ICLN's 2014 Full Scale Radiological Laboratory Exercise

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October 27th, 2014

2014 RRMC Meeting

National Center for Environmental Health
Division of Laboratory Sciences

Background

After a major RDD, how will the federal, state and private radiation laboratories coordinate their analytical processes, implement surge capacity, request lab capacity from other lab networks and have a common reporting platform to have a better and more efficient and effective overall incident response to support critical decision making?

ICLN Full Scale Radiological Lab Exercise

- **Radiological Laboratory Full Scale Exercise (ongoing):**
  - Scenario based on previous ICLN Radiological Incident Table Top Exercise (TTX).
    - **(Sr-90 and Pu-239)**
  - Test the **Early and Recovery** phases of an incident response.
  - Examine how DOE, EPA, CDC and FDA coordinate the laboratory demands after a national radiological incident.
  - Analysis of 820 samples using 24 labs.

ICLN Full Scale Radiological Lab Exercise

- **Radiological Laboratory Full Scale Exercise (ongoing):**
  - Assess Analytical Throughput, Laboratory Quality Objectives, Sample Tracking, Reporting (to networks and ICLN Portal) on real spiked samples in various matrices.
  - Assess the ability to request and receive surge capacity samples
  - Extensive use and testing of the ICLN Portal (SITREPs, requests for surge capacity, data uploading and testing of the Minimum Data Elements format)

Radiological Full-Scale Exercise (FSE) Team Members:

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Scenario (from previous ICLN RDD Exercise):

DENVER (Notional Contamination):

- An RDD containing **strontium-90** was detonated at the State Capital building in **downtown Denver**. Excessive damage occurred with some buildings and nearby automobiles being impacted. **Many buildings in a 36 block area** north/northeast of the blast are believed contaminated.
- Prevailing winds are South/Southeast over City Center, Coors Field, several neighborhoods, the National Western Stock Show grounds, the downtown arts festival, and major regional highways (I-70 and I-25).
  - About 35,000 people are present at the time of the incident.
  - Approximately 5,000 animals housed at the local stock show may be contaminated.

Scenario (from previous ICLN RDD Exercise):

CHICAGO:

- Chicago, IL **(Chicago O'Hare Airport, Terminal 1)** was notionally impacted by an RDD containing **plutonium-239**. All incoming and outgoing air traffic for this terminal was closed down as the terminal is damaged and non-functional.
- All air handling systems within the airport were shut down to minimize the spread of contamination.
- **Fatalities (blast) included 240 passengers** that were picking their baggage up in Terminal 1 when the device detonated and several people which were hit with flying debris. An additional 100 airline employees were injured.
- At the time of the explosion, there were approximately **10,000 passengers in Terminal 1** waiting for their flights to leave.
- The release from the detonated RDD travelled North/Northeast and passed over Interstate 90, Interstate 190, Interstate 294 and out over Lake Michigan. As a result of traffic associated with response vehicles, thousands of cars are at a standstill on the highways with passengers inside.

Full Scale Radiological Laboratory Exercise

- A total of 24 laboratories have or will participate in the exercise, including federal, state and commercial laboratories.
- Matrices include: apple juice, soil, water, urine and air filters.
- Both initial (early) and recovery phase addressed by exercise.

Rad Lab FSE Exercise Dates:

- Phase I:
  - Occurred between May 12th – May 22nd, 2014.
  - Analysis of samples by CDC & FDA.
  - All data reporting for ALL NETWORKS will be held until Phase II of exercise in November, 2014.

- Phase II:
  - Will occur between November 3rd – 14th, 2014.
  - Analysis of samples by EPA & DOE.
  - Data upload by all networks (CDC, FDA, DOE & EPA)
    - November 13th and/or 14th, 2014.

ICLN Rad FSE Objectives

Objectives – General

Objectives – Early Phase

Objectives – Recovery Phase

Objectives – Optional

Note: no "Intermediate Phase" Objectives

ICLN Rad Lab FSE Objectives

Objectives General:

- Assess sample throughput using 140-330 samples to evaluate response laboratory throughput (140-330 samples per network or lab). Samples will be distributed to each network "coordinator or lead".
- Assess the ability to communicate the test requirements to surge capacity labs.
- Assess the ability for one Laboratory Network to provide surge capacity to another Laboratory Network.
- Assess the ability for the network laboratories to upload data to their respective network leads.
- Assess the ability of network coordinators to upload analytical results to the ICLN Portal utilizing the ICLN Minimum Data Elements (MDE) format.
- Assess the ability for data exchange with the Federal Radiological Monitoring and Assessment Center (FRMAC) data system (for environmental samples).

Note: Each objective above has specific sub-objectives.

ICLN Rad Lab FSE Objectives

Objectives Early Phase:

- Assess network's Radioanalytical laboratories' ability to quickly transition to surge operations.
- Assess the ability for one ICLN Laboratory Network to provide surge capacity to another Laboratory Network.
- Assess the ability to communicate the early phase Measurement Quality Objectives (MQOs) to surge capacity labs.
- Assess the ability for the surge network laboratories to upload analytical results to their respective network leads.
- Assess the ability of ICLN network coordinators to upload analytical results to the ICLN Portal.
- Evaluate the ability to consolidate the data from the surge network labs and report to the ICLN Portal.

Note: Each objective above has specific sub-objectives.

ICLN Rad Lab FSE Objectives

Objectives Recovery Phase:

- Assess sample throughput and changing analytical requirements (MQOs) using 10-20 samples to evaluate response laboratory's ability to implement the changing MQOs.
- Assess the ability to communicate the recovery phase MQOs to the surge capacity labs.
- Evaluate analytical data results to determine requirements for validation of recovery phase data.
- Assess the capacity of laboratory networks through the use of notional samples.

Note: Each objective above has specific sub-objectives.

ICLN Rad Lab FSE Objectives

Objectives Optional:

- Assess the setting of prioritization of sample sub-sets:
  - Evaluate the setting of prioritization of samples and if this prioritization was relayed to the network of laboratories (e.g. food, environmental, clinical, etc.).
  - Evaluate the reporting of priority samples within a network.
  - Evaluate the reporting of priority samples among networks.
- Assess the time required for radioanalytical laboratories to perform sufficient quality control and quality assurance (QC/QA) on the analytical results prior to reporting.
  - Evaluate the time between the production of analytical results and QC/QA review and approvals according to the MQOs.

Outcomes from Phase I Exercise Hotwash/FDA Items:

- Need clear definitions of when to use preparedness alerts or situation reports.
- When sending out a SITREP, had issues with the Portal on sending the SITREP out to incident members once it was completed and uploaded.
- When creating and sending a preparedness alert and/or SITREP, need to add back in the ability for that person to "select all" email addresses.
  - "Select all" option not there so each person's name had to be clicked individually in order for them to receive the PA and/or SITREP.

Outcomes from Phase I Exercise Hotwash/DOE Items:

- Exercises such as these provide opportunities for laboratories to evaluate rate-limiting steps.

- An evaluation should be made of the time required for network/agencies to prepare samples for shipment to the laboratories.

Next Steps:

- CDC & FDA to report their results to the Portal in November (Phase II).
- Phase II of exercise will occur in November, 2014.
  - Analysis of samples by DOE & EPA.
  - Upload of all analytical results for ALL participating networks/agencies.
- Exercise "Hotwash" – November 2014.
- Final Report to DHS – December/January.

Summary

- The Exercise Phase I has been considered a success by the CDC and FDA since all objectives were completed.
- This is the first ICLN radiation laboratory full scale exercise evaluating surge capacity issues.
- This is the first ICLN radiation laboratory full scale exercise evaluating multiple phases of a response.
- This provided valuable Lessons Identified/Learned through the exercise process.
- This will allow for the evaluation of several ICLN Portal improvements (SitReps, data reporting, downloading, etc.) that have been recently implemented.

Acknowledgements

- FDA Lab Network
- EPA Lab Network
- DOE Lab Network
- Full Scale Lab Exercise Team Members
- DHS S&T ICLN
- DHS Financial Support

Questions?

Thank you

For more information please contact
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