ICLN Full Scale Radiological Laboratory Exercise

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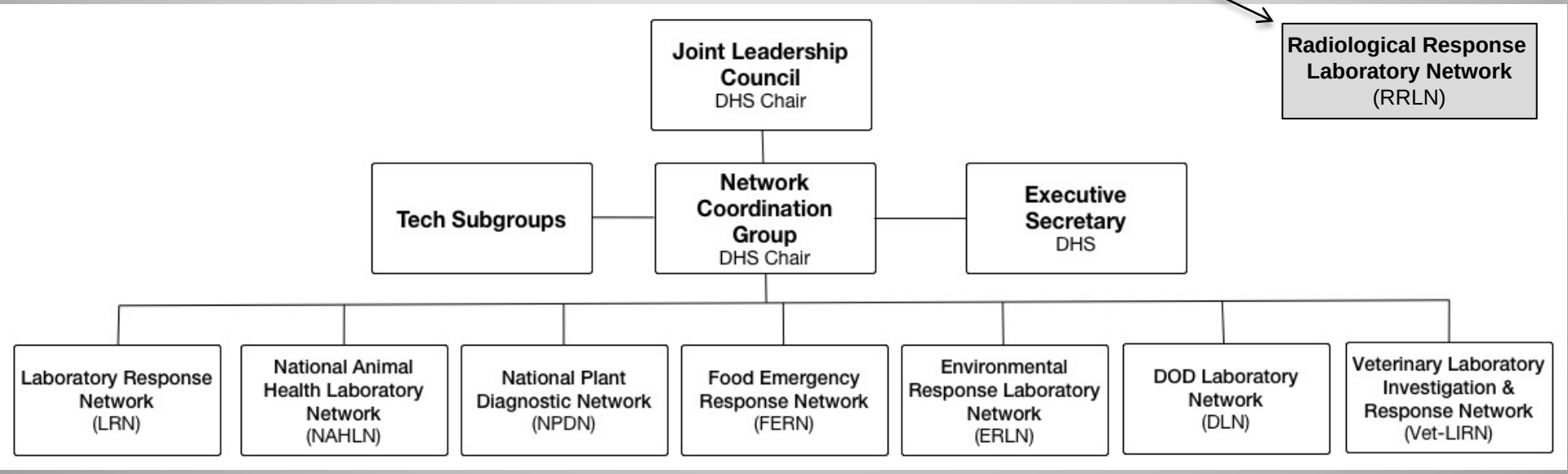
Integrated Consortium of Laboratory Networks (ICLN)



Background

- **The ICLN - Confidence Building Competency Tests (CBCT) were developed to**
  - assess aspects of the ***interoperability of laboratory networks***
  - provide agent detection and ***surge support*** to each other during a ***large-scale event.***
- **Specific aspects of the CBCT include**
  - the ability of networks to perform a ***non-routine method*** on a ***non-routine matrix*** at an acceptable level of quality, and
  - ***the ability to combine information from several networks*** using prescribed data reporting and communication procedures.

In a Perfect World

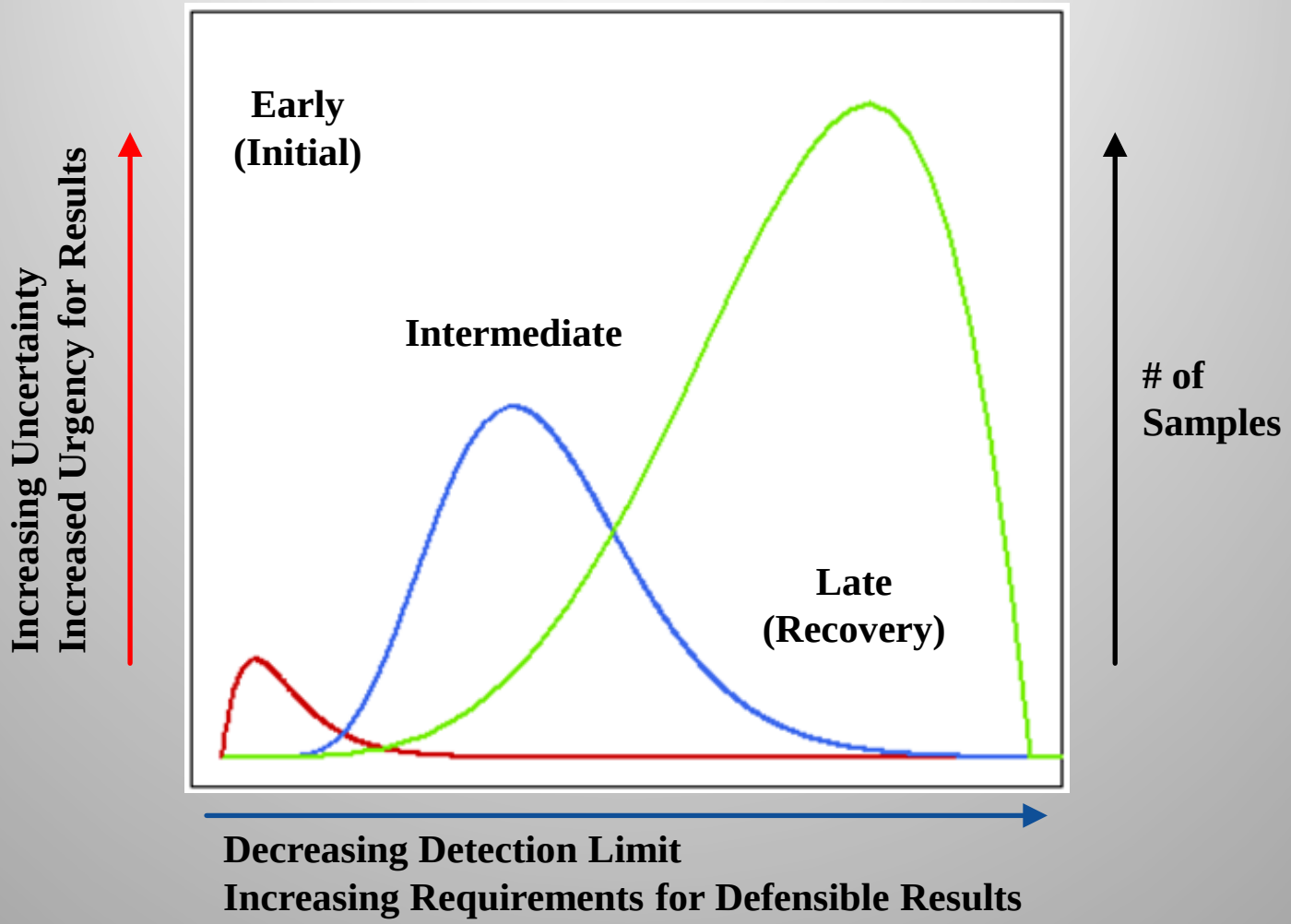
There would be…

- Predefined DQOs/MQOs
- Performance testing programs

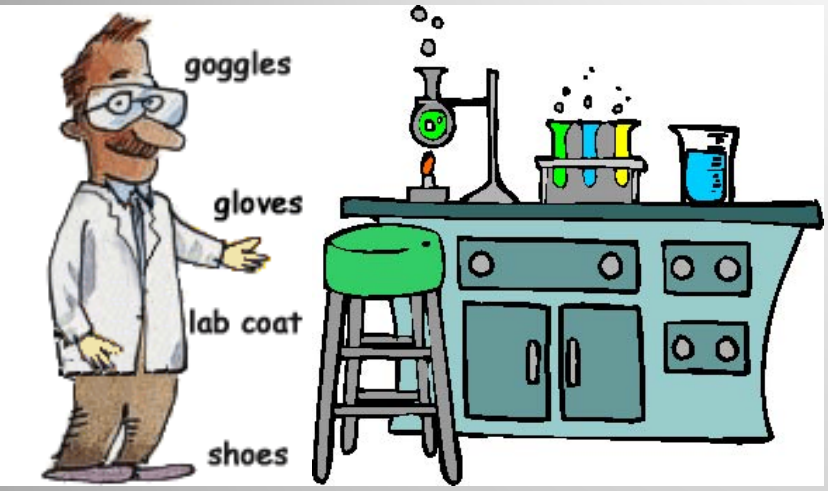
- Network of pre-qualified laboratories
- Laboratories capability exercises

Participating Agencies

Overall Objectives

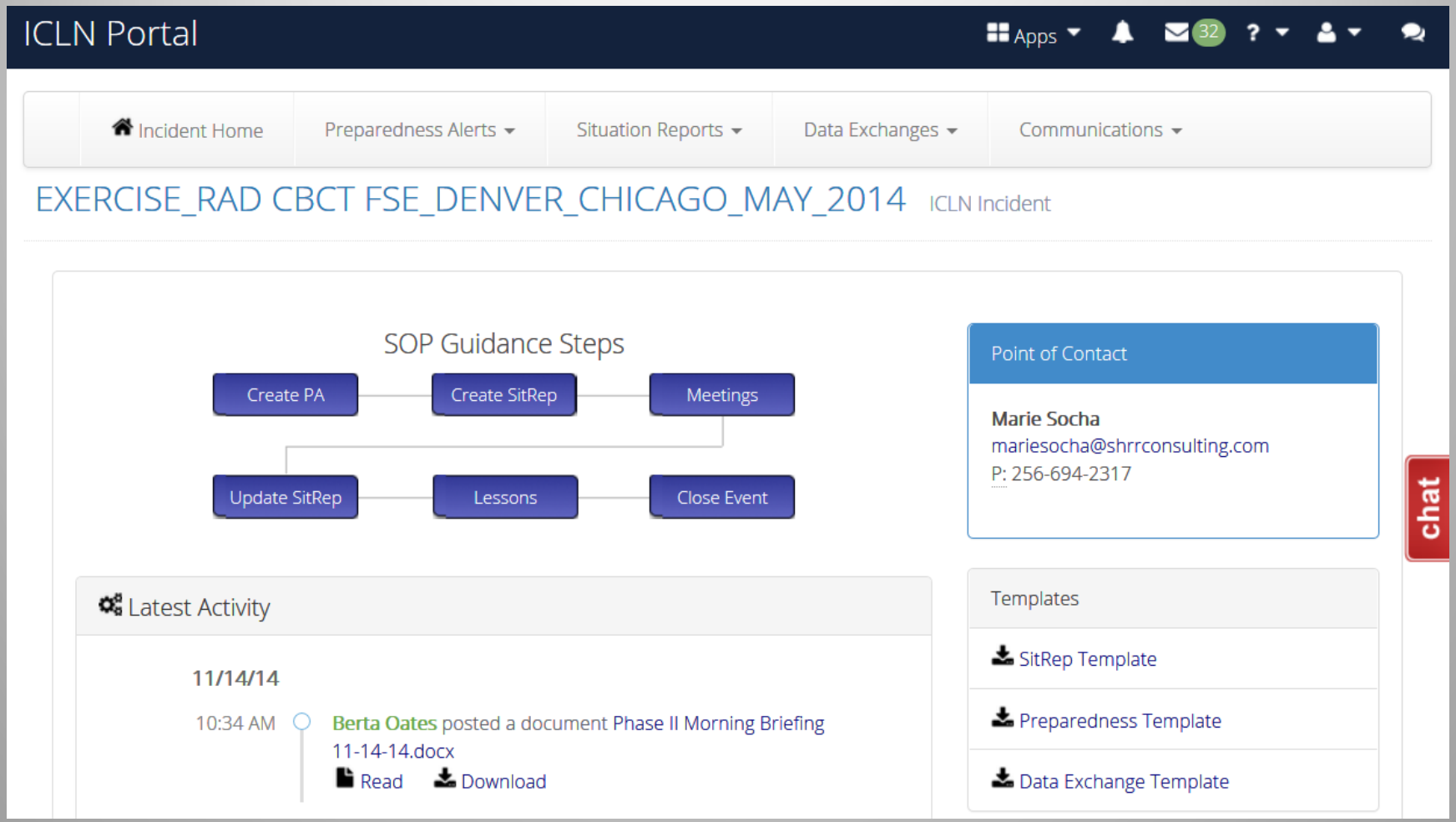


Objectives - Data Exchange

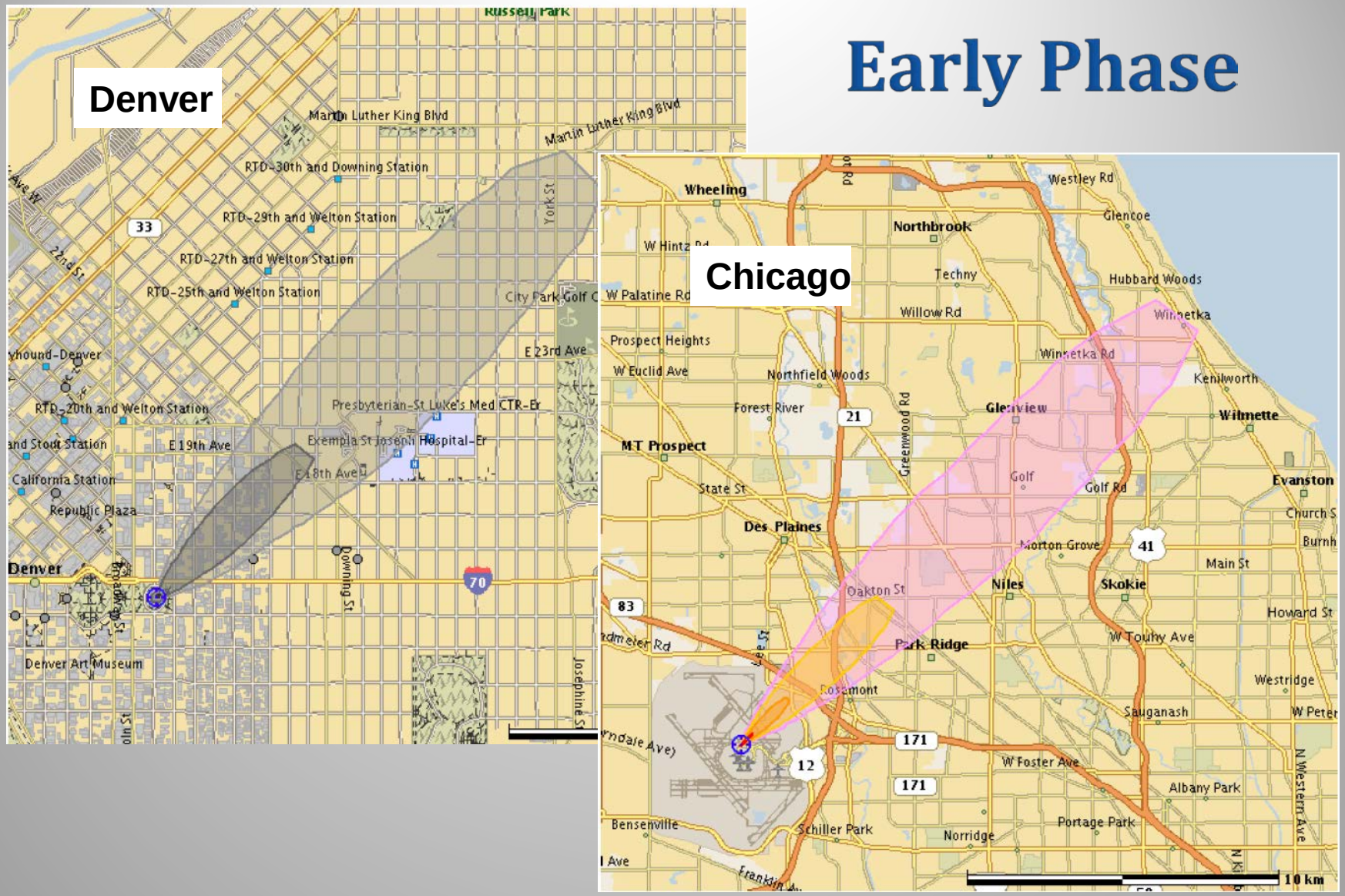


- FDA
- DOE - RAMS
- EPA
- CDC

Objectives - ICLN Portal



Early Phase


Denver
Martin Luther King Blvd
RTD-30th and Downing Station
RTD-29th and Welton Station
RTD-27th and Welton Station
RTD-25th and Welton Station
City Park Golf C
E 23rd Ave
RTD-20th and Welton Station
Presbyterian-St Luke's Med CTR-Er
E 19th Ave
E 18th Ave
California Station
Republic Plaza
Denver
Downing St
Denver Art Museum
Josephine St
Chicago
Wheeling
Northbrook
Techny
Hubbard Woods
Willow Rd
Prospect Heights
W Euclid Ave
Northfield Woods
Forest River
Glenview
Mt Prospect
State St
Des Plaines
Golf Rd
Evanston
Wilmette
Kenilworth
Morton Grove
Niles
Skokie
Oakton St
Park Ridge
W Touhy Ave
Howard St
Rosemont
Sauganash
Westridge
W Foster Ave
Albany Park
Bensenville
Schiller Park
Norridge
Portage Park
Greenwood Rd
Main St
10 km

Test Matrices

FDA

EPA

CDC

DOE

Participating Laboratories

Agency	# of Labs	Phase	Matrix	Radionuclides	# of Samples
FDA	17	Early	Apple Juice	Gross Beta	71
		Early	Apple Juice	Gross Alpha	62
		Recovery	Apple Juice	Sr-90	53
		Recovery	Apple Juice	Pu-239	51
DOE	5	Early	Air Filter	Total Sr	30
		Early	Air Filter	Pu-239	30
		Early	Soil	Total Sr	45
		Early	Soil	Pu-239	45
EPA	2	Early	Water	Total Sr	20
		Early	Water	Pu-239	20
	5	Recovery	Water	Total Sr	60
		Recovery	Water	Pu-239	60
CDC	1	Early	Urine	Sr-90	100
		Early	Urine	Pu-239	100

DOE FRMAC Objectives

Assess ability of DOE to identify the

Assess ability of DOE to solicit laboratory

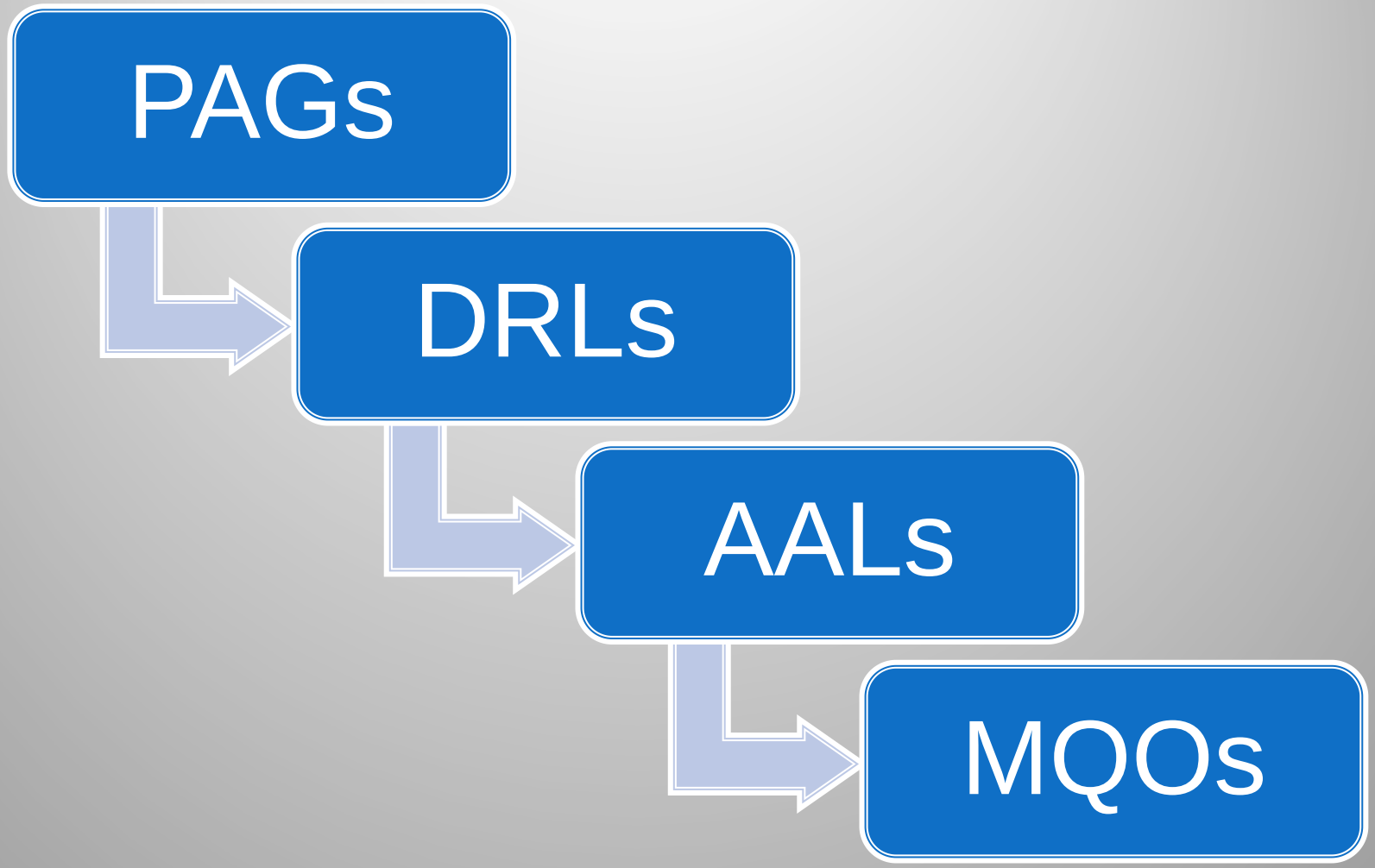
Assess ability of DOE to prepare and ship

Assess the ability of the DOE FRMAC

Assess the ability of the participating

Assess ability of the DOE FRMAC to internally collate (merge) member laboratory results using the minimum data elements and provide results to other ICLN member networks through use of the ICLN portal.

Measurement Quality Objectives



DOE Required L_C

	Air Filters[1]	Soil[2]
Pu-239	1.5 pCi/Sample	0.2 pCi/g
Sr-Total	4.0 pCi/Sample	2.0 pCi/g

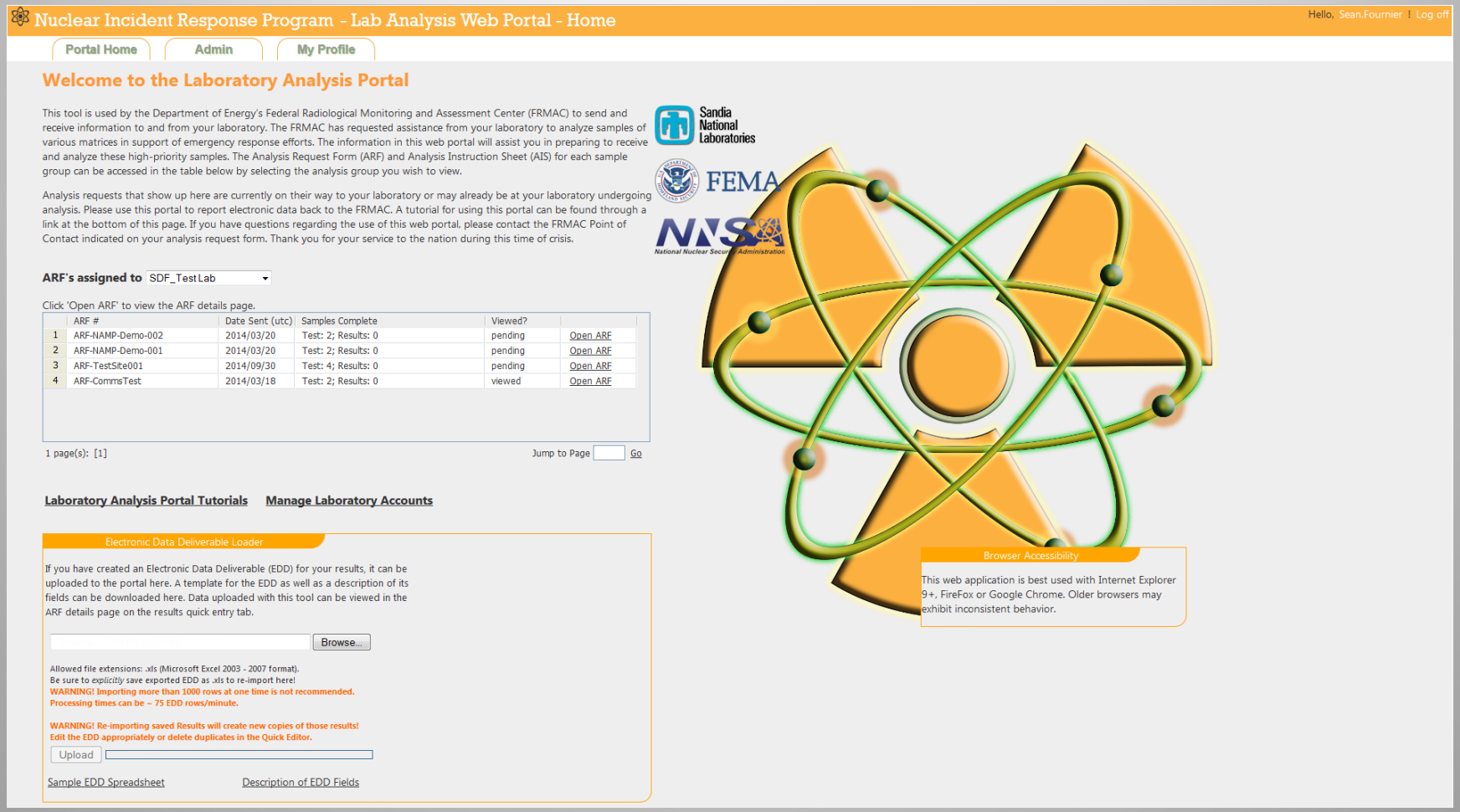
1. Air filter samples are 10 m^3/sample
2. Soil samples are 100 cm^2 x 2 cm deep, soil density = 1.6 g/cm^3

Requested Turn-around Time: 3 – 5 Days

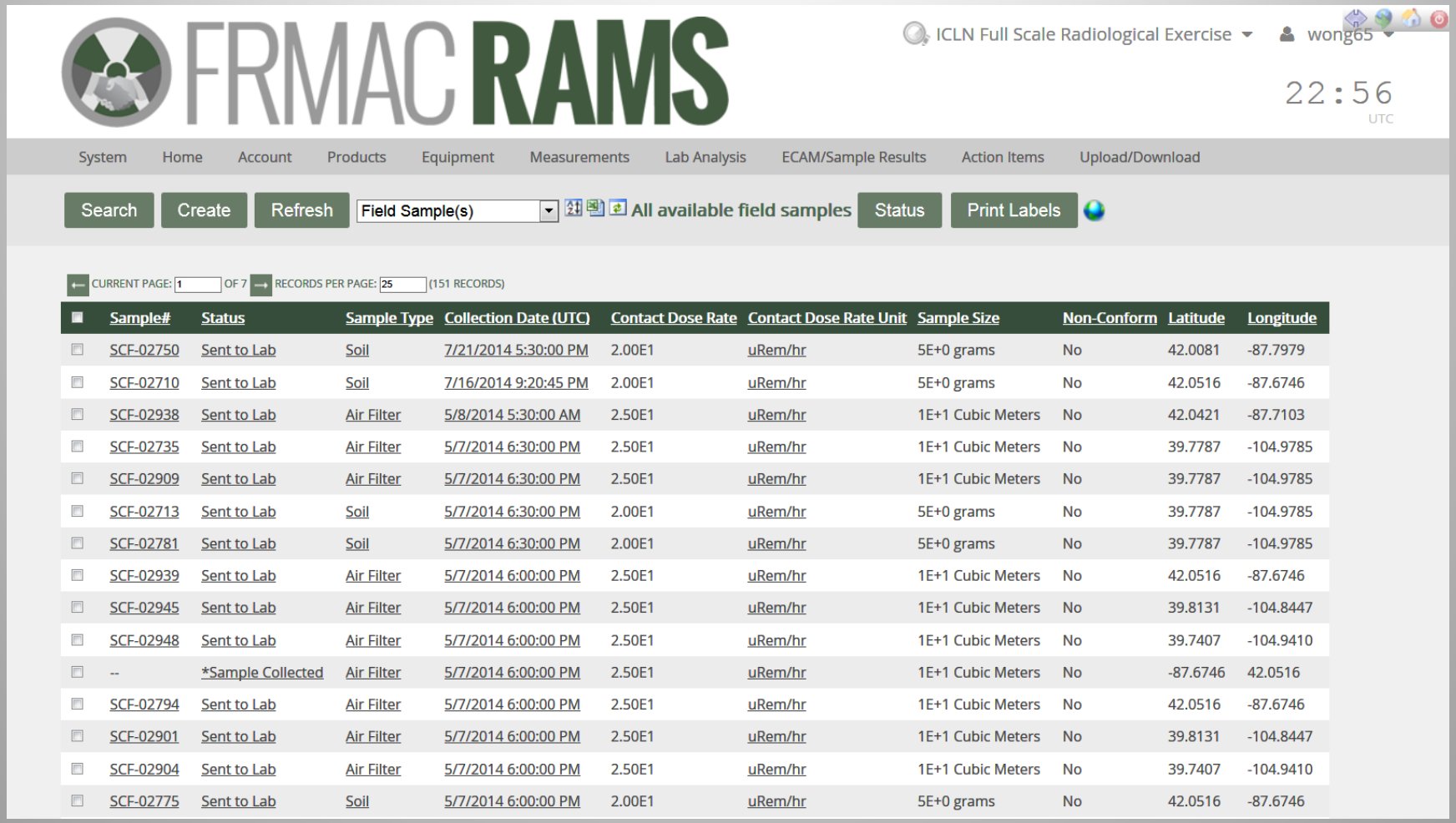
DOE FRMAC Test Plan

	Lab A	Lab B	Lab C	Lab D	Lab E	Total
AF – Pu-239		10		10	10	30
AF – Sr Total		10		10	10	30
Soil – Pu-239	10	10	15	10		45
Soil – Sr Total	10	10	15	10		45
Total	20	40	30	40	20	150

FRMAC Web Portal



Radiological Assessment and Monitoring System (RAMS)



Sample#	Status	Sample Type	Collection Date (UTC)	Contact Dose Rate	Contact Dose Rate Unit	Sample Size	Non-Conform	Latitude	Longitude
SCF-02750	Sent to Lab	Soil	7/21/2014 5:30:00 PM	2.00E1	uRem/hr	5E+0 grams	No	42.0081	-87.7979
SCF-02710	Sent to Lab	Soil	7/16/2014 9:20:45 PM	2.00E1	uRem/hr	5E+0 grams	No	42.0516	-87.6746
SCF-02938	Sent to Lab	Air Filter	5/8/2014 5:30:00 AM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	42.0421	-87.7103
SCF-02735	Sent to Lab	Air Filter	5/7/2014 6:30:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	39.7787	-104.9785
SCF-02909	Sent to Lab	Air Filter	5/7/2014 6:30:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	39.7787	-104.9785
SCF-02713	Sent to Lab	Soil	5/7/2014 6:30:00 PM	2.00E1	uRem/hr	5E+0 grams	No	39.7787	-104.9785
SCF-02781	Sent to Lab	Soil	5/7/2014 6:30:00 PM	2.00E1	uRem/hr	5E+0 grams	No	39.7787	-104.9785
SCF-02939	Sent to Lab	Air Filter	5/7/2014 6:00:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	42.0516	-87.6746
SCF-02945	Sent to Lab	Air Filter	5/7/2014 6:00:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	39.8131	-104.8447
SCF-02948	Sent to Lab	Air Filter	5/7/2014 6:00:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	39.7407	-104.9410
--	*Sample Collected	Air Filter	5/7/2014 6:00:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	-87.6746	42.0516
SCF-02794	Sent to Lab	Air Filter	5/7/2014 6:00:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	42.0516	-87.6746
SCF-02901	Sent to Lab	Air Filter	5/7/2014 6:00:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	39.8131	-104.8447
SCF-02904	Sent to Lab	Air Filter	5/7/2014 6:00:00 PM	2.50E1	uRem/hr	1E+1 Cubic Meters	No	39.7407	-104.9410
SCF-02775	Sent to Lab	Soil	5/7/2014 6:00:00 PM	2.00E1	uRem/hr	5E+0 grams	No	42.0516	-87.6746

ICLN Portal Data Exchange

DOE Results

Assess ability of DOE to identify the analytical criteria required for participation in a united analytical effort, and successfully share resources with these laboratories in order to enable them to assist in emergency response testing.

- FRMAC LAWG worked with FRMAC Assessment WG to establish MQOs

DOE Results

Assess ability of DOE to solicit laboratory participation.

- Via the DOE NAMP, laboratories were identified to perform the analyses
- FRMAC LAWG prepared and shipped samples to the laboratories
- All analyses were completed within the requested 3 – 5 day turn-around time.

DOE Results

Assess the ability of the DOE RAMS database to manage sample and result information and validation of data.

- FRMAC LAWG successfully managed the sample and result information and validation of the data using the RAMS database.

DOE Results

Assess the ability of the participating laboratories to upload analytical results to the FRMAC Laboratory Analysis Web Portal.

- Participating laboratories successfully used the FRMAC WebPortal to provide data to/from the laboratories.

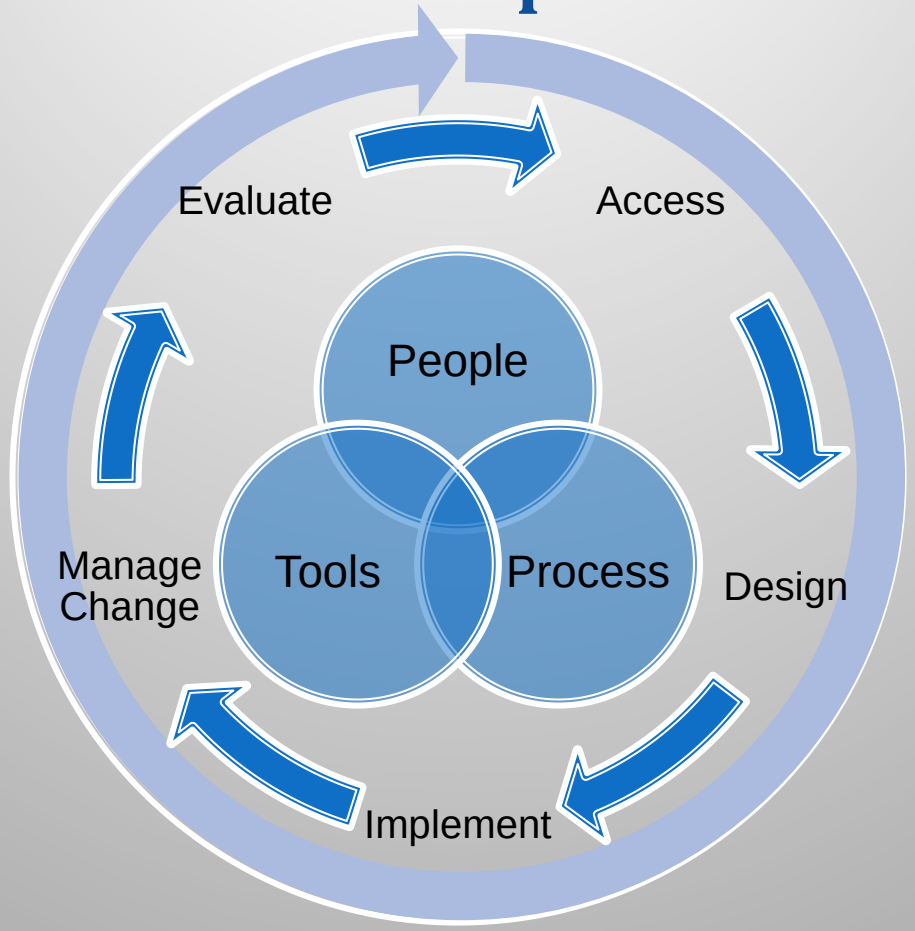
DOE Results

Assess ability of the DOE FRMAC to internally collate (merge) member laboratory results using the minimum data elements and provide results to other ICLN member networks through use of the ICLN portal.

- DOE FRMAC successfully uploaded results to the ICLN Portal.
- Analysis results from other agencies were downloaded from the ICLN Portal.
- Other agency data was successfully uploaded to RAMS after the exercise.

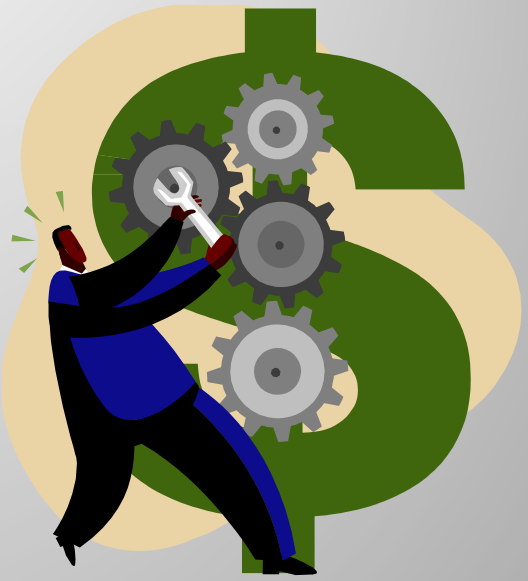
Lessons Learned

Continuous Improvement



Funding

- **DHS / ICLN Funds**
  - Funding requested for participating laboratories to perform the analyses
  - Formal SOW with participating laboratories
- **FEMA – NIRT Funds**
  - Funding requested to support the FRMAC LAWG participation
    - Exercise planning
    - Sample preparation
    - Shipping
    - Training
    - Data validation and upload
    - After Action Report



Special Thanks

- Laboratories
  - ORISE
  - Sandia
  - SRS
  - WIPP
  - Y-12
- FRMAC
  - LLNL
  - Sandia
  - RSL
  - NSTec
  - NAMP
- ICLN
  - CDC
  - EPA
  - FDA
  - DOE
  - DoD
- DHS
  - RESL
  - ERA

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