EML

Environmental Measurements Laboratory

"A Federal Resource"

Homeland Security Programs

The Environmental Measurements Laboratory is a government-owned, government-operated laboratory with an established 55-year reputation and capability for fast response and expertise in low level radioactivity and radiation measurements and techniques which are vitally important in recovery operations.

EML carries out research and development of field and laboratory based advanced analytical instruments and technologies, coupled with current techniques in sample collection and analysis and data reduction, to identify nuclear threats throughout the world and to provide advice and consultation on environmental measurements and signatures.

Core Capabilities:

- Radiation Survey Planning
- Radiological Monitoring and Assessment
- Radiation Instrumentation R&D
- Real-Time Radiation Measurements
- Radiation Dosimetry
- Radiochemical Analysis and Quality Assurance

Unique Facilities:

Environmental Chamber:

A 25 cu meter facility, the only one in the U.S., that can generate atmospheres with controlled aerosols and gases for calibration and testing of new instruments.

Gamma Spectrometry Laboratory:

A fully equipped laboratory with high efficiency and high resolution gamma sensors.

Technical Expertise:

In the event of a radiological emergency, EML can deploy its experienced scientists and engineers and a variety of radiation and radionuclide measurement systems.

Emergency Response:

With its unique location in downtown New York City, EML serves as a satellite team for the DOE Radiological Assistance Program (RAP) in Region I. EML is a member of the Federal Radiological Monitoring and Assessment Center (FRMAC) Consequence Management Laboratory Analysis Working Group.

Homeland Security:

In the aftermath of the WTC attack, EML became involved in several initiatives. These include:

- acting as a clearinghouse for information about DOE's sampling technologies such as radiation portal monitors to check debris being removed from the site at the request of EPA Region II;
- collaborating with the EPA air monitoring group from the National Research Exposure Laboratory to assist in the siting of dioxin monitors;
- teaming with the University of California at Davis to provide a time history of the particle size distribution of aerosols and associated concentrations of various pollutants in the air in lower Manhattan;
- establishing a prototype station on EML's roof to monitor and report radiation data in real time;
- providing technical guidance to local security forces in the evaluation of radiation sensors.

Nonproliferation Treaties:

As a federal laboratory, EML supports DOE's National Security mission through its detection and deterrence activities for the nonproliferation treaties. EML has been designated at the U.S. Radionuclide Laboratory in support of the International Monitoring System. Development of detection systems to aid international weapons inspectors in verification compliance will cross over into counterterrorism applications.

EML's Global Radioactivity Sampling Network:

EML has maintained a worldwide network of aerosol and deposition sampling stations for over 40 years. Currently, there are 10 domestic sites. The network serves to identify any new sources of radioactivity released into the environment.

EML's Technology Development

EML Comprehensive Radiation Sensor (CRS): A low cost gamma-ray detector that can easily distinguish anthropogenic fission and activation from natural radiation.

EML RAMPSCAN: A portable, attaché -sized, battery-operated gamma radiation measurement and analysis system used to rapidly assess ("Go"/"No Go") fission product likelihood from freshly collected air filters.

EML RAMS: A particulate collection system with a sodium iodide gamma detector applicable for precise attribution and characterization currenly used in EML's Remote Atmospheric Measurements Program (RAMP).

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