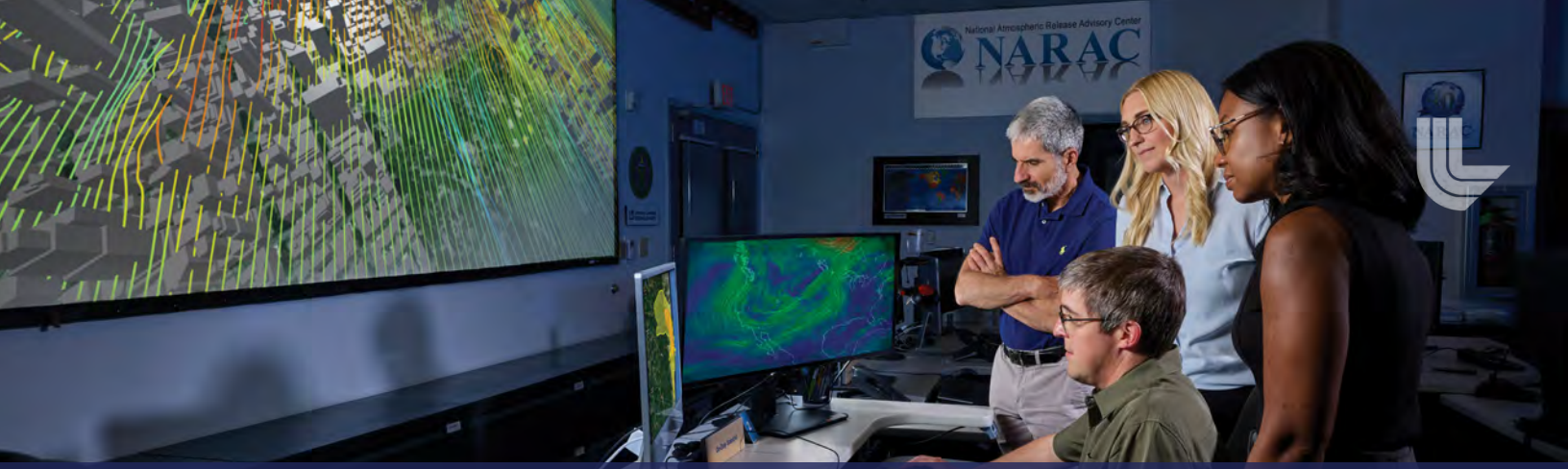


24/7 Emergency Response

Providing round-the-clock expertise and technical capabilities to support emergency preparedness and response, military operations, and the Intelligence Community

Expertise on Call

Lawrence Livermore National Laboratory (LLNL) is a long-established Department of Energy (DOE)/National Nuclear Security Administration (NNSA) partner and member of the nuclear and radiological emergency preparedness and response community.

LLNL provides crisis assessment and analysis of chemical, biological, radiological, nuclear, and explosive (CBRNE) threats and research and development of tactical tools for military operations and the Intelligence Community.

The Laboratory's trained, certified interdisciplinary teams of subject-matter experts possess a unique combination of skills, experience, and abilities across a range of disciplines from atmospheric modeling to data science and nuclear forensics. These can be rapidly deployed on site or off, at a moment's notice.

Scientific Expertise

LLNL's scientists and engineers possess critical skills and experience, as well as access to cutting-edge computing, facilities, and equipment.

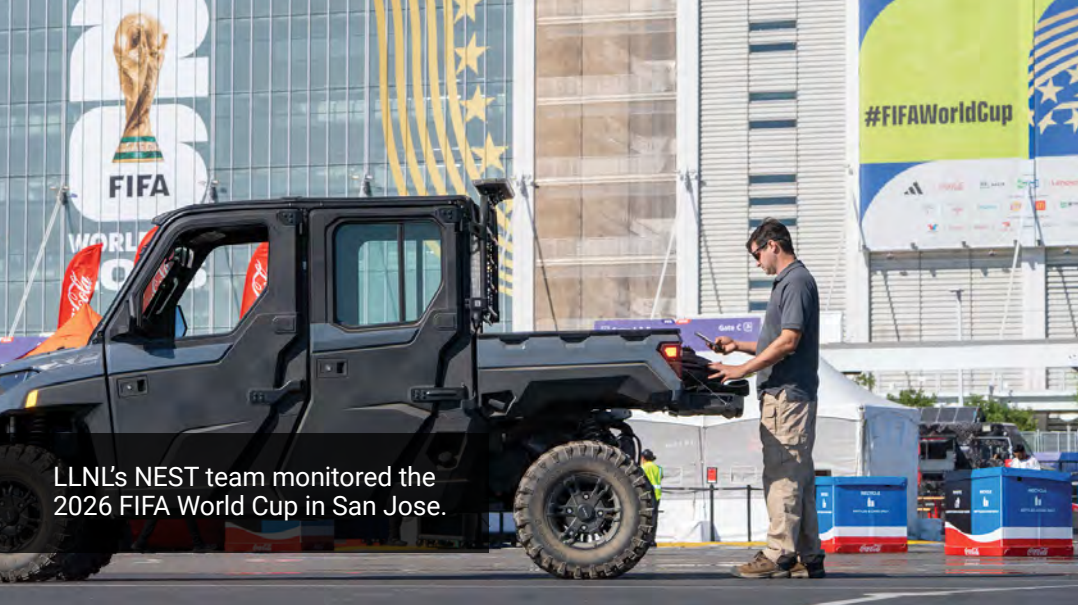
LLNL is one of three DOE laboratories contributing to NNSA's multi-mission **Nuclear Emergency Support Team (NEST)**, which leverages the Lab's experts to address the nation's most pressing radiological and nuclear challenges.

The National Atmospheric Release Advisory Center (NARAC) responds to hazardous atmospheric releases anywhere in the world — predicting their trajectories to protect the public and the environment.

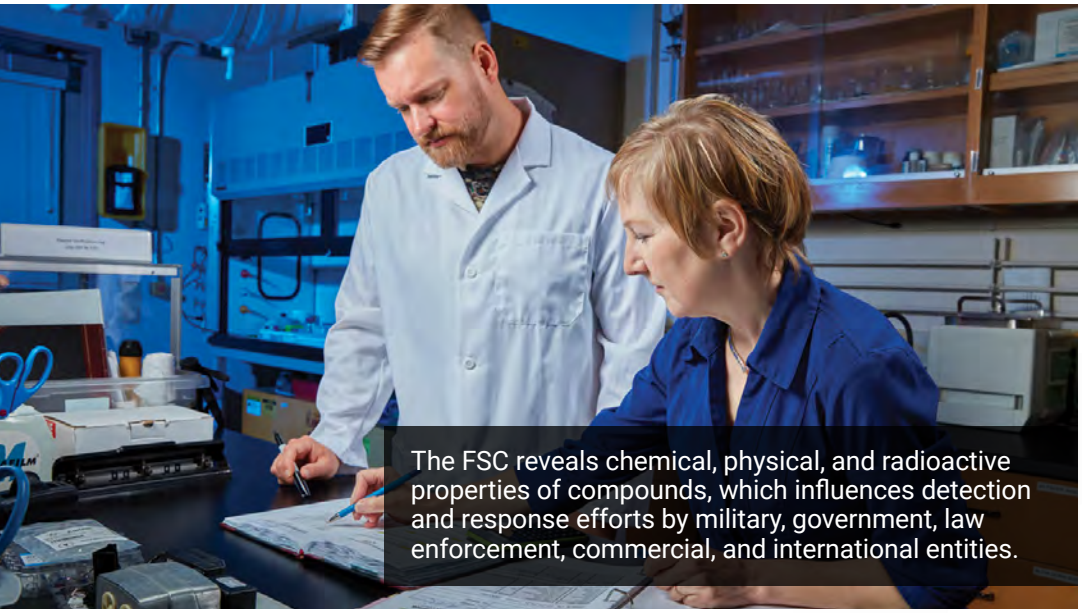
The Forensic Science Center (FSC) responds to domestic law enforcement requests for CBRNE analysis and is one of two U.S. laboratories designated by the Organisation for the Prohibition of Chemical Weapons to analyze samples.

The Counterproliferation Analysis and Planning System (CAPS) provides all-source WMD analysis to support the Department of Defense/Department of War and the Intelligence Community.

The Rapid Impact Vulnerability Analysis capability uses the Laboratory's expertise to assess emerging cyber threats, explore vulnerability scenarios, and evaluate their impact on U.S. critical infrastructure.



LLNL's NEST team monitored the 2026 FIFA World Cup in San Jose.



The FSC reveals chemical, physical, and radioactive properties of compounds, which influences detection and response efforts by military, government, law enforcement, commercial, and international entities.

Accomplishments

LLNL has a decades-long record of emergency preparedness and response, providing urgent support during several recent incidents including:

Plutonium Finishing Plant at Hanford (2018): NARAC assessed potential contamination at a plutonium finishing plant in Washington state using a fast-running urban dispersion model to determine whether contamination levels might extend beyond radiological-control boundaries during decontamination and demolition.

Ruthenium Detections across Europe (2017): When a radioactive plume of Ruthenium-106 appeared in the atmosphere across Europe, NARAC quickly estimated the probable source location and strength using a machine learning tool.

Looking Ahead

LLNL will continue to advance its technical capabilities and strengthen the nation's credible response posture by applying advances in high-performance computing and artificial intelligence. The Laboratory will also improve the speed and accuracy of intelligence gathering, analysis, and threat assessments.

High-fidelity training materials and innovations such as augmented reality show promise in enhancing first responders' training, improving their effectiveness, and reducing response times.

As LLNL researchers continue to advance cutting-edge S&T and develop innovative technologies, the Laboratory's operational technical support will continue to provide timely, effective capabilities needed for national emergency response.

llnl.gov/news/fact-sheets

Lawrence Livermore National Laboratory

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