

OPEN SIG July 21, 2010

Call: 1-800-366-7242 PIN: 3647 6736#

Please mute your phone. Do not put call on hold.

IPAWS-OPEN 2.0 Update

Gary Ham, DM System Architect

ICBRNE Program Overview

Teresa Lustig, Program Manager

DHS Science and Technology

Jeff Waters, Scientist

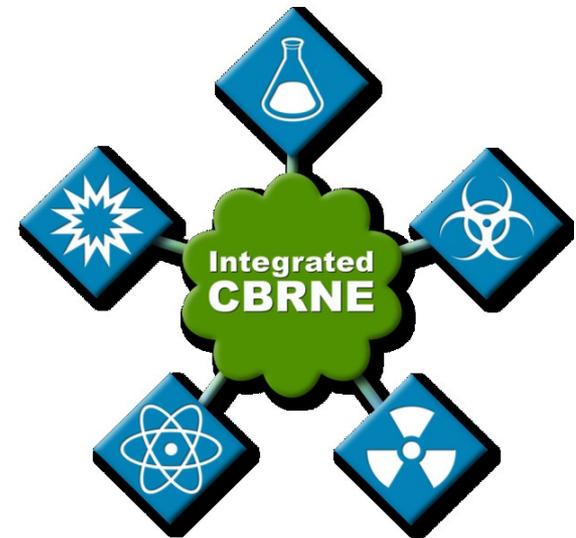
SPAWAR Systems Center, Pacific

<http://www.FEMA.gov/disastermanagement/>

Integrated Chemical, Biological Radiological, Nuclear and Explosive (ICBRNE) Project

Teresa Lustig
Program Manager

Threat Characterization and Attribution
Chemical and Biological Division
DEPARTMENT OF HOMELAND SECURITY



Agenda

- Project Overview
- Schedule
- Technical Approach, Progress and Deliverables
 - Local pilot activities
 - Test-bed activities
 - Golden Phoenix Exercise
- Transition Strategy



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Integrated CBRNE Overview

Objective:

- Addresses the concerns expressed that directed efforts be taken to reduce communications gaps that arise from disparate CBRNE systems.
- Enhance Multi-jurisdictional Information Concept of Operations
- Use Federal open standards and protocols.

Goal:

Integrate interoperability standards and mechanisms with local policies and procedures to increase communication between both federal and first responder CBRNE sensor systems

Technical Approach:

- Perform pilot demonstrations in the five cities
- Inventory equipment and systems
- Integrate vendors, equipment and standards
- Enhance ConOps from resulting integration
- Train Emergency Responders
- Operational deployment and drills



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Los Angeles Metrics

- Los Angeles County
- 88 incorporated cities
- Largest population (over 10 million) in the nation
- Coastline of 81 miles
- 4,084 square miles



Los Angeles City
Second largest city in US
3.8 M population
498 square miles

Universal, ABC,
CBS, NBC, Disney
Studios

Kodak Theatre
(Academy Awards)

Convention Center

Staples Center

Rose Bowl

Downtown Area

LA/Long Beach

LAX

Ports

Los Angeles Coliseum

Hollywood (sign)



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ICBRNE Who is Involved

Every Los Angeles Regional Hazmat Team

Los Angeles City Fire	Los Angeles County Fire
Sheriff	LAPD
County Health Rad Mngt.	County Health Hazmat
Coroner	Burbank Fire
Glendale Fire	Santa Fe Springs Fire
LAX	Joint Hazard Assessment Team

▪ In Process

Santa Monica	Vernon
Torrance	Port Police
Long Beach	Ontario/Inland Empire
Port of Los Angeles	Port of Long Beach
MTA	



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ICBRNE Who is Involved

Outside Los Angeles – Public Safety

San Francisco Fire

US EPA ERT

Air National Guard

San Louis Obispo Fire

NYPD Counter Terrorism

Tinker AFB

▪ Private Industry

NEC

Qantas Airlines

Frontier Oil

AClean

▪ Original Equipment Manufacturer (OEM)

Bruker Detection

ThermoFisher

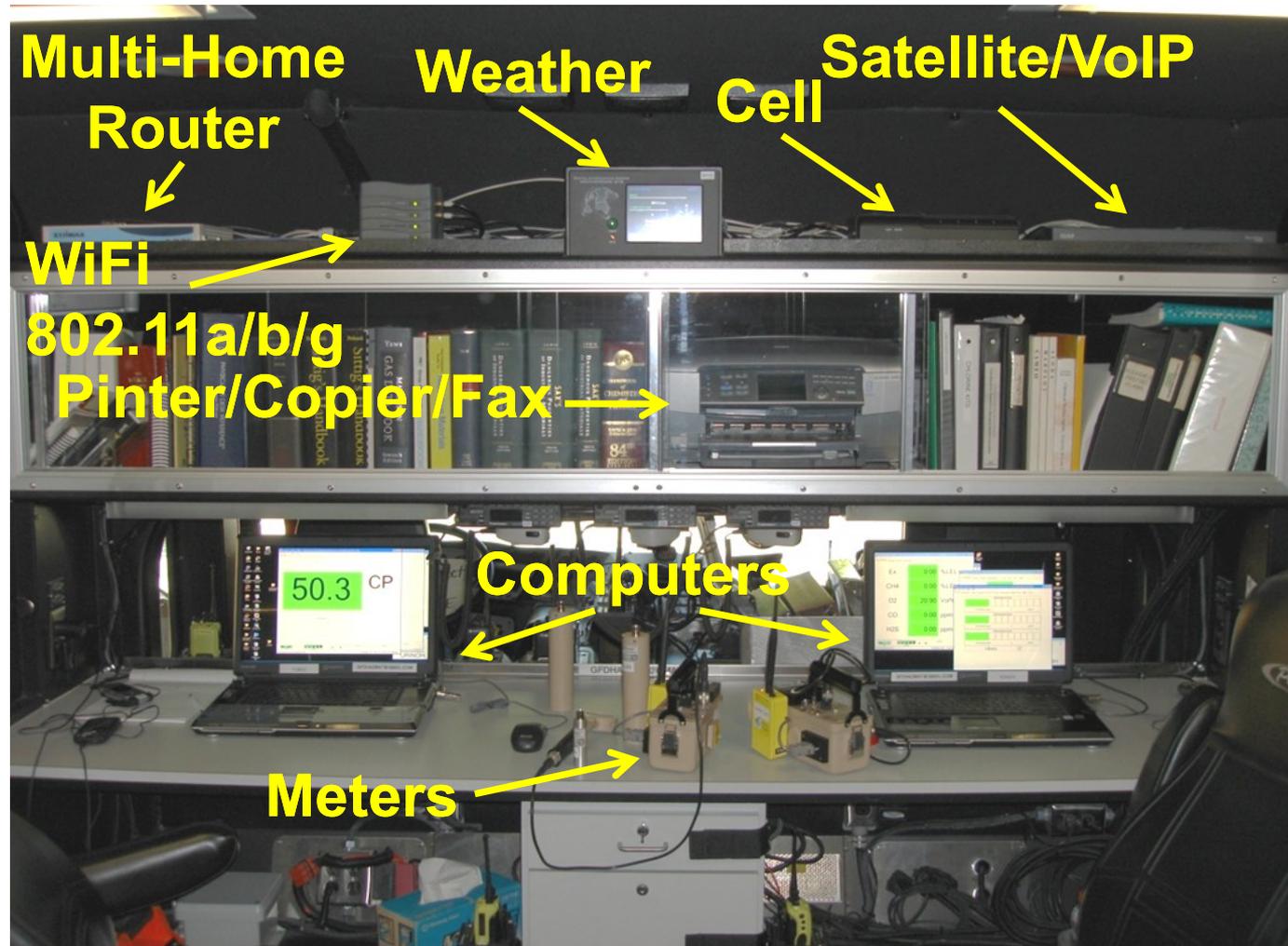
Draeger Safety

Envionics



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ICBRNE – LA Fielded System



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ICBRNE – LA Fielded System

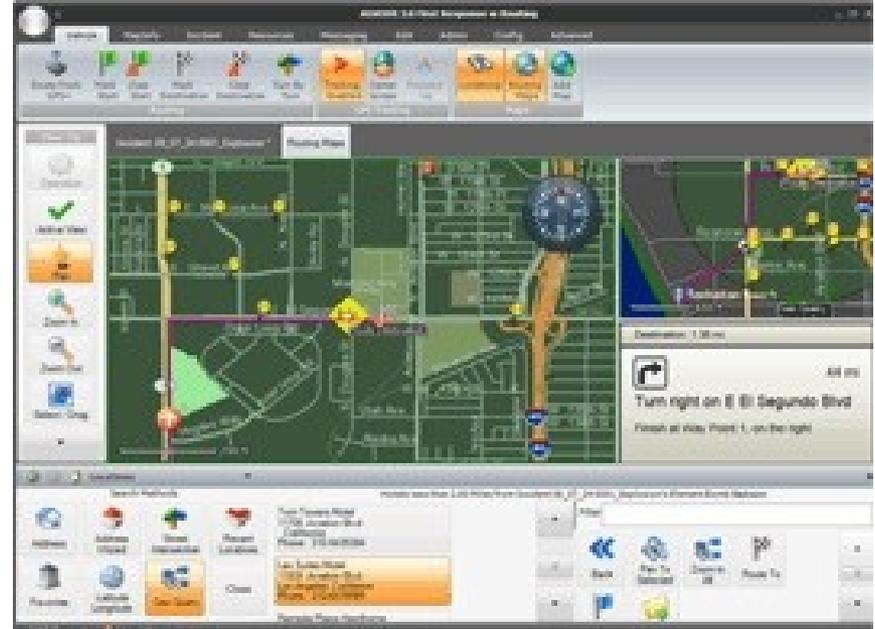
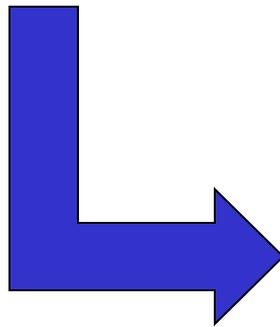


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Related Projects



ICBRNE Integration with the
Tactical Information Program
(TIP)



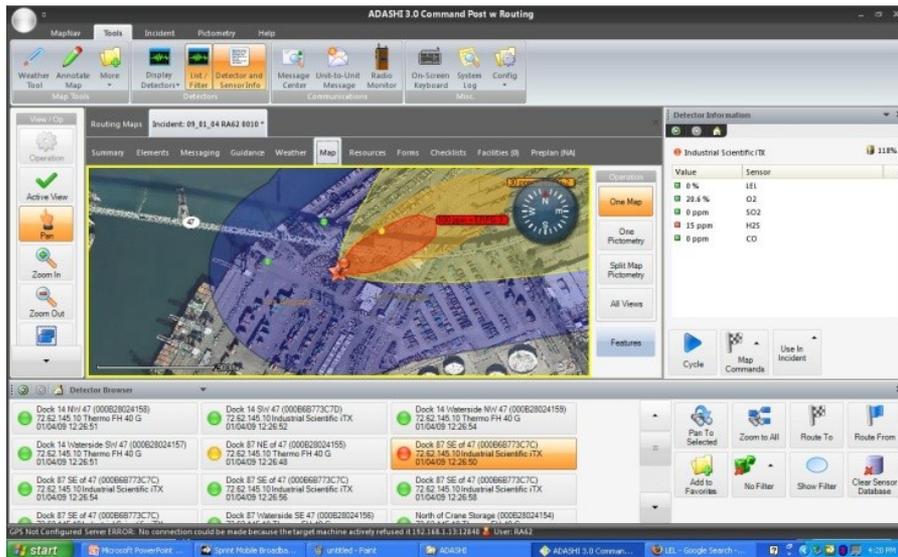
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ICBRNE – LA Fielded System



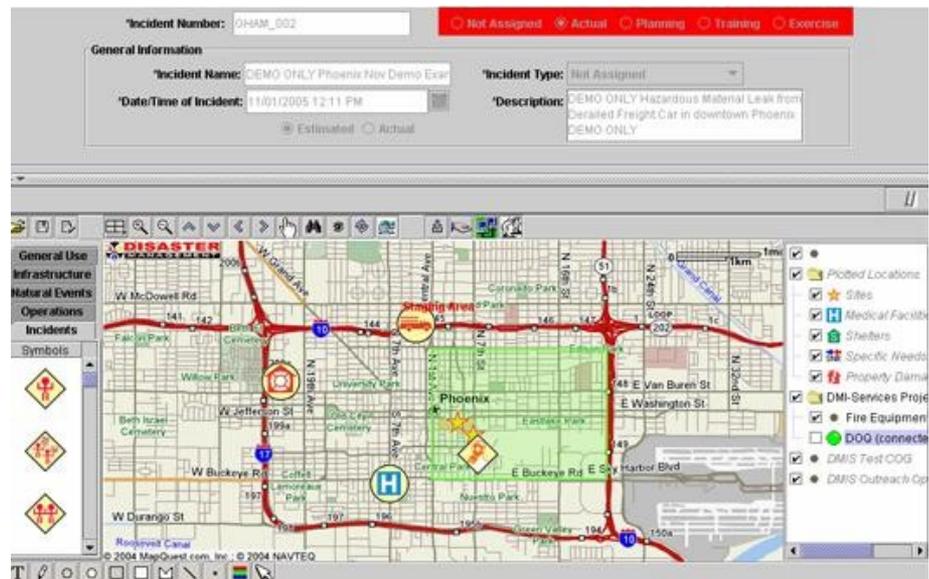
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ICBRNE – LA Fielded System



Direct commercial product integration—
Ex: ADASHI

Federal (FEMA) System—
OPEN/DMIS



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ICBRNE Major Pilot City

Demonstrations: Los Angeles

United Harbors 09/10
CST West Coast
National Radiological
Exercise

Integrated with Every significant
Hazmat Team in the greater
Los Angeles Region



Rose Parade
Rose Bowl/BCS

USC/Ohio State

Used in routine operations and special events



World Baseball
Classic



Long Beach Grand Prix
2009/2010



Emmy Awards 2009
Grammy Awards 2010



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Los Angeles Culture & ConOps

Desire to formalize ConOps

Example- MARRP

Los Angeles County Multi-Agency Radiological Response Plan Volume I Responder Field Manual



February 2009

- 30 local, State, and federal agencies and organizations
 - LACo DPH, CA DPH, CA OES, LACo Sheriffs, LAPD, LA City Fire & PD, Long Beach Fire, federal EPA & DOE, CHP, Health HazMat, DPSS, Red Cross, FEMA
- 100 technical representatives experienced in emergency operations
- MARRP has list of agencies and primary contacts



Expanding to Other Cities



- New York City Department of Health and Mental Hygiene
 - Bottom-up approach outfitting environmental inspectors with wireless CBRN instruments
 - Utilizing similar interoperable system as Los Angeles
 - Implementation end of year 2009
 - Integrates and partners with ICBRNE equipped EPA ERT
 - Los Angeles County Health keynote speaker at New York Regional CBRN Conference – July 2009 (Using Environmental Information to Prepare and Respond to Emergencies)

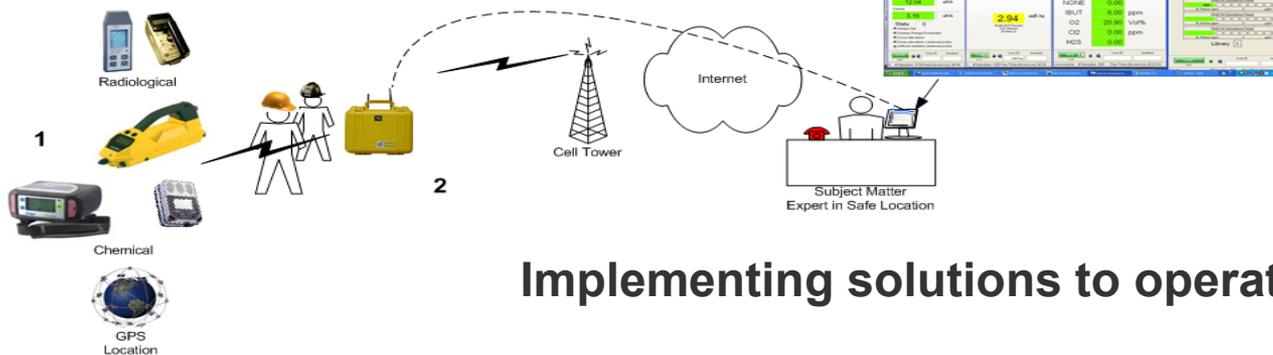


ICBRNE Major Pilot City Accomplishments:

Responders & Emergency Managers can now:

- Bridged Local/Federal and DoD Tools
- Integrated a large variety of CBRN sensors across multiple networks and COP tools
- Supported development of integrated Radiological ConOps for greater Los Angeles, Pasadena, LA Port and Long Beach areas
- Exercised system and ConOps in multi-agency Tabletop Exercise
- ConOps have been requested by other cities (NYC)

- Know location and CBRNE hazard
- Share incident data
- View or generate plumes
- View radiological energy gradient
- Receive or generate alerts and notifications
- View/analyze detection history
- View/share live readings
- Integrate CBRNE data into existing tools



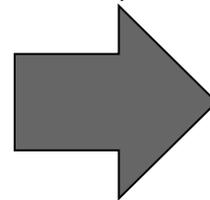
Implementing solutions to operational ConOps gaps

ICBRNE Benefits

Provides an instantaneous way to share and collaborate CBRNE information across region, State, nation or beyond



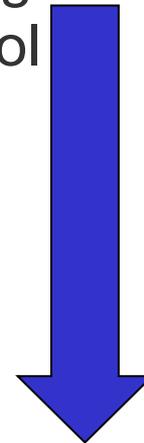
All Instruments Operate the same



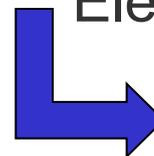
CAP
Common
Alerting
Protocol



EDXL-DE
Distribution
Element



COTS



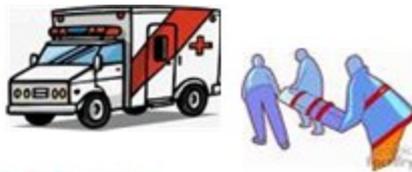
Situational Awareness
Applications



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ICBRNE Benefits

Provides live incident data across response organizations regardless of their location.
Responders do not have to be on scene to assist



Emergency Management



Incident



Field Support

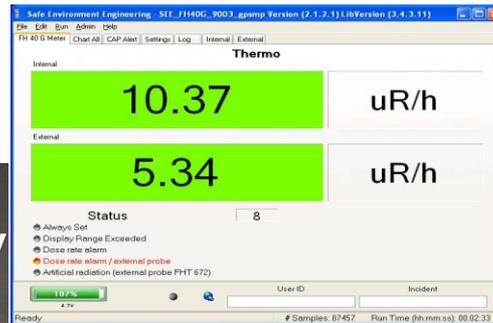


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ICBRNE Benefits

Enhances responder safety by allowing instruments to report live reading back to expert freeing up the responder to focus on other critical tasks.

Real-Time Information Feeds



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ICBRNE Benefits

Eliminates the radio transmission of secure or possibly inaccurate instrument readings.

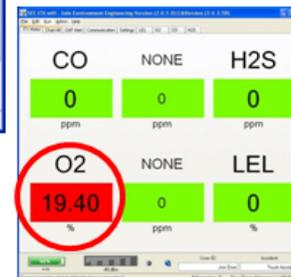
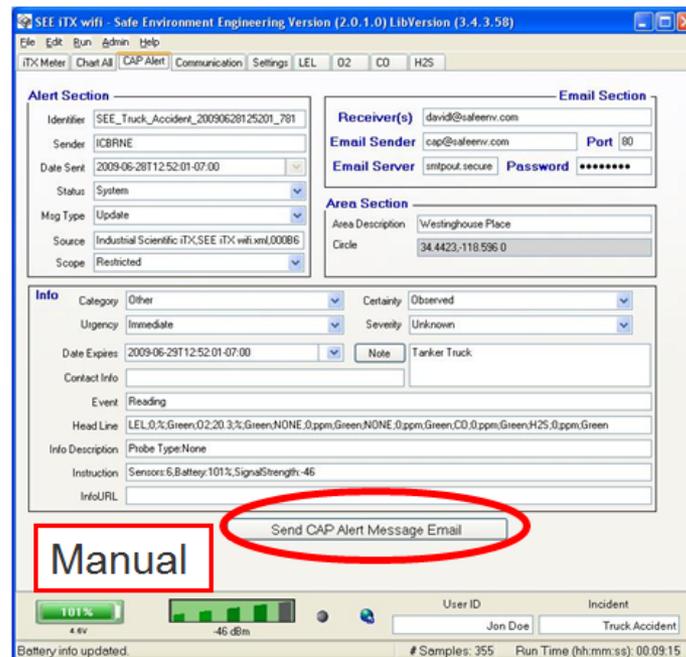
Increased
Information
Security



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ICBRNE Benefits

Provides situational awareness alerts and notifications across its subscribers about CBRNE events through a complex policy filter assuring that the right person receive relevant information.



Automatic



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Sensors Currently Integrated

Local - Berkeley Nucleonics: SAM940 (Radiation), Bruker Detection: HAWK (Long Range Chemical), Bruker Detection: RAID-M (CWA), Bruker Detection: RAID-XP (CWA & Radiation), Draeger Safety: X-am 5000 & 7000 (Chemical), Fluke: 451 (Radiation), Industrial Scientific: ATX/iTX/TMX412/VX500/MX6 (Chemical), Ludlum: 2241/2360 (Radiation), Ortec: Detective (Radiation), Rae Systems: MiniRAE/MultiRAE/ppbRAE/QRAE/AreaRAE/ChemRae (Chemical), Thermo Fisher: TPM-903/FH40G/MDS/Raider/identiFINDER (Radiation) & DataRam (Particulate), Environics: ChemPro (CWA ID), Trimble (GPS)

DHS Sensor Systems – OHA RDCDs

DoD sensors - Joint Biological Standoff Detection System (JBSDS) (biological sensor), Smart Threads Integrated Radiation Sensors (STIRS) Radiation Sensor, AN/UDR 14 RADIAC Sensor, Joint Chemical Agent Detector (JCAD) Chem Sensor – Integration through MIO Exercise, Canberra PDR-77 – Civil Support Teams



ICBRNE Who is Involved

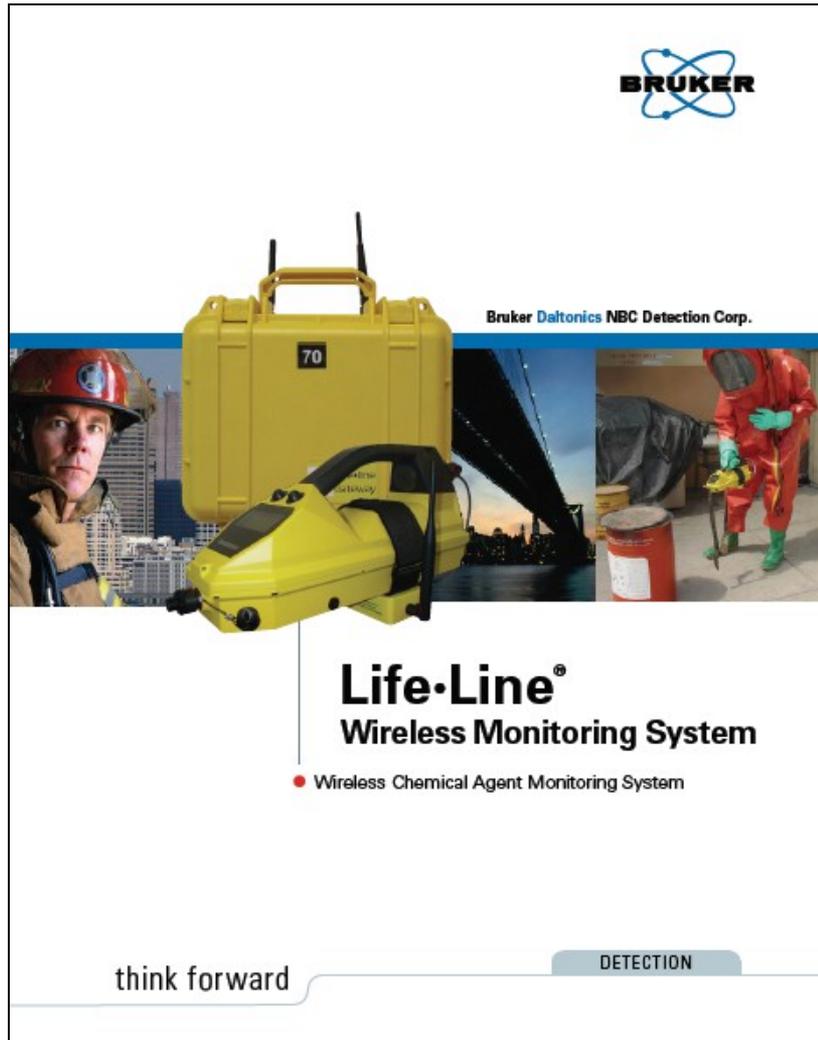
Equipment Manufactures

<p>ThermoFisher</p> <ul style="list-style-type: none"> •MDS •FH40G •DataRAM •Identifinder •RADEYE •Interceptor 	<p>Bruker Detection</p> <ul style="list-style-type: none"> •RAID-M •RAID-XP •HAWK 
<p>Dreager Safety</p> <ul style="list-style-type: none"> •Xam-7000 	<p>Burkley Nuclionics</p> <ul style="list-style-type: none"> •SAM 940 
<p>Rae Systems</p> <ul style="list-style-type: none"> •QRea •MultiRae •MiniRae •PPBRae •UltraRae 	<p>Industrial Scientific Corp.</p> <ul style="list-style-type: none"> •iTX •VX500 •MX6 •MX4 
<p>Ludlum</p> <ul style="list-style-type: none"> •2241 •2242 •2360 	<p>Radiation Solutions Inc</p> <ul style="list-style-type: none"> •RadAssist 
<p>Ortec</p> <ul style="list-style-type: none"> •Detective 	<p>EnviroNics</p> <ul style="list-style-type: none"> •ChemPro 100 
<p>Trimble</p> 	<p>Fluke</p> 



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Integrated with Vendors



BRUKER

Bruker Daltonics NBC Detection Corp.



Life-Line®
Wireless Monitoring System

● **Wireless Chemical Agent Monitoring System**

think forward

DETECTION

DETECTION PERSONAL PROTECTION DIVING TECHNOLOGY SYSTEM TECHNOLOGY SERVICES

Life-Line® Wireless Monitoring System



Wireless Oxygen, Combustible and Toxic Gas Monitoring System



Life-Line Wireless Monitoring System

Real-time remote monitoring
Designed to meet the needs of extreme or hostile environments two simple switches and a few mouse clicks are all that is required to have real-time live instrument data viewed anywhere there is a network connection.

Compliant wireless technology
Life-Line's adherence to standards compliant wireless technology assures a low probability of interference and the broadest coverage area. Life-Line utilizes an 802.11 WiFi connection between the Dongle and Gateway providing 100 to 400 feet non-line-of-site coverage. The use of WiFi ensures interoperability with other compliant network radio systems. A large number of instruments can be monitored concurrently. The Dongle can also be used in other established WiFi network environments.

The Life-Line Wireless Monitoring System is comprised of three parts, 1) a Life-Line Dongle which attaches to the instrument and provides a wire-less telemetric interface; 2) a Life-Line Gateway that relays the instrument data to either a private or public internet connection; and 3) remote real-time instrument display emulation software.

Dräger Instruments are compliant with information sharing and alerting standards CAP and EDXL. Both real-time or on-demand readings, along with other relevant event data is sent via web services or direct IP connection using the International Distribution Element (EDXLE) to other applications capable of receiving it. Examples include plume modeling, consequence management, emergency alerting, emergency notification and remote displays.

The Life-Line Dongle
The Life-Line Dongle provides a wireless network connection to the X-am 7000 that will allow the real-time readings to be viewed away from the instrument. The Dongle converts information gathered from the instruments data port to a standards compliant 802.11 WiFi network connection. Now being on a network the data can be routed to remote viewing applications no matter their location as long as they have access to the network.

The Dongle is encased within a small rugged sealed enclosure and powered by 3 conventional or lithium-ion AA batteries. The Dongle can operate for up to 16 hours providing data updates as quickly as once per second. To operate the Dongle connect it to the instrument, toggle the power switch to the on position and verify the connection light.

Dräger safety



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Seattle Current ICBRNE Participants

South King Fire and Rescue
Auburn

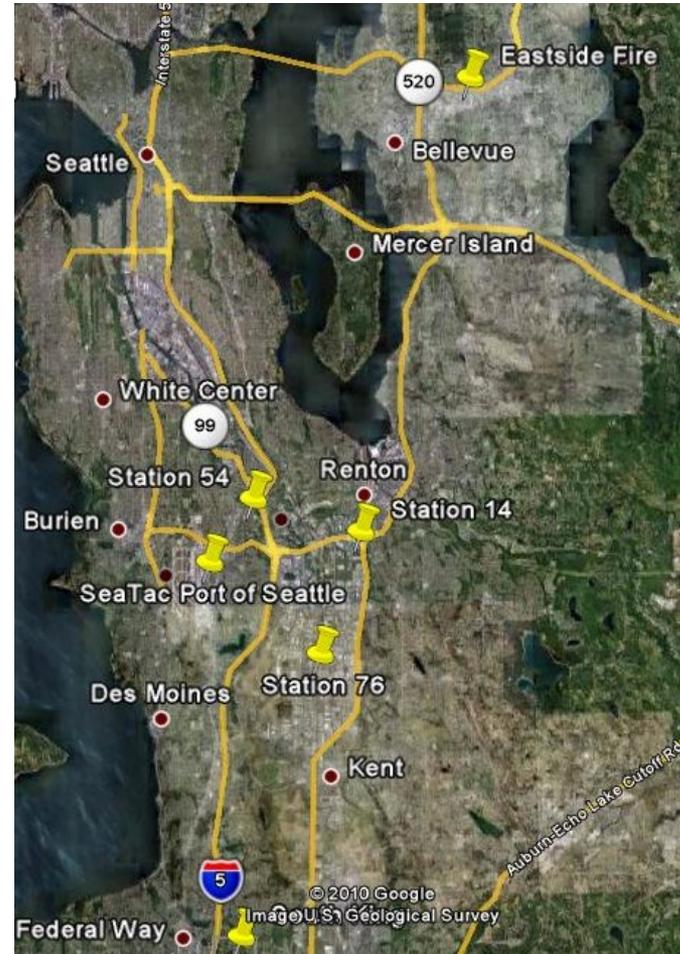
Fire Station 76
Kent

Port of Seattle Fire Department
SeaTac

Fire Station 14
Renton

Fire Station 54
Tukwila

East Side Fire and Rescue
Bellevue



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Policy/Committee

- Establishing information sharing policies
- Formation of the Los Angeles Regional CBRNE Network
- Los Angeles County Multi-Agency Radiological Response Plan

Los Angeles Region
Integrated CBRNE Sensors
Interoperability Program Plan

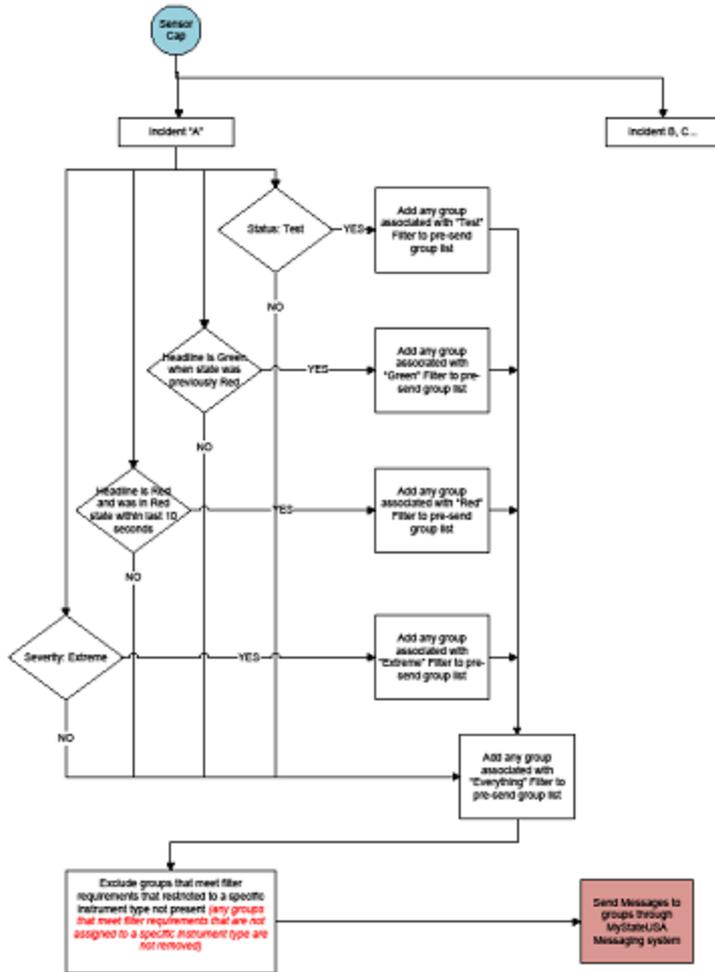
DRAFT



Mission Statement

Help save lives and protect property by sharing of CBRN sensors information across agencies and jurisdictions, providing an automatic alerting system, and providing situational awareness in incident response and emergency management.

Sensor Alerting ConOps Tool



Safe ENV Sensor Groups	
Everything:	<input type="checkbox"/>
Single Green:	<input type="checkbox"/>
Single Red:	<input type="checkbox"/>
Multiple Red:	<input type="checkbox"/>
Test:	<input type="checkbox"/>
Extreme:	<input checked="" type="checkbox"/>

Safe ENV Instrument Types	
Radiation:	<input type="checkbox"/>
Radiation Alpha:	<input type="checkbox"/>
Radiation Beta:	<input type="checkbox"/>
Radiation Gamma:	<input type="checkbox"/>
Radiation Neutron:	<input type="checkbox"/>
Radiation Isotope:	<input type="checkbox"/>
Chemical Warfare Agent:	<input type="checkbox"/>
Combustible Gas:	<input type="checkbox"/>
5 Gas:	<input type="checkbox"/>
4 Gas:	<input type="checkbox"/>
Particulate:	<input type="checkbox"/>

SafeEnv Instrument Type List

Name	Count
Radiation	6
Radiation Alpha	3
Radiation Beta	3
Radiation Gamma	7
Radiation Neutron	
Radiation Isotope	1
Chemical Warfare Agent	2
Combustible Gas	4
5 Gas	3
4 Gas	1
Particulate	1



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ICBRNE Transition Strategy

- Assist in policy and procedures to ensure the local EM community 'owns' the information sharing and situational awareness capability
- Document the process
 - Provide NIEMS standards, protocols, methods and mechanisms
 - Identify applicable software systems
- Reapply process and solutions at other candidate cities to confirm value
- Document process and make available to DHS, cities and commercial entities



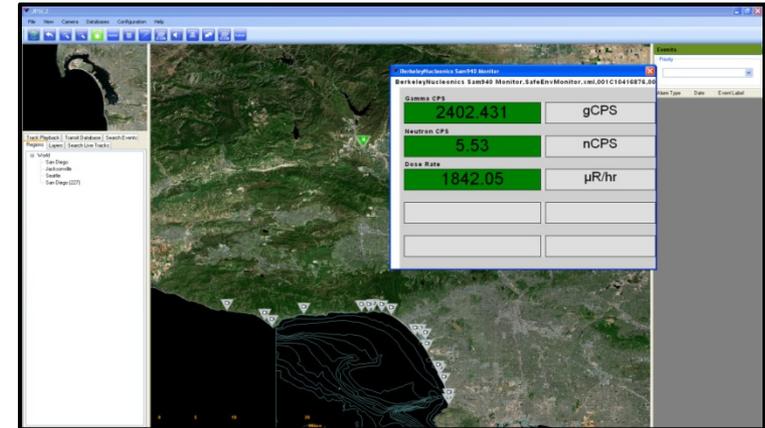
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ICBRNE Testbed – FY10 Technical Accomplishments

Improved CBRN Detection Sharing

- Standards Included:
 - Common Alert Protocol, **IPAWS Profile**
 - Distribution Element
 - Cursor on Target, UCore
 - Observations & Measures
 - **CBRN IEPD for NIEM**
 - HTML, RSS, KML
- Additional Tools Interoperating
 - **C4ISuite**
 - **Coast Guard SMS**
 - Los Angeles Fire Web-based Meter Displays
 - **Virtual USA (Virtual Alabama)**
 - **Mobile Apps**
 - **Matlab Gradient Contours**
 - Other Visualizations: **Google Earth**, Map, Timeline, Table
- Infrastructure Components
 - Sensor Detection/Message Repository
 - Data Format Translation
 - URL-Accessible Detections/Messages

Coast Guard SMS



Virtual USA

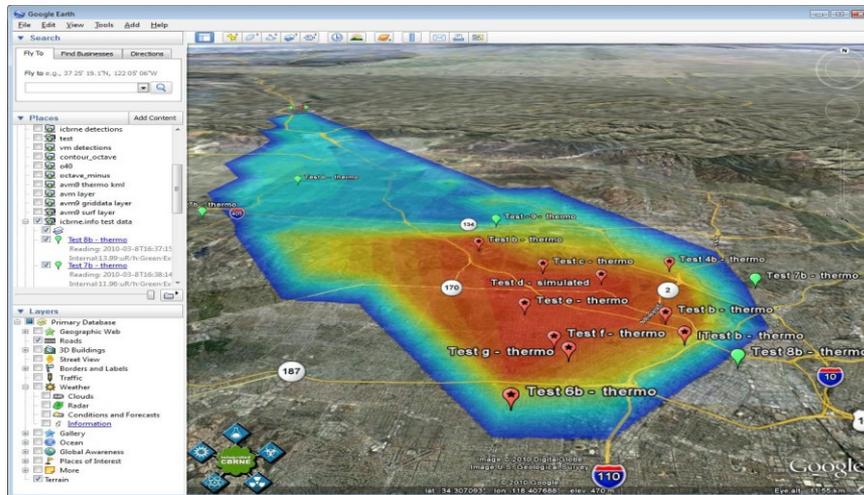


Technical Accomplishments - Testbed (cont.)

- Virtual Golden Phoenix

- Standards Used to Enable Interoperability & Situational Awareness
- Repository & Data Converters Enabled Sharing of Sensor Detections in Real-Time across organizations
- Partners & Programs Exploring Interoperability
 - Mitre, Solace, IPAWS, Virtual USA, C4ISuite, SMS
- Distribution Element Enabled Packaging and Addressing

Radiation Gradient Contours

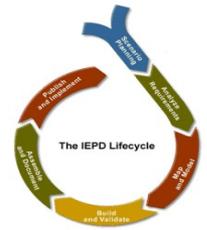


Mobile Apps



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NIEM CBRN Information Exchange



GOAL:

- Provide a common XML data model for exchanging Chemical-Biological-Radiological-Nuclear Sensor Alerts, Analysis messages.
- Capture the CONOPS in the message exchanges.

Strategy:

- Build upon NIEM's data models, processes, and "lessons learned"
- Leverage the existing DNDO Rad-Nuclear IEPD and extend its models to include the chem-bio use case.
- Leverage NIEM data types and complement with other standards and COI data models.

Accomplishments

- All Schemas completed
- Provides situational awareness info and analysis info
- Provides bio analysis data including DNA and Chromosome sequences
- Represents different types of biological assays such as PCR assay
- Provides chem analysis data including particle counts, mass spectrometry and raw chem sensor data
- Leverages existing standards work from OASIS, OGC, Stanford, NIEM
- Usage in Virtual Golden Phoenix and feedback improvements will be incorporated



Golden Phoenix Overarching Goals

Overarching Goals:

Reinforce federal, state, county, city, and private sector partnerships.

Evaluate interoperable devices, tools, and systems related to ICBRNE data to improve information sharing and collaboration between first responder and public safety personnel at the local, state, and federal levels.

Strengthen existing emergency management plans, systems, and capabilities in order to broaden applicability to the full spectrum of emergencies.

Explore the role of public affairs, public relations, and press management including interagency and Joint Information Center (JIC) coordination in a catastrophic incident.

Identify future planning, training, and exercise needs related to a multiagency response to a catastrophic incident in the Los Angeles metropolitan area.



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Golden Phoenix Approach

Project being co-planned and implemented by ICBRNE team in conjunction with LA Operational Area representative inputs.

Employs a multi-discipline, multi-jurisdiction training methodology per the Homeland Security Exercise and Evaluation Program (HSEEP).

“HSEEP is a capabilities and performance-based exercise program which provides a standardized policy, methodology, and terminology for exercise design, development, conduct, evaluation, and improvement planning”.

Scenario will be an Improvised Nuclear Device (IND) event based in the Los Angeles area (National Planning Scenario #1).

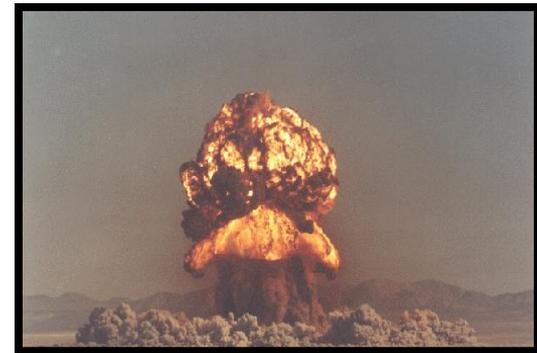
Program will include a series of formal Planning Conferences (IPC/MPC/FPC) as well as:

Table Top Exercise (June 9)

Executive Workshop (June 24)

Functional Exercise (July 28)

After Action Conference (Aug 25)



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- Reapply process and solutions at other candidate cities
 - Provide NIEMS standards, protocols, methods and mechanisms
 - Identify applicable software systems
 - confirm value
- Make process available to DHS, cities, and commercial entities (e.g. LLIS.gov)



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FEMA IPAWS PROGRAM

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