



RSL scientists discuss flight data with pilot.

Global Security

Remote Sensing Laboratory (RSL)

History

The Atomic Energy Commission originally established the “Aerial Measurements Operations” at Nellis Air Force Base in Las Vegas, Nevada, in the 1950s. It was created to serve the worldwide emergency system by providing rapid response to radiological emergencies. In 1976, the U.S. Department of Energy (DOE) established an Aerial Measurements Operations at Andrews Air Force Base – now called Joint Base Andrews – in Maryland to provide scientific and technical support to counterterrorism efforts during U.S. bicentennial events in Washington, D.C. With a location on each coast, RSL has served for more than 50 years as a valuable national asset for nuclear emergency response and remote sensing capabilities.

Introduction

The Remote Sensing Laboratory (RSL) is the nation’s premier center for radiological incident operations and support; applied science and technologies; and tactical emergency communications enabling the National Nuclear Security Administration’s (NNSA) emergency response, counterterrorism and nuclear nonproliferation missions. With locations in both Eastern and Pacific Time zones, RSL deploys advanced technologies and personnel worldwide.

Emergency Response Capabilities

RSL can support both deployment and home team operations with the following assets:

Deployable:

- Aerial Measuring System (AMS)
- Nuclear/Radiological Advisory Team (NRAT)

- Consequence Management Response Team (CMRT)
- Mobile Emergency Communications Network (MECN)
- Support personnel to render safe teams

Home Team:

- National AMS Reachback Center
- Search Management Center (SMC)

- Consequence Management Home Team (CMHT)
 - Most of the RSL response assets can integrate into the Federal Radiological Monitoring and Assessment Center (FRMAC)
- Emergency Communications Network (ECN)
 - Network Operations Center (NOC)
- Render safe home team support

Science and Technology

RSL has a worldwide reputation for developing and customizing state-of-the-art instruments and producing standard-setting technologies in remote sensing. A pioneer in the field, RSL has developed accurate and credible remote sensing applications and technologies used for a variety of aerial and ground based platforms to acquire a wide range of environmental data.

RSL can provide large-area radiological deposition and ground contamination mapping in the event of a radiological release. Algorithm research for image analysis of spectral imagery can be used to monitor environmental conditions, assess vegetation stress and detect hard or buried targets, minefields, objects or treaty-specific processing facilities.

RSL remote sensing capabilities include:

- Radiation detection, monitoring, surveillance and analysis
- High speed data telemetry
- Secure mobile communications
- Geographic Information Systems
- Photography and videography



Radiation Control Technicians work with field telemetry unit to confirm connection with the command center.



Responder performs radiological search operations.

Applied Technologies

The NNSC proudly partners with its current customers to develop and enhance applied technologies (AT) and provide solutions to pressing national security needs. AT offers partners access to the NNSC science, people and infrastructure. Collaborations with industry, small businesses, universities and government agencies on AT support the NNSC primary mission for the NNSA and develop new products and services to contribute to energy independence, enhance national security, protect our environment and increase economic prosperity.

Non-federal entities may enter into a variety of technology partnership agreements with the NNSC. Federal agencies can engage through interagency agreements with the NNSA to obtain NNSC services under our management and operating contract with NNSA.

The NNSC and one or more partners outside the federal government collaborate and share the results of a jointly conducted research and development project. Partners can be domestic or foreign and generally come from industry, nonprofit organizations or academia.

Emergency Communications Network Program

The ECN provides the DOE and NNSA leadership with dedicated communication capabilities required to manage global emergencies. The ECN is a highly available, resilient and secure telecommunications network providing data, video and voice communications between four core nodes, multiple fixed nodes and multiple mobile nodes via dedicated leased lines, Ethernet and satellite.

The ECN operates separate and distinct unclassified and classified networks. The two networks share the same telecommunications infrastructure and are similarly configured. Supplemental telecommunications technologies are employed by the ECN to facilitate effective global network support and augment communications availability.

ECN core nodes are in key physical locations:

- DOE Headquarters at the Forrestal Building, Washington, D.C.
- DOE Headquarters at Germantown, Maryland
- NNSA Headquarters, Albuquerque Site, Kirtland Air Force Base, New Mexico
- Switch Las Vegas, Nevada

The primary satellite entry point is located at MountainSide Teleport, Hagerstown, Maryland. Additional satellite entry points supporting current Outside the Continental United States exercises and missions are located at Napa Teleport, Napa, California and Fuchsstadt, Germany. The ECN periodically contracts with satellite communications providers for satellite entry points at alternate locations to satisfy global missions.

A key component of the ECN is the MECN deployment package that provides a portable dynamic communications capability for DOE/ NNSA emergency response assets, with full connectivity to the ECN and other networks. MECN also provides satellite communications backup capability for fixed nodes and Home Team terrestrial circuits. Home Teams are assets that provide the Primary Federal Agency and Field Teams with an in-depth research on technical questions and concurrence on action. MECN is capable of unclassified and classified data; video and voice communications; wide-band



AMS personnel discuss aerial mission with pilots.

satellite connectivity between NNSA emergency response assets and Home Teams; and simultaneous support of multiple deployed systems.

Homeland Security and Counterterrorism Solutions

RSL supports the nation's counterterrorism efforts with customized products and prototyping. With a focus on rapid turn-around and advanced technology solutions, RSL specializes in unique technological disciplines in counter-terrorism including special instruments for active and passive electromagnetic applications; nuclear, chemical and biological detection systems; sensor development, testing and application verification; and real-time mission support.

RSL provides force and facility protection to domestic and international assets and

activities. RSL subject matter experts conduct facility and site vulnerability assessments in order to design, install and maintain facility early warning systems for nuclear/radiological, biological and chemical weapons. Also, RSL performs similar assessments and provides technical security on a temporary basis for specific events, such as the State of the Union Address and the Olympic Games.

RSL Personnel and Technical Assets

RSL is comprised of engineers, technologists, pilots, operations, specialists, administrators, information technology professionals and scientists to provide a wide-variety of education and experience. Working in sophisticated laboratories with state-of-the-art equipment, these personnel work to advance the technological and operational capabilities of the emergency response teams and other RSL customers and mission partners.



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