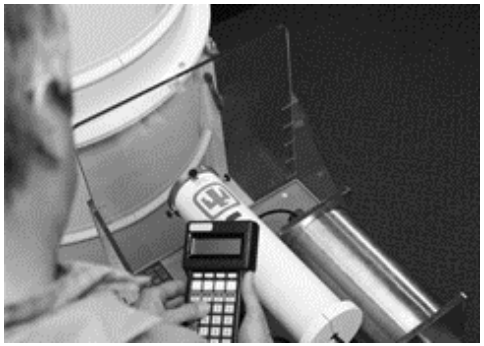
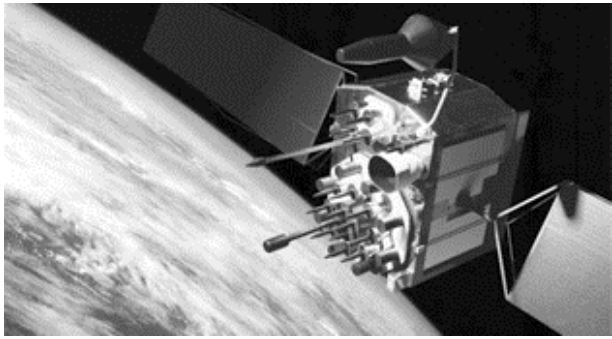
SAND2015-1285PE

Exceptional service in the national interest

Sandia National Laboratories





International, Homeland, and Nuclear Security

Program Management Unit

Protecting the nation and the world from the most dangerous events

U.S. DEPARTMENT OF ENERGY | NNSA

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND2014-20589PE
Modified 02-2015

Mission

- Advancing WMD nonproliferation
  - Supporting the development, implementation and monitoring of nonproliferation and arms control treaties and objectives;
  - Securing and safeguarding WMD materials and facilities;
- Enhancing security of nuclear weapons globally
- Countering, responding to, and recovering from WMD use by terrorists or others;
- Ensuring the resilience of critical U.S. physical and cyber infrastructures; and
- Reducing the risk to our nation from significant national incidents while maintaining and facilitating trade, travel, and personal freedoms.

Vision

Lead the nation in anticipating and reducing the highest-priority risks associated with weapons of mass destruction and catastrophic incidents.

Sponsors and Partners

International, Homeland, and Nuclear Security (IHNS) Program Management Unit (PMU) Directors

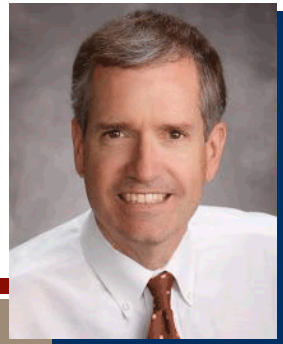
Global Security
Rodney Wilson

WMD Counterterrorism and Response
Billy Marshall

Homeland Security Programs
Duane Lindner

IHNS Remote Sensing and Verification
Jim Chavez

Homeland Defense and Force Protection
Dave Corbett



Cyber and Infrastructure Security
Len Napolitano

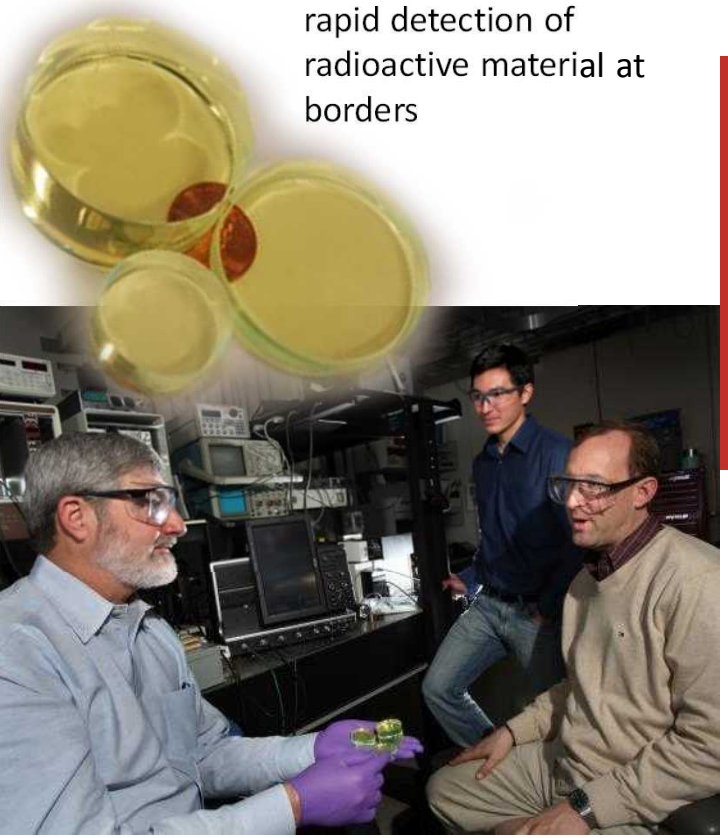
IHNS Drives Cutting Edge Research and Development

LDRD
LABORATORY DIRECTED RESEARCH & DEVELOPMENT

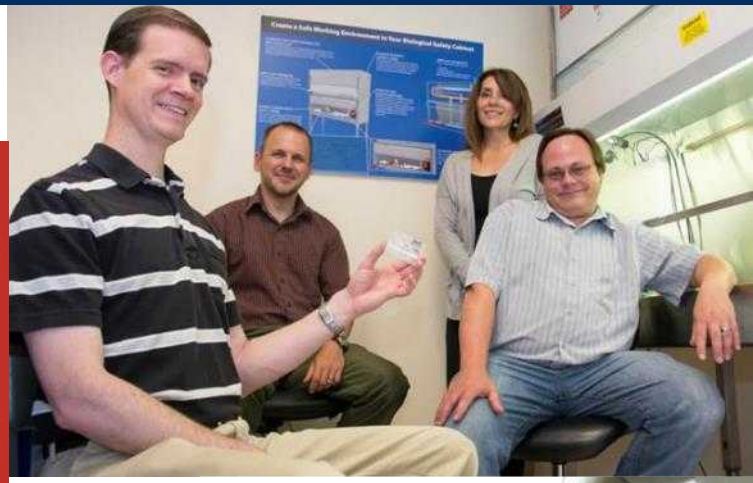
Sandia National Laboratories

Two IHNS LDRD projects receive prestigious R&D 100 Award in 2014

Plastic Scintillators for rapid detection of radioactive material at borders



2014 R&D 100



Portable diagnostic device for detecting Anthrax in countries where infrastructure is insufficient

Recently awarded the 2015 Award for Excellence in Technology Transfer award by the Federal Laboratory Consortium for BaDx

FEDERAL LABORATORY CONSORTIUM FLC FOR TECHNOLOGY TRANSFER

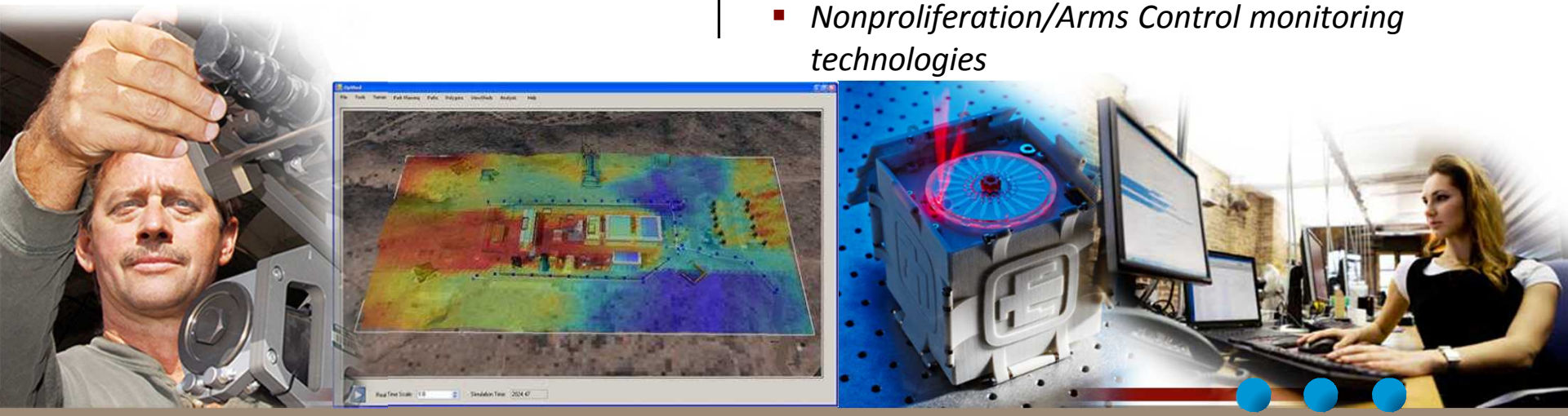
International, Homeland, and Nuclear Security

Program Areas

- Global Security
- Remote Sensing & Verification
- WMD Counterterrorism and Response
- Homeland Security
- Cyber and Infrastructure Security
- Homeland Defense and Force Protection

Capabilities

- *Nuclear, radiological, biological, explosives, and chemical science and engineering*
- *System analysis, engineering, and integration*
- *Physical and cyber security methods, technologies, and systems*
- *Predictive modeling and simulation of interdependent systems*
- *Decontamination and restoration approaches and technologies*
- *International security technologies and policy*
- *Nonproliferation/Arms Control monitoring technologies*



Gary Laughlin
IHNS Deputy

Jill Hruby
IHNS PMU VP

Sandia National Laboratories

Global Security
Rodney Wilson

- Engineered Security Systems *Holly Dockery*
- Arms Control, Nonproliferation & Nuclear Security *Pablo Garcia*
- Cooperative Threat Reduction

Key Customers: DOE (NNSA), DOS, DOD (DTRA)

IHNS Remote Sensing & Verification
Jim Chavez

- US Nuclear Detection Systems *Toby Townsend*
- Nonproliferation R&D *Bob Huelskamp*

Key Customers: DOE (NNSA)

WMD Counterterrorism & Response
Billy Marshall

- Airworthiness & Infrastructure Assurance *Bob Mata*
- Nuclear Incidence Response *Brad Parks*
- Nuclear Counter Terrorism *Billy Marshall*
- CBRNE Technology Development *Brad Parks*

Key Customers: DOE (NNSA), DOD, FAA, FBI

Homeland Security Programs
Duane Lindner

- Chem-Bio National Security *Malin Young*
- Nuclear & Radiological Security *Sheryl Hingorani*
- Weapons Remediation *Jim Lund*
- Aviation & Explosives Security *Wen Hsu*
- Disaster Management & Resilience *Richard Griffith*
- Borders & Maritime Security *Holly Dockery*
- Homeland Security Policy & Initiatives *Nate Gleason*

Key Customers: DHS (S&T, CBP, FEMA, DNDO, TSA, USCG, USSS, OHA, Policy), DHHS (NIH), DOD (Army, DTRA, DARPA)

Cyber & Infrastructure Security
Len Napolitano

- Cyber *Heidi Ammerlahn*
- Resilient Infrastructure Systems *Bill Rhodes*

Key Customers: DHS (NPPD, S&T), DOE (CIO)

Homeland Defense & Force Protection
David Corbett

- Air Force Nuclear Security Engineering *Randy Peterson*
- DOE/NNSA Nuclear Security Engineering *Randy Peterson*
- Navy Nuclear Security Engineering *Jennifer Nelson*
- Technologies & Systems For Emerging Threats *Phil Heermann*

Key Customers: DOD (Air Force, Navy, Army, DTRA, DARPA, COCOMs), DOE (NNSA), Industry

Global Security

We further global technical engagement to prevent the misuse of nuclear, chemical, biological and radiological materials.

- Enhance the security of nuclear weapons and materials worldwide
- Support negotiations and implementation of international treaties and agreements
- Provide guidance to the global community on effective security practices for dangerous materials

Engineered Security Systems

Arms Control, Nonproliferation and Nuclear Security

Cooperative Threat Reduction

Global Security

We are committed to…

- Developing partnerships to build a global capacity to prevent the misuse of nuclear, chemical, biological and radiological materials
- Providing systems and technologies that both inform and implement national security policy

Sandia National Laboratories

Global Security – *enhancing regional outreach*

Successfully completed a high-profile NNSA project in South Africa

IHNS Remote Sensing and Verification

Extending our 60-year heritage in nuclear detonation detection, we develop, deliver, and provide mission expertise for advanced remote sensing systems to monitor worldwide activities of consequence to national security.

- Design and build satellite sensor payloads and create ground-based analysis systems for the detection of nuclear detonations
- Research, develop, test, and evaluate ground-based sensor systems for detection of nuclear treaty violations
- Research and develop novel sensor systems to detect nuclear proliferation worldwide

United States Nuclear Detonation Detection System

Nonproliferation/Arms Control Technologies R&D

IHNS Remote Sensing and Verification

We are committed to…

- Supporting a wide range of government sponsors in creating systems for additional national security missions involving nuclear detonation detection, nuclear proliferation detection, treaty monitoring, arms control, and other needs in the intelligence and military communities

- Developing technologies and systems with domestic and international peers designed to reduce the threat of nuclear proliferation

IHNS Remote Sensing and Verification – *integrating technology*

Delivery of the NNSA sponsored Global Burst Detector payload for integration into the first GPS III Satellite

GBD III-1 Installed on Space Vehicle, LM Integration Facility, Denver
Photos Courtesy of LM

WMD Counterterrorism and Response

We provide technology development, crisis response, consequence management, and training for our government agency partners.

- Develop advanced technologies to prevent the use of WMD or improvised nuclear weapons
- Supply instruction aids, specialized venues, and counter-WMD training expertise
- Diagnose the effects of threat events and use the analysis for emergency planning and response

Nuclear Incidence Response

Nuclear Counterterrorism

Chemical, Biological, Radiological, Nuclear and Explosives Technology Development

Airworthiness and Infrastructure Assurance

WMD Counterterrorism and Response

We are committed to…

- Expanding specialized training centers for nuclear and explosive threats for the DoD and law enforcement communities
- Providing broader support to ensure public aviation safety and security across the enterprise

Sandia National Laboratories

WMD Counterterrorism and Response – *readiness training*

Participated in a National Asset Nuclear Response no-notice exercise

Homeland Security Programs

We reduce the risk to our nation by providing research, analysis, and engineered solutions for keeping our homeland safe.

- Develop advanced technologies for detecting radiological and nuclear sources
- Develop innovative concepts for biological agent warning and response, decontamination, and medical diagnostics
- Support emergency management training, preparedness, and response to catastrophic incidents
- Provide equipment to safely destroy chemical weapons to meet treaty obligations

Chem-Bio National Security

Aviation and Explosives Security

Weapons Remediation

Nuclear and Radiological Security

Borders and Maritime Security

Disaster Management and Resilience

Policy and Initiatives

Homeland Security Programs

We are committed to…

- Helping operational customers address complex and rapidly evolving technical problems as an honest broker
- Providing needed science and technology solutions in major threat areas
- Expanding support to national policy development

Homeland Security Programs –
developing and delivering security

Sandia National Laboratories

Provided technology and training to the Federal Protective Service

Cyber and Infrastructure Security

We develop and apply technologies and analytical approaches for securing the infrastructures that we rely on.

- Assess physical and cyber vulnerabilities under a common risk-management framework
- Conduct large-scale analyses to understand infrastructure interdependencies and guide efforts to improve resiliency
- Develop technologies for preventing disruption and enhancing recovery in vital cyber systems

Cyber Security

Resilient Infrastructure Systems

Cyber and Infrastructure Security

We are committed to…

- Working with US government agencies to ensure the integrity and availability of the nation's cyber infrastructure
- Enhancing preparedness, protection, response, recovery, and mitigation
- Understanding the linked, interdependent nature of the nation's critical infrastructures
- Facilitating widespread commercialization/adoption of laboratory technologies by the private sector

Sandia National Laboratories

Cyber and Infrastructure Security – *strengthening Sandia's Information Design Assurance Red Team (IDART)*

Trained DHS personnel for cyber assessments

Homeland Defense & Force Protection

Providing technologies and systems for countering emerging threats and protecting US nuclear weapons and materials in all places at all times.

- Design and implement advanced systems for intrusion detection and denial
- Anticipate new threats and develop responses and countermeasures
- Field technologies for protecting security forces and military personnel

Air Force Nuclear Security Engineering

DOE/NNSA Nuclear Security Engineering

Navy Nuclear Security Engineering

Technologies and Systems for Emerging Threats

Homeland Defense and Force Protection

We are committed to…

- Providing a Center of Excellence for Physical Security to support the DOE and DoD in ensuring the security of the nation's nuclear arsenal and special nuclear materials
- Creating effective internal and external partnerships to provide systems and technologies to address current and emerging future threats to the homeland

Sandia National Laboratories

Homeland Defense and Force Protection –
advancing biomedical research

Completed Phase I of the Prosthetic Socket work for the US Army Medical Command


INTERNATIONAL,
HOMELAND,
AND
NUCLEAR
SECURITY