE) may provide firefighters with protection from exposure to carcinogenic vapors and particulate matter (microscopic solid or liquid particles from the smoke that gets mixed into the atmosphere) at incident sites. The [Smoke and Particulate Resistant Turnout Ensemble](#) (SRT), developed by FRG in partnership with the North Carolina State University Textile Protection and Comfort Center (TPACC) and tested by first responders, is now available for agencies to purchase from LION First Responder PPE, Inc.

[“According to our colleagues at the National Institute for Occupational Safety and Health \(NIOSH\), the increased rate of cancer among members of the fire service, as compared to the general public, is quite alarming,”](#) said FRG Program Manager Bill Deso, who led the research and development effort. [“NIOSH studies have determined that over time, chronic exposure to toxic particulates in fireground environments contributes significantly to an increased cancer risk. We worked with TPACC and LION to develop turnout ensemble garments that afford firefighters the same level of fit, functionality and comfort as their existing turnout gear with added protection from particulate infiltration at garment interfaces.”](#)

Small gaps in areas around the wrists, ankles, chest, stomach and neck allow infiltration of particulates into existing turnout gear. While the self-contained breathing apparatus protects responders’ respiratory tracts from combustion products in smoke and soot, hazardous vapors and particulates can still be absorbed into their skin when smoke penetrates these PPE interfaces.



To mitigate this, FRG developed two SRT ensemble concepts based on LION’s V-Force® turnout garments. The first concept, now available for purchase, consists of a jacket and pants with particulate impermeable fabrics at the wrists, calves and ankles and in an internal skirt structure in the coat that prevents particulates from entering the abdomen/chest area. All of the protective features added to the V-Force® garments to develop the SRT concept garments can also be retrofitted into existing turnout gear.



The second ensemble concept also incorporates these enhancements, minus the particulate skirt structure in the jacket. The pants include a removable bib that covers the upper chest, adding protection from particulate infiltration for the chest area. This ensemble should be available for review at the 2018 FDIC Conference. Both ensembles are currently National Fire Protection Association (NFPA) 1971, 2013 edition certified. They will be certified to the NFPA 1971, 2018 edition in the near future.

FRG, TPACC and LION recently conducted an operational field assessment of the ensembles with several firefighters at the U.S.

Fire Administration Academy in Emmitsburg, Maryland. “In the fire service as a whole, the cancer rates are way beyond the acceptable levels. Exposure to particulate matter and when the gas vapors come through, that’s huge,” said Steve Vandewalle of the San Diego Fire-Rescue Department.

Jason Smith of the Montgomery County (Maryland) Fire-Rescue Department agreed. “The ensemble that they’ve created is a great first step. It’s taking one facet of potential exposure and removing it from the system...It’s definitely a step in the right direction.”



## Helpful Links

