EPA's Environmental Response Laboratory Network (ERLN)

Preparing for CBRN Incidents

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Environmental Measurement Symposium

Reliable Data for Sound Decision Making

August 7, 2024

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CBRN Consequence Management Advisory Team (CMAT)

- EPA's Chemical, Biological, Radiological, and Nuclear (CBRN) Consequence Management Advisory Team (CMAT)
  - CMAT is an EPA Special Team that provides unique, specialized expertise in support of the 10 EPA Regions
  - CMAT is EPA's response capability for CBRN national security incidents that occur domestically
- CMAT Mission
  - Provide 24/7/365 support during the consequence management phase of incidents, including characterization of contaminants, decontamination, clearance/re-occupancy guidance, and waste management
  - Provide science-based technical assistance and advice, as well as personnel and assets
  - Provide assets and response capabilities
    - CBRN incidents are low probability, high consequence events, so CMAT assets have all-hazard capabilities

CMAT Field Assets

- Airborne Spectral Photometric Environmental Collection Technology (ASPECT)
  - EPA's airborne sensing system for real-time chemical, radiological, and photographic data collection during emergency responses
    - Toxic industrial chemical and chemical warfare agent detection and identification
    - Surface oil detection and imaging
    - Radiological surveying and source location
    - Thermal imaging and photography

- Portable High-throughput Integrated Laboratory Identification System (PHILIS)
  - Suite of 8 mobile laboratory vehicles in two locations for on-site confirmatory analysis of environmental samples with rapid data turnaround
    - Traditional and fourth generation chemical warfare agents
    - Pharmaceutical-based agents
    - Toxic organic industrial chemicals

What is the Environmental Response Laboratory Network (ERLN)?

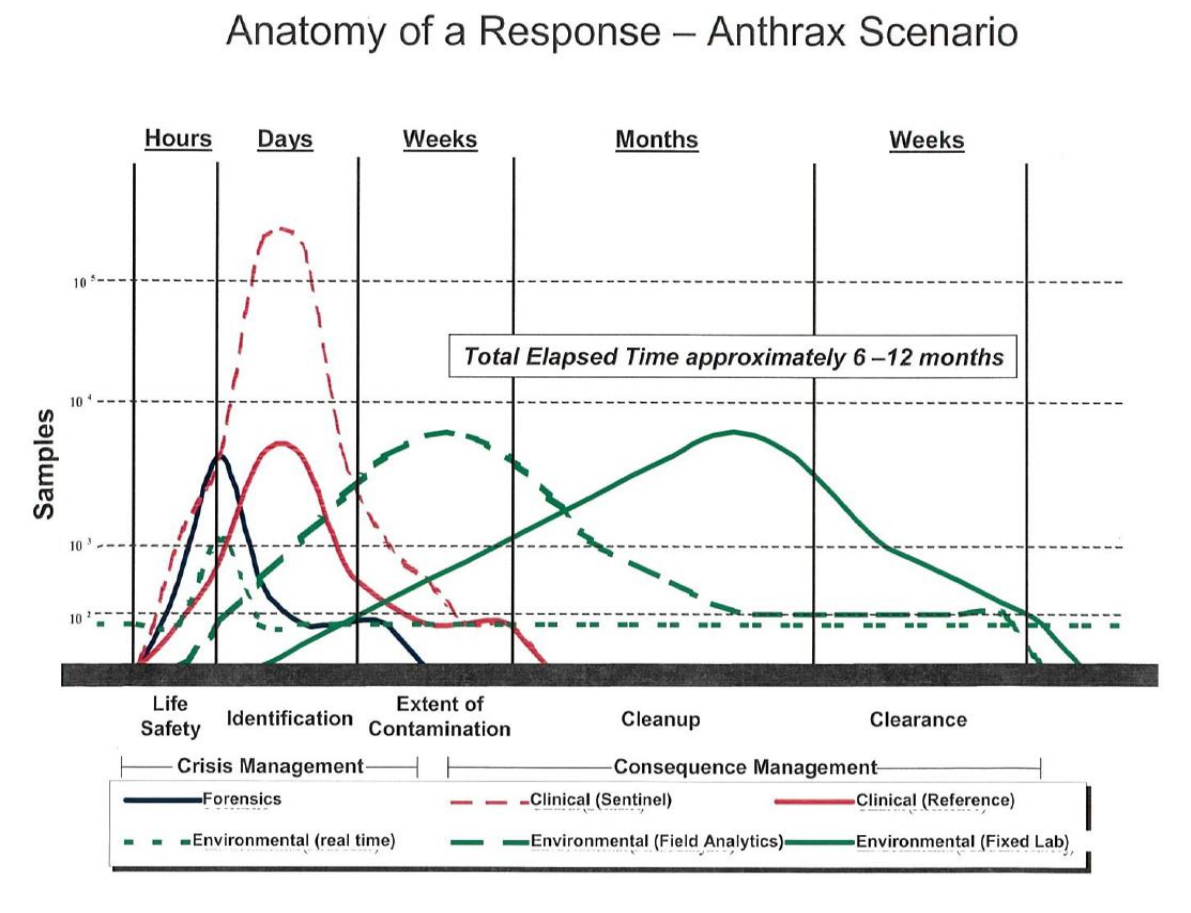
- A laboratory network supporting the emergency response community by providing analysis of chemical, biological, and radiological contaminants in environmental samples
- Can be used to support incidents of any scale during preparedness, response, and remediation phases
- Provides a network of laboratories with known quality

ERLN Mission & Goals

- Mission
  - To provide Federal, State, and local decision-makers with reliable, high quality analytical data used to identify chemical, biological, and radiological contaminants collected in support of response and cleanup activities

- Goals
  - Provide environmental laboratory testing capability and capacity to meet EPA's responsibilities for surveillance, response, decontamination, and recovery from incidents involving release of chemical, biological, or radiological contaminants
  - Facilitate coordination of laboratories capable of responding efficiently and effectively to incidents
  - Maintain and establish relationships with other federal laboratory networks through the Integrated Consortium of Laboratory Networks (ICLN) in preparation for a major environmental event

Why do we need a laboratory network?



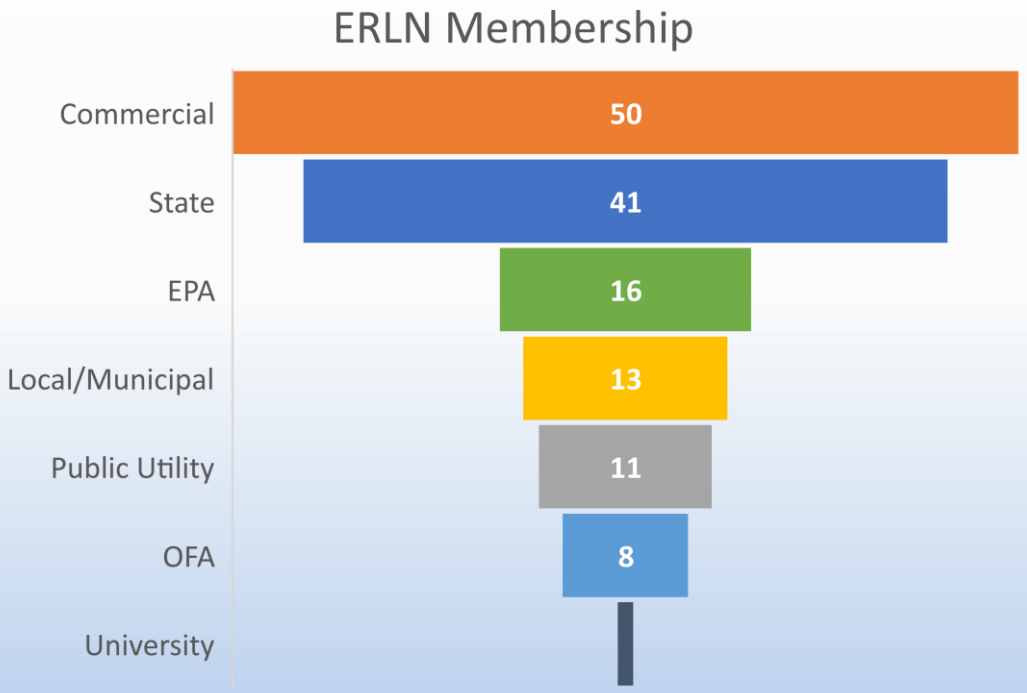
- Peak estimate of environmental samples for fixed labs is ~8,000
- Environmental fixed lab samples overlap with forensic samples and clinical samples
- The need for environmental sample analysis by fixed laboratories is estimated to last 6-12 months, through agent identification, extent of contamination, cleanup, and clearance phases

Authority

- Homeland Security Presidential Directive 9 (HSPD-9) on Defense of United States Agriculture and Food (2004) directed DOI, USDA, HHS, and EPA to:
  - “develop nationwide laboratory networks for food, veterinary, plant health, and water quality that integrate existing Federal and State laboratory resources, are interconnected, and utilize standardized diagnostic protocols and procedures.”
- National Security Memorandum 16 (NSM-16) on Strengthening the Security and Resilience of US Food and Agriculture (2022) directs DOI, USDA, DOC, HHS, and DHS to:
  - “develop, maintain, assess, enhance, and encourage the adoption of …. Coordinated nationwide laboratory networks for food, animal, and plant health; environmental response that integrates existing Federal, SLTT, academic, and, as appropriate, private laboratory resources toward adequate surge capacity…”
- HSPD-10 on Biodefense for the 21st Century (2004) directed DHS and other Federal departments and agencies to integrate efforts to:
  - “characterize the dispersal of biological agents in human and animal populations, food, water, agriculture, and the environment.”
- National Biodefense Strategy and Implementation Plan directs EPA to:
  - “develop the domestic capability to detect, sample, analyze, and evaluate the extent of environmental contamination of affected areas by a biological hazard…”

ERLN Membership

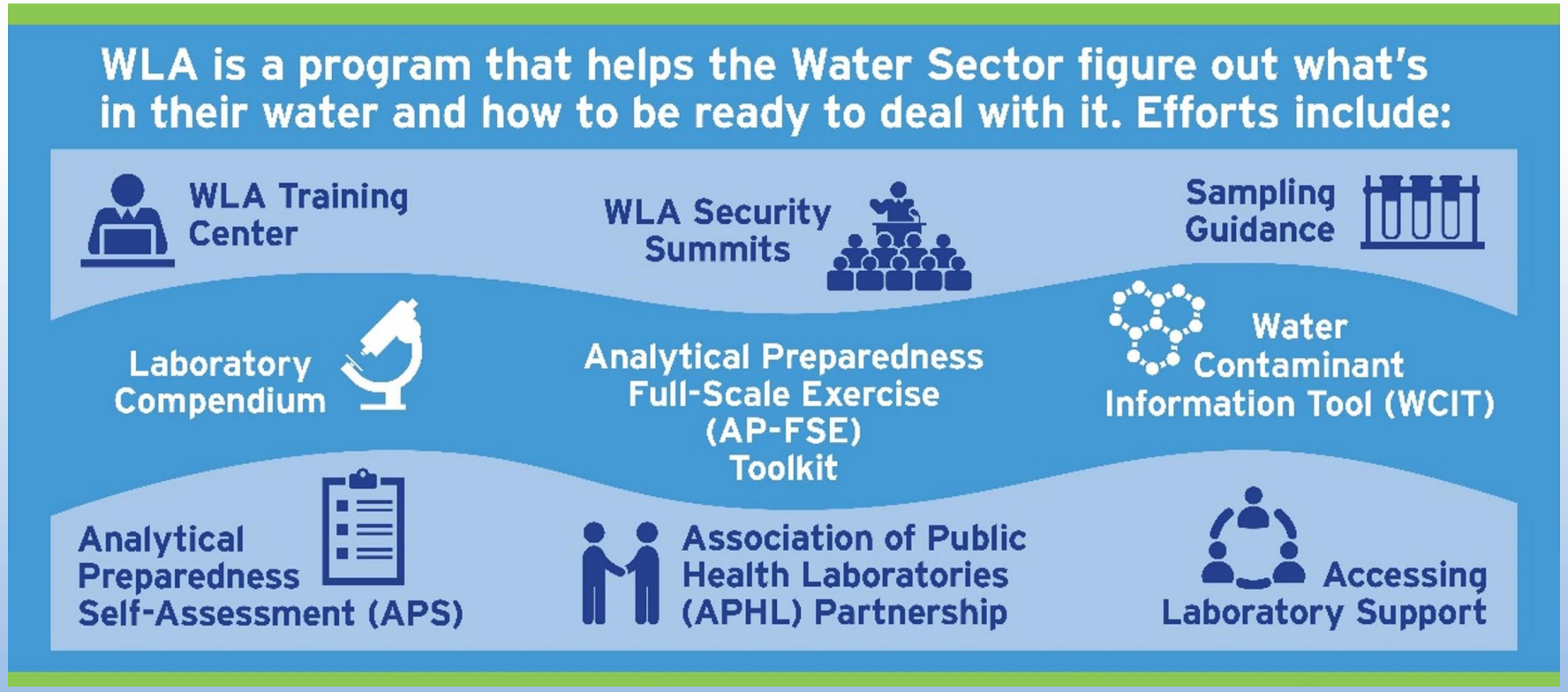
- Current membership base includes public and private labs with chemical, biological, and radiological capabilities
- Current membership total: 140 labs (137 WLA labs)
- ERLN membership requirements (established in 2009)
  - Requirement for member labs to be accredited by an accreditation body
  - Requirement for member labs to support high-throughput analysis
  - Requirement for member labs to analyze chemical, biological, or radiological environmental samples



Total: 140 labs

What is the Water Laboratory Alliance?

- The WLA is part of the ERLN and provides the Water Sector with a nationwide network of laboratories to support the response to **water contamination incidents**
- The WLA provides support with:
  - Enhanced communication with response partners
  - Preparedness for managing contamination incidents



What is the Integrated Consortium of Laboratory Networks (ICLN)?

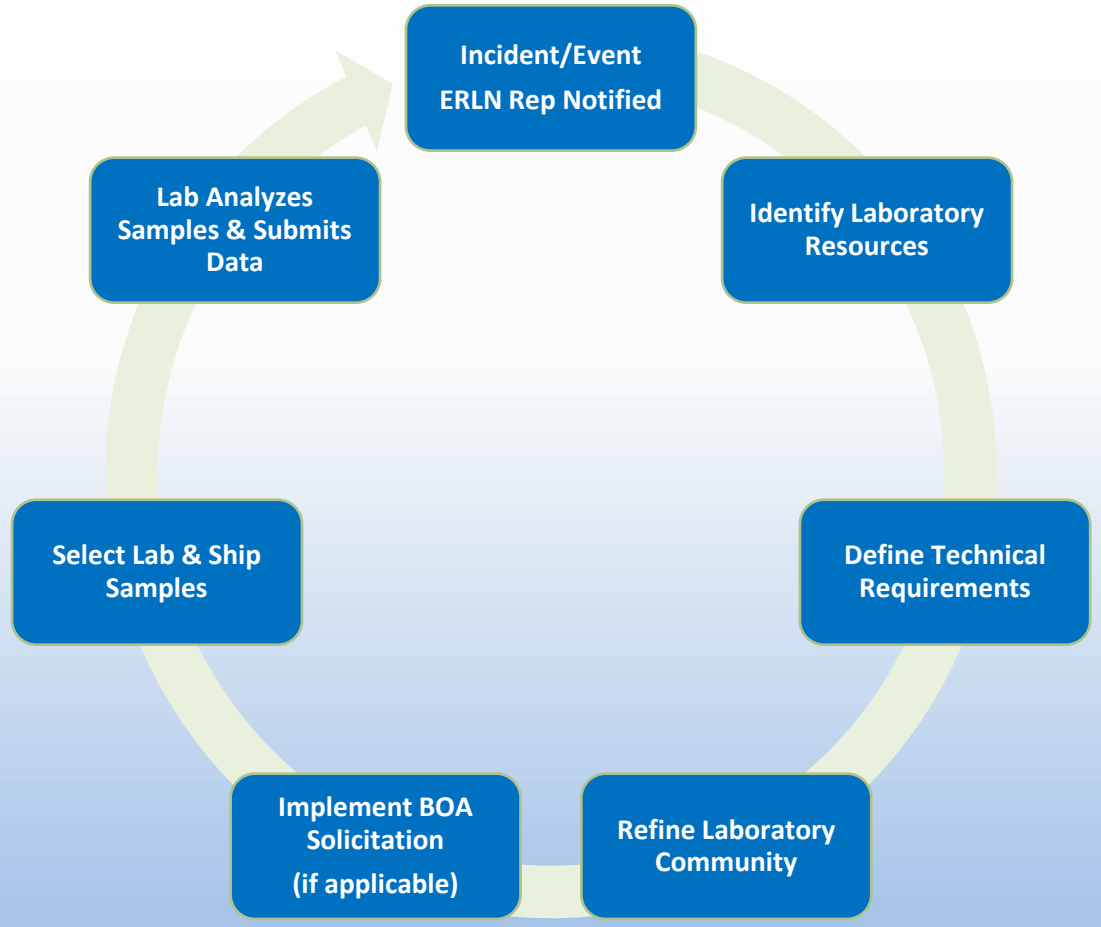
- Established in 2005, the ICLN is a partnership of nine federal agencies chaired by the Department of Homeland Security
  - Charge: *"[D]evelop and maintain a coordinated and operational system of laboratory networks that provide timely, high quality, and interpretable results for early detection and effective consequence management of acts of terrorism and other events requiring an integrated laboratory response."* *

* Integrated Consortium of Laboratory Networks Signed Charge and Charter, 2008

ERLN's Role in the ICLN

- The ERLN is one of seven CBRN lab networks in the ICLN
  - Primarily responsible for environmental and drinking water matrices
- ICLN lab networks, including ERLN provide:
  - Data of known quality
  - Surge capacity support for wide-scale incidents
  - Consistent data exchange across lab networks to support information sharing and decision making

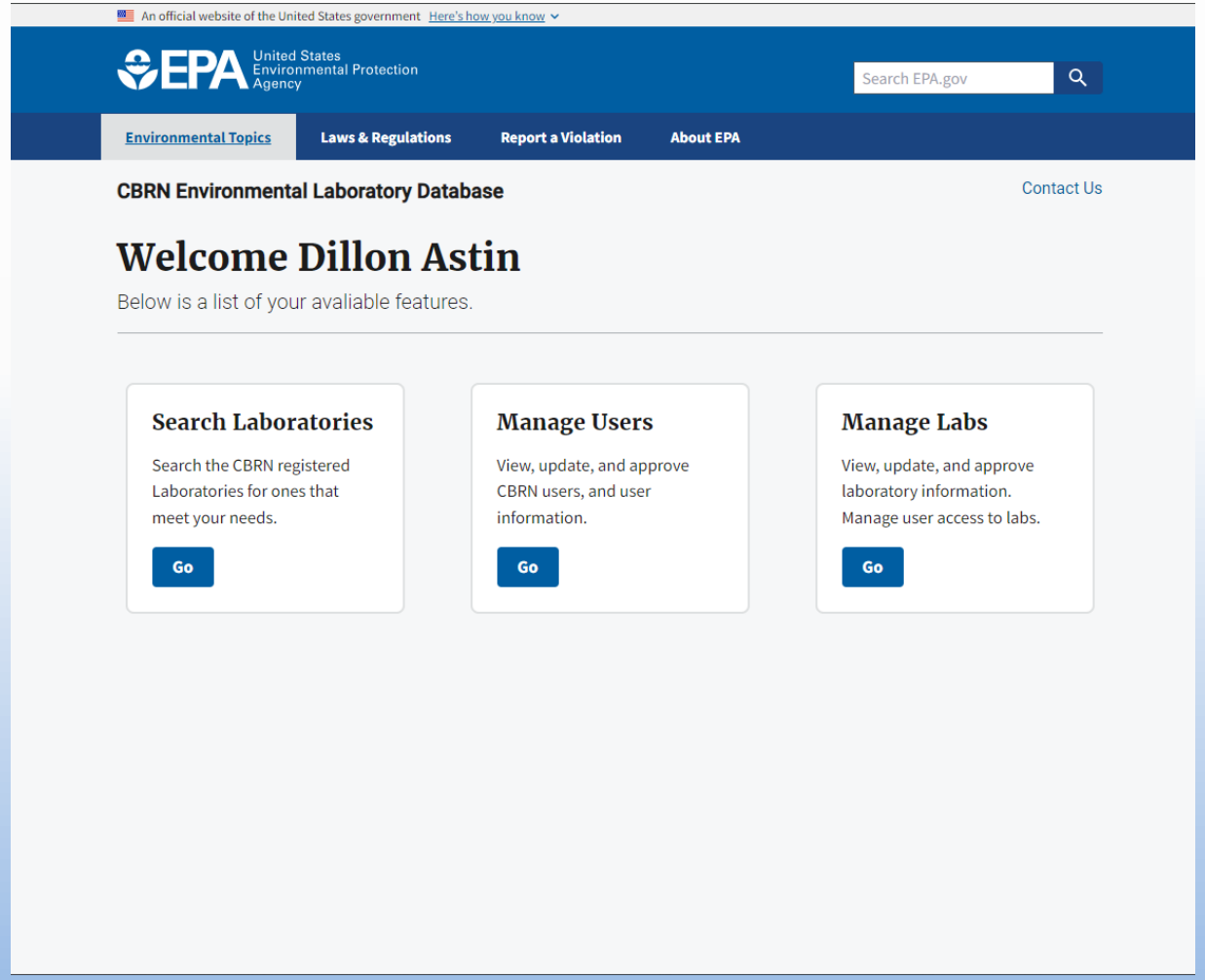
ERLN Operations



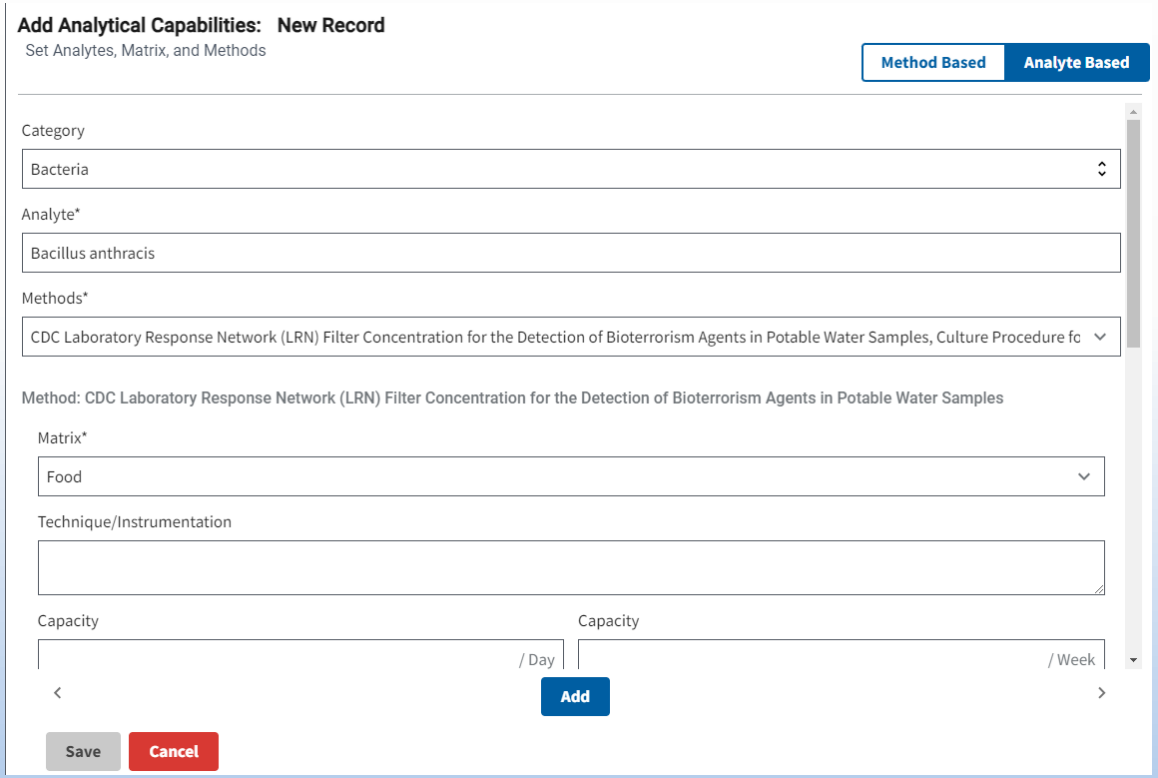
- In response to a CBRN incident or in preparation for an exercise or special event, EPA On-Scene Coordinators (OSCs) or exercise coordinators identify a need for laboratory analysis beyond the capabilities/capacity of their Regional lab and pre-existing contracts
- The OSC, in consultation with CMAT, defines the analytical need and identifies ERLN laboratories that may be able to support
- BOA solicitation for laboratory support is issued
- OSC reviews BOA submissions to select a laboratory

CBRN Environmental Laboratory Database (CELD)

- The CBRN Environmental Laboratory Database (CELD) is currently under development and will replace the legacy Compendium of Environmental Testing Laboratories
- General CELD features to improve the user experience:
  - More intuitive navigation
  - Two factor authentication via Login.gov and EPA single-sign-on
  - A responsive, 508-compliant user interface
  - Improved user instructions
  - Automated email notifications and reminders



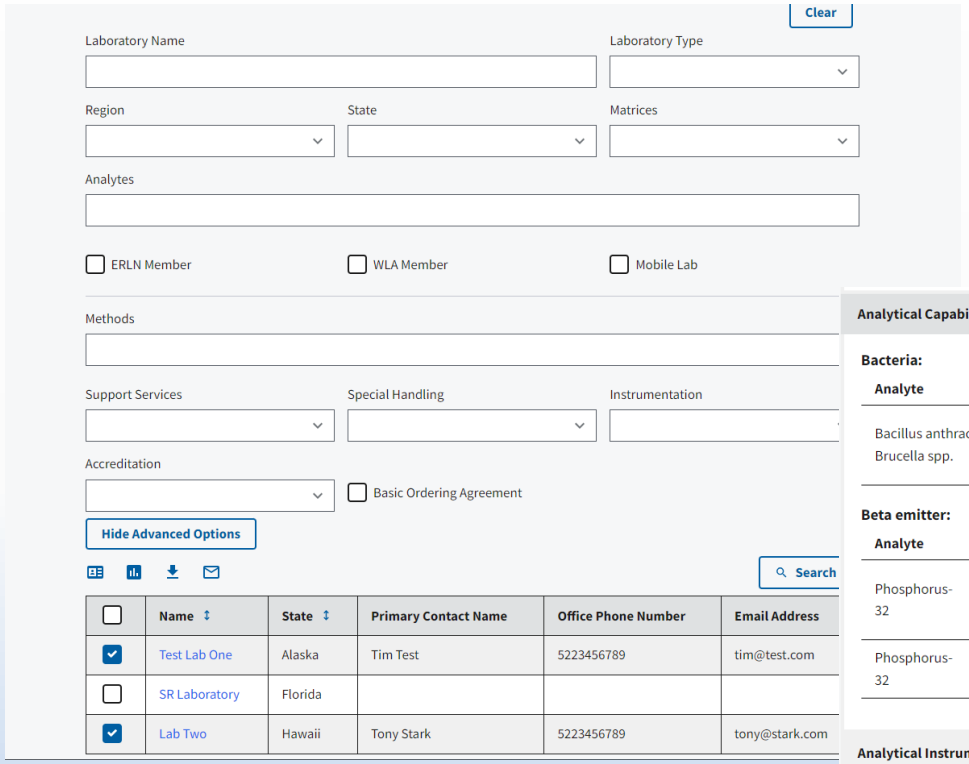
CELD Data Entry Improvements

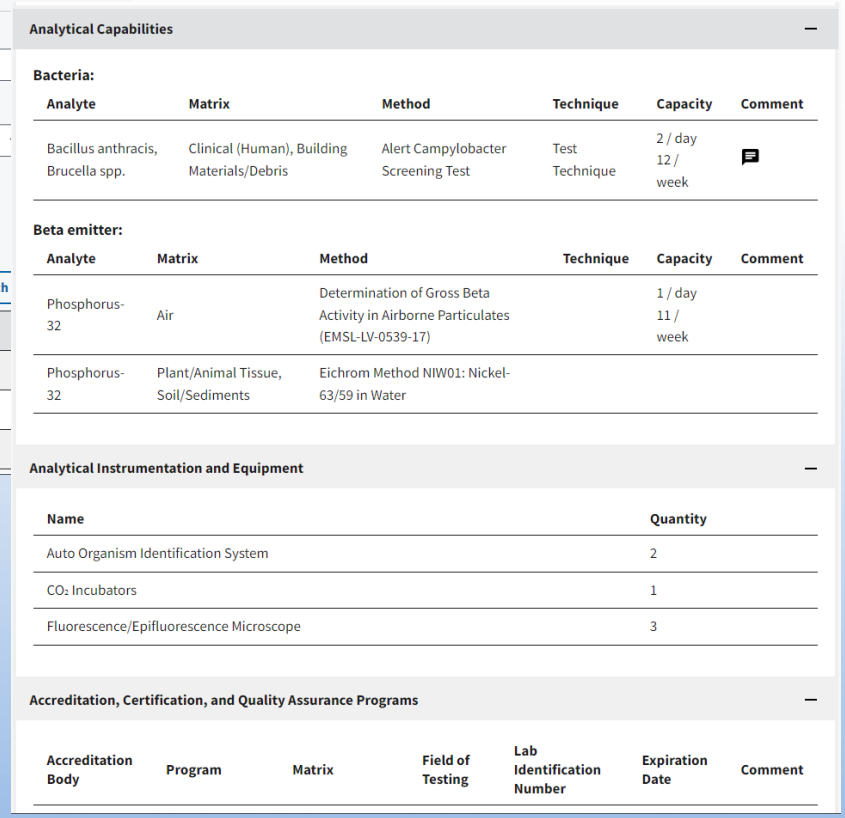


- Improved functionality for laboratory users
- Improved laboratory certification entry
- A more extensive list of analytes and methods
- A streamlined list of sample matrices
- Improved sample throughput capacity entry

CELD Search Improvements

- Improved search logic
- Search results filtering
- Search parameter modification
- Ability to export results to spreadsheet format
- Side by side comparison of laboratory capabilities





Remaining Gaps & Future Activities

Remaining Gaps

- Many ERLN/WLA member laboratories are also member laboratories of other ICLN networks and may already be involved in an incident response on behalf of those networks
- ERLN member engagement remains a challenge, but is essential for accurate assessment of capabilities
- OSCs are many times looking for a lab that can provide a variety of sample analyses with high sample throughput
- OSCs need data in hours/days not weeks
- BOA activation process is too slow for an emergency response

Future Plans

- Develop a new ERLN/WLA laboratory database with increased functionality for both member labs and EPA users searching for laboratory support (CELD)
- Re-evaluate and update ERLN/WLA membership requirements
- Enhance laboratory recruitment efforts (FY25)
- Host laboratory exercises on a more regular basis
- Evaluate and optimize the BOA activation process

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