National Security and Defense

MRIGlobal innovations have helped safeguard U.S. citizens and soldiers from ever-changing threats both at home and abroad . . .

MRIGlobal offers clients a unique organization providing the full range of national security and defense support. Our chemists, biologists, and engineers apply their vast experience to creating new strategies for defense, with vital services to help protect against chemical, biological, and explosives (CBE) attack. Our staff and facilities are dedicated to detecting, preventing, and mitigating threats to our military, our infrastructure, our food supply, and our citizens.

MRIGlobal

National Solutions *Worldwide* Impact

www.mriglobal.org

National Security and Defense

MRIGlobal is a trusted provider of solutions to the U.S. government for chemical, biological, and explosives defense R&D, laboratory operation and management, data fusion and analysis, systems integration, forensics, and intelligence and law enforcement support. We are respected internationally as defense and safety experts with demonstrated creativity, agility, quality control, and the ability to quickly respond to emergency needs.

We find practical solutions for:

- Standoff detection of CBE threats
- Rapid screening of materials, portals, and spaces for CBE threats
- Contamination avoidance and mitigation
- Installation protection and anti-terrorism force protection
- Efficacy and safety evaluation of vaccines and therapeutics
- Validation of diagnostic assays
- Development of forensic analytical methods
- Modeling and simulation
- Chemical and biological demilitarization
- Chemical and biological threat reduction and nonproliferation

One-Stop Chemical and Biological Expertise

In the lab or in the field, MRIGlobal can handle, process, and assay environmental samples containing potential chemical agents or agent signatures as well as pathogens for humans, plants, and animals. Microbiological, molecular biological, virology, and immunological methods are used for pathogen analyses. Our extensive gas and liquid chromatography and mass spectrometry resources (GC/MS, LC/MS)—coupled with on-site pathogen-containment laboratories, our bioaerosol chamber, and the full range of scientific instrumentation— provide powerful research tools. MRIGlobal also has the engineering facilities and resources to develop state-of-the-art systems and equipment to support chem-bio (CB) research and technology development such as advanced sensors and portable detection equipment.

Surveillance, detection, and identification

- Instrument development, evaluation, and validation
- Autonomous sensor systems
- Structural and spectral information
- Sample analysis
- Methods/protocol development

MRIGlobal offers state-of-the-art biocontainment laboratories at all three locations

Infrastructure and environmental protection

- Total Quality Security Management plans for industry
- Process control and remediation
- Multimedia sampling strategies
- Environmental impact, fate, and persistence

Biosafety and biosecurity worldwide

- Safety assessments of procedures, programs, and facilities
- Biosafety laboratory design and training
- Remediation and demilitarization of decommissioned sites

Laboratory design and management

- Design, oversight, and consulting for BSL-1 through BSL-4 laboratories
- Staffing for regular operations as well as 24/7/365 labs and surges
- Field and mobile CBE lab design and operation
- Audits and evaluations of labs and field tests

Chem-bio systems acquisition/engineering, survivability

- Rapid prototype development
- Requirements definition
- Engineering specifications, design, and testing
- Cost and operational analyses
- Development of handbooks and manuals
- Systems engineering and integration

Medical effects and toxicology

- Prophylaxis and neurotoxicity
- Personnel exposure/risk assessment
- Personnel and collective protection

Information management

- Laboratory information management systems
- Software development
- Telemetry

Cutting-Edge Facilities

MRIGlobal supports our clients with state-of-the-art chemical, biological, and high-hazard containment laboratories at three unique locations:

- Kansas City headquarters: 260,000 ft^2 of BSL-1 through BSL-3 biological and chemical laboratories, and two field stations for agricultural studies
- Palm Bay, Florida: 52,000 ft^2 focusing on biodefense programs, bioassay development, bioforensics, and test and evaluation of biomolecular detection equipment, with numerous BSL-2, and BSL-3 labs
- Rockville, Maryland: 46,000 ft^2 supporting biosurveillance and monitoring programs, including state-of-the-art BSL-2 and BSL-3 labs
- Frederick, Maryland: Staffed by biosafety/biosecurity experts consulting on BSL-2 to BSL-4 laboratory design, construction, and operation

In addition, MRIGlobal operates several government-owned laboratories addressing highly specific program requirements.

MRIGlobal's Kansas City headquarters is ISO 9001-2008 certified, and our chemical agent laboratories are operated under a bailment agreement with the Department of Defense. All MRIGlobal biosafety laboratories meet the facility standards and biosafety/biosurety requirements of the CDC, USDA, and the Department of Defense. MRIGlobal conducts programs for evaluation of medical therapeutics and vaccines that meet GLP and cGMP requirements.

MRIGlobal personnel are operating sampling and detection equipment in a 10'x10'x10 bioaerosol chamber

Bioaerosol Test Chamber

Our Bioaerosol Test Chamber conducts real-time bioaerosol studies of microbial and non-microbial infectious, allergenic, and toxic materials such as bacteria, viruses, protozoa, rickettsia, fungi, endotoxins, exotoxins, myco-toxins, pollen, and organic dust. Applications include bioaerosol samplers and detectors, air filtration devices, and medical device applications.

Chemical Agent Facility

Our Chemical Agent (CA) Facility operated under a bailment agreement with the army is equipped to perform R&D and other programs with CA material. These laboratories are equipped to analyze air, soil, and water samples for chemical agents, toxic industrial chemicals, and surrogates.

BSL Facilities

MRIGlobal's Biosafety Level 2 (BSL-2) through BSL-3 laboratories as well as ABSL-2 and ABSL-3 labs offer advanced collection efficiency and protection from cross-contamination for pathogen research and vaccine testing.

Breakthroughs in Defense

- In the republics of the former Soviet Union, MRIGlobal designed and implemented the environmental sampling needed to return the site of a former pathogen production facility to healthy agricultural fields. We are working side by side with host nation scientists to eliminate the infrastructure that could be used to produce biological weapons in the future. The work is funded by the Defense Threat Reduction Agency (DTRA).

- MRIGlobal is part of a team that is modifying UAVs to look for biological warfare agents as part of a program funded by DTRA. MRIGlobal's work reflects our expertise in developing biological detection systems that can then be applied to new uses in national defense and security. MRIGlobal will design the electrostatic precipitators used in the air sampler as well as the particle counter and the electronics used to support them.

- MRIGlobal engineers and scientists are leading the effort to design and construct a High Containment Facility (HCF) for the U.S. Army at Aberdeen Proving Ground, Maryland. MRIGlobal is particularly well-suited for this project because our systems engineering process is certified under ISO 9001 and has been successfully used for other government-sponsored programs and several mobile laboratory construction and maintenance projects. When completed, the HCF will ultimately help protect military personnel by providing a facility for testing contamination avoidance, individual protection, collective protection, and decontamination and detection technologies against a variety of chemical threats.

- MRIGlobal is prime contractor, providing program management and systems integration and chemical expertise for a U.S. Army project to develop a first-of-its-kind of integrated IPE Mannequin System—a humanoid robot. The project consists of a humanoid robot, chemical sensing, and an exposure chamber that will allow testing and efficacy of chemical protective gear under realistic conditions. The Mannequin project will test protective gear with live agents on a robot capable of moving and reacting like a human.

MRIGlobal

MRIGlobal is a not-for-profit organization that performs scientific research for clients in business, industry, and government. Founded in 1944, MRIGlobal is one of the nation's leading independent research institutes, conducting contract research in the areas of national security and defense, life sciences, agriculture and food safety, engineering and infrastructure, and energy research.

MRIGlobal's headquarters is located in Kansas City, Missouri. We also have offices and laboratories in Palm Bay, Florida, and Rockville and Frederick, Maryland. MRIGlobal is one of two entities that operates and manages the National Renewable Energy Laboratory in Golden, Colorado, for the U.S. Department of Energy.

For more information, contact:

John S. Stanley, Ph.D.
816.360.5141
jstanley@mriglobal.org

William R. Menzies
703.786.5096
bmenzies@mriglobal.org

www.mriglobal.org

2007.058 (rev. 4/11)