Combating Terrorism Technical Support Office

2008 Review

Preface

As this document goes to print, the election season is winding down; one in which presidential candidates have staked their claim on "change". For the Combating Terrorism Technical Support Office (CTTSO), change is a part of daily life.

Much has changed since the Technical Support Working Group (TSWG) was formed in the aftermath of the 1983 Beirut bombing, which killed 241 service members. In a world where the greatest threat to liberty was a ground war in Eastern Europe, terrorism was an afterthought, if it was a thought at all. Security to enter many Federal buildings or airports was minimal. The prevailing thought was "it can't happen here".

TSWG, and later CTTSO, stood as a voice for those who knew that it could happen here. And we challenged the stereotype of each part of the Federal bureaucracy that rejected cooperation on a "Not Invented Here" basis.

Since its inception, CTTSO has remained agile. As one example, TSWG split what had been one subgroup into two separate ones – Explosives Detection and Improvised Device Defeat. As interest expanded, this division allowed for a greater focus in a more specific area. CTTSO added Irregular Warfare Support and Explosive Ordnance Disposal/Low-Intensity Conflict as the need for both quickly became apparent.

But while change is critical, so is staying true to what needs to be done. CTTSO's method, unchanged since its inception, is simple yet powerful – involve users at every step of the way. Federal, State, and local science advisors, end users, subject matter experts, and first responders meet to discuss and vote on the highest priorities – thus reducing a requirements process that may take a year at some agencies to a single day.

After this process, the members who brought the requirement continue to participate. Even if they are patrolling Baghdad or Boston, they stay involved, reviewing submissions from all around the world that seek to address high-priority requirements. Users evaluate prototypes at every stage of development, making sure that what gets developed meets requirements. This evaluation can be as complex as making sure that a detection device performs to its specifications or performing tests to confirm that a new blast material can survive a truck bomb. Or it can be as simple as users recommending a minor modification to a prototype to ensure that someone wearing protective gloves can still use the prototype effectively.

And members' work does not stop when a product is developed. They work with their agencies and CTTSO to ensure that successes

White House photo by Eric Draper

"...ADDRESSING THESE CHALLENGES REQUIRES COMPREHENSIVE APPROACHES THAT EMPLOY THE WHOLE OF OUR GOVERNMENT'S CAPABILITIES..."

GEN. DAVID PETRAEUS
OCTOBER 31, 2008

U.S. Navy photo by Petty Officer 2nd Class Todd Frantom

Preface

DoD photo by Petty Officer 2nd Class Todd Frantom, U.S. Navy/Released

DoD photo by Staff Sgt. James Selesnick, U.S. Army/Released

U.S. Marine Corps photo by Lance Cpl Bryan Carfrey

are quickly transitioned to the user, so that every soldier, police officer, firefighter, or screener who needs the new technology has it as soon as possible.

CTTSO's international vision has stayed consistent as well. Since cooperation began in 1994 with Canada, Israel, and the United Kingdom, CTTSO has looked overseas to augment the domestic program. The addition of Australia and Singapore to CTTSO's international partners in 2006 continued this trend – looking for our counterparts with fresh ideas and who are interested in cooperating on projects that can stretch taxpayer dollars even further.

CTTSO's approach works. But it always needs agility to evolve. Because in locations around the world, there are those who are also pursuing their own change, exploring the latest foiled attack and trying to figure out how to defeat our countermeasures, and examining the latest successful attack and trying to figure out how to kill five more soldiers the next time.

Until they rest, we cannot.

About the Cover
Center cover photo: This photo highlights the success of the BX Subgroup's Entry Control Point program (p. 15).
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Combating Terrorism Technical Support Office

Overview

Identify requirements to combat terrorism and provide solutions to warfighters, first responders, and other front-line users as rapidly as possible.

The Combating Terrorism Technical Support Office (CTTSO) has used the above guidance to craft programs that are constantly adjusting to fill the needs presented by its customers. Following the example set by expeditionary combat units as the first elements to enter unknown territory and then displacing when the larger force is in place, CTTSO provides rapid capabilities while the larger research and development (R&D) community is mobilizing. When other organizations set up the infrastructure to provide long-term programs of record, CTTSO recalibrates to provide solutions to rapidly evolving requirements in new areas of the Global War on Terror (GWOT) that would otherwise go unmet.

CTTSO Organization

Combating Terrorism Technical Support Office

As a program office under the Assistant Secretary of Defense (ASD) for Special Operations and Low-Intensity Conflict and Interdependent Capabilities (SO/LIC & IC), CTTSO is uniquely positioned to contribute to the success of the GWOT. With overall supervision of the SO/LIC & IC activities of DoD, including oversight of policy and resources, the ASD acts as the principal civilian advisor to the Secretary of Defense on SO/LIC & IC matters. This allows CTTSO to take operational requirements from warfighters, incorporate policy objectives that flow down from the Department, and marshal technical expertise resident in its program managers, subject matter experts, and developers to provide capabilities that are fieldable and sustainable over the "Long War." This fortuitous balance of political direction, operational relevance, and technical expertise has enabled CTTSO to respond with agility and speed to changing requirements.

In 1999, CTTSO was assigned program management functions for the Technical Support Working Group (TSWG), the organization named by the *Wall Street Journal* as "…the nation's talent scouts for antiterrorism" technologies. More recently, CTTSO's responsibilities have grown to include the Explosive Ordnance Disposal/Low-Intensity Conflict (EOD/LIC) program and the Irregular Warfare Support (IWS) program. In addition, the Director of Defense Research and Engineering (DDR&E) has requested that CTTSO manage the Department's Human Social, Cultural, and Behavior Modeling program (HSCB). Numbering close to 100 dedicated managers, subject matter experts, and direct support personnel and over 400 active projects, CTTSO is positioned to sustain the success it has realized over the past nine years far into the future.

CTTSO's International Program

Terrorism is a worldwide problem. Al Qaeda and its affiliated organizations have been associated with plots in countries ranging from Indonesia to Germany to Algeria to Canada. Fighting the scourge of terrorism is a multi-pronged effort, ranging from the sharing of intelligence to cooperative operations to collaborative development. CTTSO specifically works with other countries to cooperatively share requirements and develop capabilities to leverage U.S. taxpayer dollars into projects that work better and are developed faster.

In 1993 the U.S. Congress, recognizing the international nature of the terrorist threat, authorized TSWG to cooperate internationally in research and development to combat terrorism. Cooperative agreements were subsequently concluded with Israel, Canada, and the United Kingdom. In 2006, agreements were likewise signed with Australia and Singapore. Such international cooperation allows CTTSO to leverage foreign experience, expertise, and resources in the fight against terrorists and their infrastructure.

Technical Support Working Group

Technical Support Working Group

History and Mission

In April 1982, National Security Decision Directive 30 assigned responsibility for the development of overall U.S. policy on terrorism to the Interdepartmental Group on Terrorism (IG/T), chaired by the Department of State (DOS). TSWG was an original subgroup of the IG/T, which later became the Interagency Working Group on Counterterrorism (IWG/CT). In its February 1986 report, a cabinet-level Task Force on Counterterrorism, led by then Vice-President Bush, cited TSWG as assuring "the development of appropriate counterterrorism technological efforts".

Photo by Sgt. Steve Cushman, 2nd Battalion

Today, TSWG still performs that counterterrorism technology development function as a stand-alone interagency working group. TSWG's mission is to conduct the national interagency research and development (R&D) program for combating terrorism requirements. It also has commenced efforts to conduct and influence longer-term R&D initiatives and, reflecting the shift to a more offensive strategy, balance its technology and capability development efforts among the four pillars of combating terrorism: antiterrorism, counterterrorism, intelligence support, and consequence management.

Organization and Structure

TSWG operates under the policy oversight of the Department of State's Coordinator for Counterterrorism and the management and technical oversight of the Department of Defense Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict. While TSWG's core funds are derived principally from CTTSO and DOS, other departments and agencies contribute additional funds and provide personnel to act as project managers and technical advisors.

U.S. Army photo

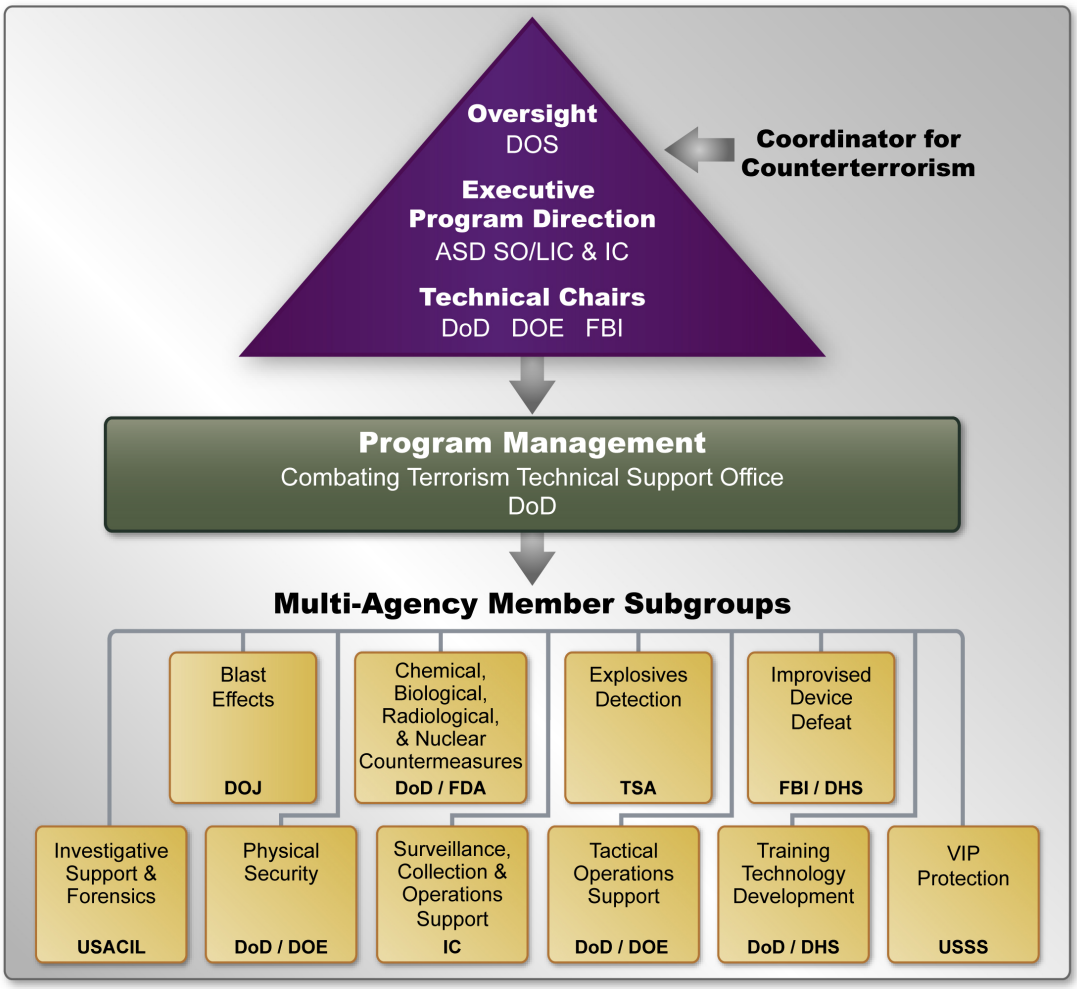
TSWG has successfully transitioned capabilities to the Departments of Agriculture, Defense, Homeland Security, Justice, State, and Treasury; the Intelligence Community; the Public Health Service; and many other departments and agencies. Additionally, TSWG has transitioned many systems to State and local law enforcement.

TSWG membership includes representatives from over 100 government organizations. Participation is open not only to Federal departments and agencies, but also to first responders and appropriate representatives from State and local governments and international agencies. These departments and agencies work together by participating in one or more subgroups. A comprehensive listing of member organizations by subgroup is provided in the appendix.

Technical Support Working Group

TSWG's subgroups are chaired by senior representatives from Federal agencies with special expertise in those functional areas. Chairmanship of five subgroups is shared as indicated in the organizational chart below.

TSWG Organization

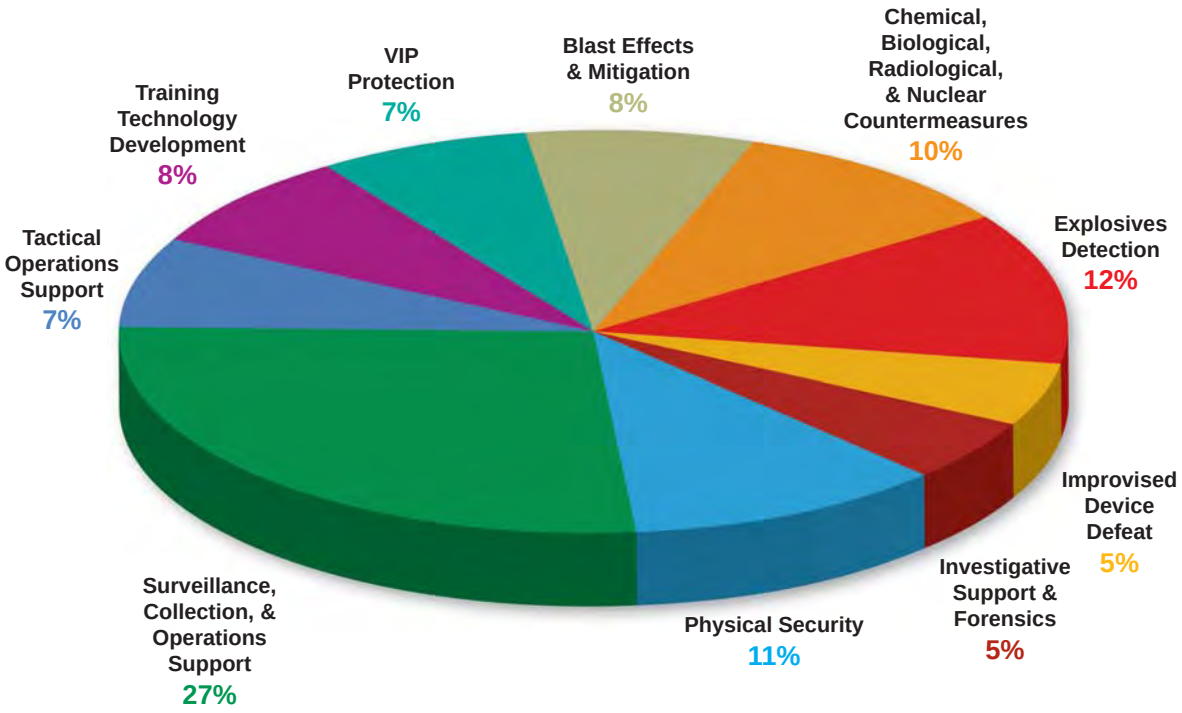


Technical Support Working Group

Program Funding

In FY 2008 funding for the TSWG program totaled over $197 million. The Department of Defense provides the bulk of funding for TSWG activities. The Department of State contributes annually to TSWG core funding, while other departments and agencies share the costs of selected projects.

TSWG FY 2008 Program Funding ($197 Million)



Technical Support Working Group Subgroups

DoD photo by MC2 Hernandez, 2nd Marine Division

Blast Effects & Mitigation

BX

Blast Effects & Mitigation

Mission

Identify, prioritize, and execute research and development projects that satisfy interagency and international requirements to define and mitigate the potential damage mechanisms from conventional and enhanced explosive mixtures.

The Blast Effects and Mitigation (BX) subgroup identifies and develops technologies and techniques to evaluate the conventional and enhanced explosive effects on representative targets, including structures, critical infrastructure, vehicles, and humans. Projects conducted through this group characterize and provide interagency coordination of near-term solutions for emerging explosive threats. A representative from the U.S. Department of Justice's Bureau of Alcohol, Tobacco, Firearms, and Explosives chairs the subgroup.

Membership

National Tactical Officers Association

U.S. Department of Defense
AFIP (OAFME), DTRA, JWAC, USA (ARL, MRMC, PEO-SEQ, SSC, USAARL, USACE-PDC, USAISR), USAF (AFRL), USN (NAVFAC, NAVSEA, NHRC, ONR)

U.S. Department of Homeland Security
S&T, TSA

U.S. Department of Justice
ATF, FBI

U.S. Department of State
DS

Focus Areas

The BX subgroup focus areas reflect the prioritized requirements of Federal engineering activities responsible for high-risk facilities, critical infrastructure, and the needs of government and law enforcement agencies exploring new concepts in blast prediction and protection. During FY 2008, these focus areas were:

Explosives Mitigation

Investigate and characterize both conventional and novel explosives to fully understand the potential damage and to identify mitigation strategies. Emphasize the development, design, and construction of retrofit techniques for new and existing buildings, field fortifications, vehicles, and barriers in order to strengthen these structures and to reduce debris hazards and structural collapse.

Advanced Instrumentation

Develop new, repeatable, and sustainable test protocols, instrumentation suites, and models that capture and characterize the dynamic environment of emerging threats. Use data and information obtained through comprehensive instrumentation test efforts to develop new protection and mitigation methodologies to specifically address enhanced novel explosives.

Human Lethality in a Blast Environment

Quantify the effects of conventional and enhanced blast damage mechanisms to the human body. Evaluate the effectiveness of blast injury prevention and mitigation concepts from an injury perspective. Develop new methodologies to protect against blast fragmentation, fire, and overpressure injury.

Blast Effects & Mitigation

Critical Structures

Test and evaluate critical structural systems in buildings, bridges, tunnels, and other critical infrastructure components using both full-scale blast testing and blast simulation technologies. Assess the level of protection that is sufficient to mitigate various threats to enable military planners and stakeholders in critical transportation systems to make more informed decisions.

Homemade Explosives

Address the adaptive threat associated with homemade explosives. Emphasize characterization, detection, render-safe procedures, neutralization, forensics, and training to combat the use of homemade explosives in terrorist activities.

Selected Completed Projects

Entry Control Point Technology Demonstrations

Securing points of entry is critical to the security of any base or installation. The TSWG Entry Control Point (ECP) technology demonstration directed the design and construction of state-of-the-art entry control facilities in the CENTCOM area of responsibility. The ECP was built using the Explora Group's Dynasystems blast-resistant materials (including Dynablok and Dynatower), along with Metalith vehicle barriers created by Infrastructure Defense Technologies, Inc. The ECP integrates force protection, security, and security systems in a design created specifically for the U.S. Marine Corps. The ECP is currently in use at a CENTCOM base incorporating new technologies in blast mitigation, ballistic protection, remote vehicle inspection and pedestrian screening systems, vehicle barriers, and tactical defensive measures required in a high-threat environment. Requests for additional information should be sent to bxsubgroup@tswg.gov.

Advanced Instrumentation: Breacher Injury Study

In both training and operations, warfighters and law enforcement personnel are repeatedly exposed to blast events. Little data existed on the physiological effects or the risks of cognitive impairment as a result of multiple blast exposures. The U.S. Marine Corps' Weapons Training Battalion Dynamic Entry School offered their basic breacher training course and students as the test bed and test subjects for the Breacher Injury Study. The study determined that breachers can incur injuries during standard training practices. As a result, TSWG recommended mitigation measures, such as increased stand-off distance, for the training environment. In addition, this effort required the development of a wireless, remote triggering system that prevents interference in the training exercises. The personnel-borne data acquisition systems were miniaturized, enabling instrumentation of each breacher during breaching events. Results of this study are being used to direct future research into protective gear for breachers. Requests for additional information should be sent to bxsubgroup@tswg.gov.

Blast Effects & Mitigation

Advanced Polymer Application

The application of high-strength polymers to structures for blast mitigation and reduction of related collateral damage often requires bulky applicators. This effort developed application equipment that is easily transportable (less than 150 pounds) and requires only available house power or a handheld 30-pound generator. The advanced polymer applicator is basic, easily operated at an elementary level, and is engineered by design to be sustainable and maintainable with common replacement parts available locally, anywhere. The polymer formulations also maintain their ductility and toughness when processed with low pressures and without heat. Requests for additional information should be sent to bxsubgroup@tswg.gov.

Warfighter Battle Damage Assessment

Although body armor offers a measure of protection in battle, the areas of the body most in need of protection will vary depending upon the warfighter's situation and activities. SimQuest developed the Surface Wound Mapping™ (SWM) software suite in 2006 to provide a set of tools for viewing graphical and statistical patterns of wounding and injury in selected populations. The Warfighter Battle Damage Assessment program expands the capabilities of SWM to (1) enable wound drawing and display on digital bodies of different genders and morphological types, (2) perform what-if analysis on trade-offs between increased body armor weight versus increased protection, and (3) integrate with existing epidemiological data collection software to eliminate redundant data entry. The SWM data set has grown to incorporate over 4500 wounds, including approximately 15,000 injuries encompassing more than 1500 cases. The software will allow personal protective equipment designers and developers the ability to account for anatomical variations that can increase exposure risk, the risk associated with individual military operational specialties, and variations in tactical settings. Requests for additional information should be sent to bxsubgroup@tswg.gov.

Selected Current Projects

Urban Canyon

To improve the accuracy of blast models, the Energetic Materials Research and Testing Center (EMRTC) developed a modular system to conduct research on air blasts within an urban environment. EMRTC constructed urban modules using hollow concrete structures measuring 3.7 m square by 1.8 m high, providing a half-scale test capability. EMRTC will conduct a series of tests to improve the algorithms of blasts within a multistory building, two streets, an intersection, an alley, a cul-de-sac, and an open square. Instrumentation will collect data from a blast as it propagates within the urban construction, making existing models and simulations much more accurate.

Blast Effects & Mitigation

Blast and Fragment-Resistant Construction

Field units require structures that can be assembled with minimally skilled labor and without the need to build compartmentalization walls and overhead protection. The Air Force Research Lab (AFRL) developed expeditionary construction methods that provide blast and fragmentation protection for the walls and roofs on quarters and barracks. AFRL determined that soil-filled, stay-in-place PVC forms provide high-value blast and ballistic protection. AFRL is investigating the use of this construction method to create a load-bearing wall design that supports a roof system with inherent blast and ballistic protection. AFRL is conducting component-level and full-scale experiments to confirm this protection and validate the analytical models and associated engineering tools used in construction design. The experiments will verify that a variety of projectiles (including rockets and mortars) will not penetrate these expeditionary constructions. Once the experiments are completed, AFRL will create a field manual for expeditionary construction. The manual will include drawings, materials list, assembly instructions, and other engineering tools essential for construction.

Homemade Explosives Database

The homemade explosives (HME) database being developed by Battelle Memorial Institute documents the current threats, their uses, and analysis and testing of the materials and processes of HMEs. The database will be used by interagency and international partners with interest in improvised explosives. International and domestic efforts will be compiled to include additional information on characterization, safety and handling, performance, detection, events, render-safe, and neutralization. The information will reside on Web-based platforms with various levels of access according to classification. The second phase of the database will address the information that was identified as incomplete or non-existent based on a gap analysis, and a test plan will be created for progressive investigation.

Mitigation of Blast & Fragmentation Scenarios

As more person-borne improvised explosive devices and vehicle borne improvised explosive devices are used, the reaction of a building and building material needs to be fully understood. The variety of building configurations within commercial construction makes it is difficult to predict potential blast and fragmentation effects. Testing is required to determine the response of retrofitted masonry walls and glazed windows if a blast does occur close to a building. TSWG continuously analyzes the blast effects of different threats on conventional office, government, and military buildings and on combat outposts. Such tests will enable the assessment of different types of prefabricated concrete element configurations and other materials, as well as the assessment of alternative commercial applications for combat outposts and rapidly deployable structures.

BX

Blast Effects & Mitigation

Contact Information

bxsubgroup@tswg.gov

Chemical, Biological, Radiological, & Nuclear Countermeasures

U.S. Marine Corps photo by Sgt. Ronoldson Slim

Chemical, Biological, Radiological, & Nuclear Countermeasures

CBRNC

Membership

Environmental Protection Agency

Federal Reserve Board

Intelligence Community

InterAgency Board

State and Local Agencies
Fairfax County (VA) FD, FDNY, NYPD, Seattle (WA) FD

U.S. Capitol Police

U.S. Department of Agriculture
APHIS, FSIS

U.S. Department of Commerce
NIST

U.S. Department of Defense
ATSD (NCBD), ATSL, DIA, DTRA, JCS, JIEDDO, JPEO, NSA, PFPA, SOCOM, USA (20th SUPCOM-CBRNE, 22nd CML Bn-TE, AMEDD, CMLS, MANSCEN, NGIC, RDECOM-ECBC, REF), USAF (ACC), USMC (CBIRF), USN (BUMED, NAVCENT, NAWC, NSWC)

U.S. Department of Energy
HSS

U.S. Department of Health and Human Services
CDC, FDA, NIOSH

U.S. Department of Homeland Security
FEMA, FPS, HSI, S&T, TSA, USCG, USSS

U.S. Department of Justice
FBI, NIJ, USMS

U.S. Department of State
DS, OBO, S/CT

U.S. Department of Transportation
RITA (Volpe Center)

U.S. Senate Sergeant at Arms

White House
HSC, OSTP

Mission

Identify, prioritize, and execute interagency chemical, biological, radiological, and nuclear combating terrorism requirements and deliver technology solutions for detection, protection, decontamination, mitigation, containment, and disposal.

The Chemical, Biological, Radiological, and Nuclear Countermeasures (CBRNC) subgroup identifies and prioritizes multi-agency user requirements and competitively seeks technological solutions for countering the terrorist employment of CBRN materials. Through its participation in the InterAgency Board for Equipment Standardization and Interoperability and in coordination with the Department of Homeland Security, the National Institute of Justice, the Environmental Protection Agency, and other DoD components; the CBRNC subgroup integrates technology requirements from the fire, hazardous materials, law enforcement, and emergency medical services communities into its process. Senior representatives from DoD and the Food and Drug Administration co-chair the subgroup.

Focus Areas

The CBRNC subgroup focus areas reflect the prioritized requirements of the CBRN incident prevention and response community. During FY 2008, these focus areas were:

Detection

Improve the sampling, detection, and forensic analysis of chemical, biological, and radiological threat agents in the air, in food or water, and on surfaces.

Protection

Improve the operating performance and reduce the costs of individual and collective protection. Develop and enhance personal protective equipment (PPE), including respiratory protection systems and suits. Develop analysis and design tools for CBRN protection for building engineers and architects. Develop and evaluate advanced filter materials.

Consequence Management

Develop technologies and procedures to mitigate the effects of a life-threatening or destructive event. Develop and improve response activities and related equipment to counter a terrorist use or accidental release of CBRN materials, to include short- and long-term decontamination and restoration.

Information Resources

Develop shared information management tools to provide a common "picture of the scene". Facilitate the efficient integration of diverse emergency and consequence management elements from Federal, State, and local agencies.

Chemical, Biological, Radiological, & Nuclear Countermeasures

Selected Completed Projects

Personal Hydration System Water Filter

It is of crucial importance that our troops have clean water sources to ensure adequate health and hydration. Water supplies can be indirectly or directly contaminated with bacteria, viruses, and protozoa, which are common causes of diarrheal disease, as well as with toxic industrial chemicals and petroleum derivatives. Direct or indirect contamination may also occur by terrorist use of chemical and biological materials. Providing response personnel with potable water is an ongoing challenge. Depending on the climate, an individual needs to drink between 1 and 3.5 gallons per day to avoid dehydration. This need is compounded if an individual must wear personal protective equipment for extended periods of time. MesoSystems and Cascade Designs developed a filtration system for personal water purification that removes bacteria, protozoa, viruses, petroleum, and select toxic industrial chemicals, as well as chemical and biological warfare agents. The filter is for use when water contamination is possible and bottled water is not available. The water filter renders non-potable water safe for human consumption in accordance with EPA and DoD drinking water standards. The filter is small, lightweight, and low-cost while still providing enough capacity for multiple days of continuous use. Requests for additional information should be sent to cbrncsubgroup@tswg.gov.

PCR-Less Biological Agent Detection System

Suspect incidents occur numerous times every year. Knowing whether the threat is credible or not is critical, because false alarms can waste time and resources. Currently there are limited options available to perform confirmatory testing against a wide range of agents in such situations. Long delays in threat confirmation are unacceptable and may require closing of a facility or prophylactic treatment of exposed individuals until test results are definitive. Nanosphere, Inc. developed a system to confirm detection of biological agents and select toxins to meet the needs of first responders and other terrorism-response personnel, both field- and laboratory-based. The system does not require polymerase chain reaction (PCR) testing, is easy to use, is reliable, and can test for multiple agents of concern in a single test (multiplexed). Unlike current technologies, it is not subject to inhibition and does not require the same reagent storage that many current systems require. Samples are loaded into self-contained cartridges and then processed and analyzed in a ruggedized instrument system. The system provides excellent specificity and sensitivity, reducing false-positives and negatives, and can specifically identify the agent or toxin. The system has undergone field evaluations and testing under actual conditions. Additional information is available at http://www.nanosphere.us/.

Chemical, Biological, Radiological, & Nuclear Countermeasures

Small Portable Voice Radio Repeater System

The inability of military and public safety-first responders to readily communicate during a critical event threatens the public's safety and often results in unnecessary loss of lives and property. Military and public-safety first responders need reliable radio voice communications while operating deep inside buildings, subways, tunnels, and caves. In such locations traditional standard line-of-sight signals are blocked, and connectivity between response personnel is lost. DTC Communications, Inc. developed a prototype small portable wireless communications network or military and public safety teams to maintain radio voice communication. The system provides interoperability amongst a designated set of existing military, Federal, and public-safety hand-held tactical radio systems without modification. The system is able to support operations in restricted line-of-sight environments and supports communications at distances of at least 1000 meters. Network nodes are easily deployable and recoverable but may be abandoned in extremis without significant operational or financial costs. Requests for additional information should be sent to cbrncsubgroup@tswg.gov.

Ocular Scanning Instrument

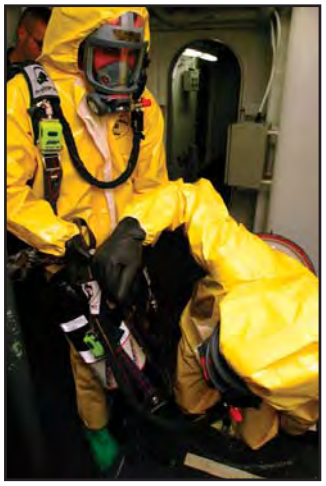
A deliberate or accidental release of chemical or biological agents poses a serious health hazard to victims and responders. Effective medical intervention requires rapid diagnosis, quantitative assessment, and efficient treatment. Currently, treatment is often delayed because trained medical personnel must use invasive blood tests to identify the agent and determine the patient's health status before a diagnosis can be made. EyeMarker Systems, Inc. developed an ocular scanning instrument (OSI) that rapidly and non-invasively scans the eye for early indications of exposure to toxic agents before the onset of normal clinical symptoms. The device analyzes and measures specific biomarkers in the eye and uses these to characterize the health status of the individual. The automated instrumentation provides an accurate and immediate analysis of the extent of exposure at the touch of a button, allowing quicker triage and medical intervention for those in need. The OSI can determine exposure to organophosphate compounds, botulinum toxin, cyanide compounds, and carbon monoxide. The system is a portable, lightweight hand-held device and requires minimal training. The next generation of the OSI will incorporate additional display features. Requests for additional information should be sent to cbrncsubgroup@tswg.gov.

Risk-Based Permeation Criteria

Currently, the approach for testing permeation resistance for protective clothing material is based on an arbitrary breakthrough time of a toxic industrial chemical (TIC). This method was set nearly two decades ago for the sole purpose of normalizing differences in equipment to

Chemical, Biological, Radiological, & Nuclear Countermeasures

consistently report chemical resistance test results. The permeation rate was chosen because it was considered achievable for a large range of chemicals. However, it is not related to the toxicity of the chemical or the actual exposure of the individual wearing the protective clothing. In contrast, permeation resistance for chemical warfare agents is based on the maximum cumulative permeation that can occur through the protective clothing material in a given time period. This approach takes into account the relative dosage of the chemical warfare agents that are considered safe from a dermal exposure perspective. International Personnel Protection, in partnership with NIOSH's National Personal Protective Technology Laboratory and the U.S. Army Center for Health Promotion and Preventative Medicine, developed science- and risk-based recommendations for revision of the chemical protective material permeation criteria end points for TICs. These TIC-specific recommendations are being presented to the national standards-setting organizations for personal protective equipment. Requests for additional information should be sent to cbrncsubgroup@tswg.gov.



U.S. Marine Corps photo by Cpl. Kamran Sadaghiani

Selected Current Projects

Colorimetric Water Quality Sensor

Changes in the acidity of water can signal potential releases of hazardous waste, chemicals, or other toxic industrial materials that may be harmful to people and the environment. Prime Research is developing a small, rugged colorimetric water quality sensor to detect changes in acidity and temperature in areas that are difficult to access. The handheld sensor system continuously monitors water quality parameters and can store or report back any changes in water quality. The handheld sensor will have the capability to include additional sensors as more are developed.

Stand-Off Patient Triage Tool

The first few minutes after chemical exposure can be critical in determining the effectiveness of treatments key to the survival of victims. Emergency response personnel are required to conduct triage at the incident scene to prioritize rescue and on-scene emergency medical treatment. These actions may need to take place in austere and contaminated environments. Bulky personal protective equipment (PPE) limits the senses and hinders mobility, which may be vital to timely and accurate treatment. To assist in on-scene assessment of victim status, Boeing is developing a handheld emergency response triage device that will rapidly and accurately measure selected physiological markers from a distance of at least five feet. The device will be usable by personnel wearing Class I/Level A or B or fire-fighting PPE. To be operationally useful, the goal is to assess victim condition in less than 30 seconds.

Chemical, Biological, Radiological, & Nuclear Countermeasures

CBRNC

Hydration Status Monitor

Maintaining an optimal level of hydration is a major health concern for firefighters and other emergency first responders. Progressive acute dehydration associated with physical exertion in heat-stressed environments significantly increases the risks of temperature-related health problems, with resulting losses of productivity and, in some cases, death. It has been shown that fluid losses of as little as 2% of total body weight can lead to noticeable compromises in physical and cognitive performance. Dehydration and resulting temperature-related health problems among firefighters and other emergency first responders are preventable through adequate on-scene hydration management. Cantimer, Inc. is developing a low-cost reliable tool for quickly and accurately assessing the hydration status and rehydration needs of emergency responders during rehabilitation periods at the incident scene in accordance with NFPA 1584. Cantimer's device is non-invasive and enables convenient, field-deployable, real-time measurement of hydration status from an easily-obtained sample of saliva. Field testing of the hydration status monitor will take place in the spring of 2009.

Radiological Dispersion Device Recognition Guide

A terrorist act using a radiological dispersion device (RDD) in a populated area differs significantly from conventional terrorist acts involving explosives. Also, HAZMAT and EOD/Bomb Squad response procedures for an RDD differ from those for conventional explosives. The consequences of failing to recognize a suspect package as an RDD may extend far beyond the immediate blast-affected zone. To aid in identifications of RDDs, the Air Force research Lab is developing a recognition guide that focuses on high-priority sources that are considered likely RDD threats. The sources included are based on threat, availability, accessibility, and severity of post-event consequences, and not necessarily the worst-case scenarios. The RDD Guide will consist of a waterproof cargo-pocket-sized flip book and an electronic version on a CD for use on a field laptop.

Multipurpose Threat Glove

Gloves currently on the market provide various types of protection, but a multi-purpose glove that provides cut, pathogen, and puncture resistance is currently not available. Hand protection is important for routine tasks such as physical searches of persons, searches into unseen areas, and evidence collection and analysis. Warwick Mills, Inc. is designing a multi-purpose glove for public safety officers to provide protection from cut, puncture, and pathogen threats while performing routine tasks. The gloves will be slip-resistant, yet thin and pliable enough to provide manual dexterity. The gloves will be compatible with existing commercial and military duty uniforms.

Chemical, Biological, Radiological, & Nuclear Countermeasures

Biological Decontamination Procedures and Test Method
With concerns focused on the potential for a pandemic avian influenza outbreak, the need to plan for effective protection of first responders and the population as a whole takes on added urgency. To anticipate possible supply shortages of N-95 respirators during such an outbreak, the Air Force Research Lab (AFRL) is developing decontamination procedures and test methods for treated masks. AFRL is modeling aerosol deposition and testing the efficacy of multiple methods of decontamination, for use by private citizens and the first responder community. The procedures developed will be safe and cost-effective and, most importantly, will not alter the efficiency of the mask.

Contact Information

cbrncsubgroup@tswg.gov

Explosives Detection

U.S. Air Force photo by Airman 1st Class Jason Epley/Released

ED

Explosives Detection

Mission

Identify, prioritize, and execute research and development projects that satisfy interagency requirements for existing and emerging technologies in explosives detection and diagnostics. Emphasis is placed on a long-term, sustained approach leading to new and enhanced technologies for detection and identification of improvised explosive devices, including vehicle-borne devices.

The Explosives Detection (ED) subgroup identifies and develops technologies to enhance the operational capability of both military and civilian applications. A representative from the Transportation Security Administration chairs the subgroup.

Membership

U.S. Department of Commerce
NIST

U.S. Department of Defense
DIA, JIEDDO, NSA, PFPA, USA (ECBC), USAF (AFESC, AFRL), USMC (EOD), USN (NAVEODTECHDIV, NRL, NSWC)

U.S. Department of Homeland Security
S&T, TSA , USCG, USSS

U.S. Department of Justice
ATF, FBI

U.S. Department of State
DS

Focus Areas

The ED subgroup focus areas reflect the prioritized requirements of a broad range of interagency customers, including those responsible for physical security and forensic analysis. During FY 2008, these focus areas were:

Vehicle-Borne IED Detection

Develop technologies necessary to provide a stand-off detection capability for explosives in large volumes at a distance. Investigate unique physical and chemical phenomena that identify the presence of explosives, the physical limits for sensor technology to respond to these phenomena, and enhancements to detection technology. Develop techniques to improve both stand-off distance and the types of explosives that can be detected. Evaluate remote techniques, in which a system is downfield from the operator but near the objects of interest. Explore technologies leading to a true stand-off detection capability.

Suicide Bomber Detection

Improve systems that detect the presence of improvised explosive devices concealed by persons engaged in suicide attacks against government installations and public facilities, both domestic and international. Programs in this area are highly sensitive; specific capabilities generally cannot be discussed in a public document.

Short-Range Detection

Develop new explosive detection capabilities and improvements to existing systems for detection and diagnosis of concealed terrorist devices. Emphasize technologies that support entry-point screening. Improve detection rate, throughput, and accuracy in identification of explosives, as well as safety for both operators and the general public.

Explosives Detection

Selected Completed Projects

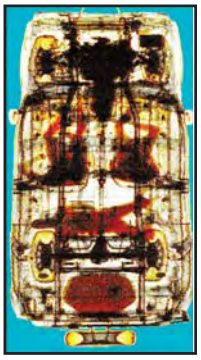
Hardened Explosives Trace Detectors

In a cooperative effort between TSWG and the Joint IED Defeat Organization, Smiths Detection and GE Homeland Security developed hardened handheld and benchtop trace explosives detection systems. These systems are designed for military and civilian use in severe environments, including dust, rain, salty air, and extreme temperature conditions. The hardened systems will allow more types of explosives to be detected in a single sample and include both new detector designs and improved capabilities over existing systems. The first prototype systems are undergoing operational evaluation. Requests for additional information should be sent to edsubgroup@tswg.gov.

Selected Current Projects

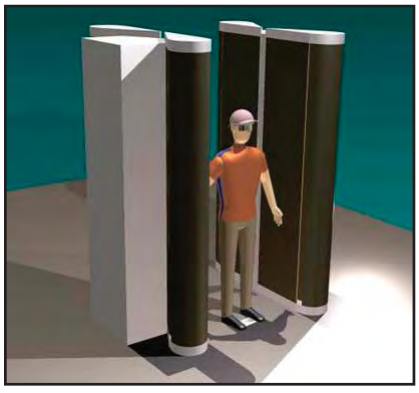
Stand-off Suicide Bomber Detection Using Ultrasound

To improve the detection of potential threats, Material Intelligence is developing a phased-array ultrasound diffraction radar with spatial recognition software. The system integrates video and radar to detect person-borne anomalies at distances up to 50 meters. The system automatically tracks multiple persons in its field of view and overlays detected threats in real time. This will allow a response team to monitor and manage potential threats from a safe distance.



Dual-Energy X-Ray to Detect Vehicle-Borne IEDs

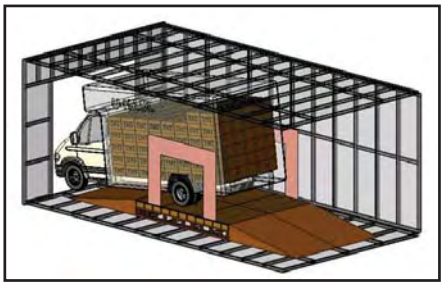
Spectrum San Diego developed and is testing a dual-energy X-ray system for the detection of bulk explosives that may be concealed in cars or trucks. The technique can identify the location of explosives and other contraband. The system has a 5 mph drive-through capability and is safe for screening persons as well. Field trials will be conducted to evaluate the range of detectable threats in early 2009.

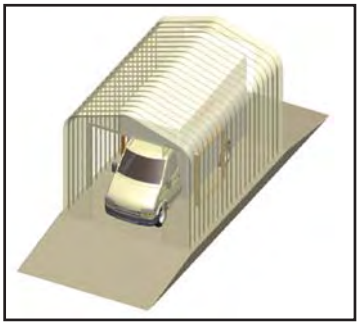


Backscatter Walk-through Portal

Rapiscan Systems is developing a ruggedized, modular, walk-through backscatter system. The systems will be intended for military and civilian use in harsh environments, including severe weather and extreme temperatures. The hardened system will be easily transportable and operable day and night, indoors and outdoors. Enhancements will be made to the detection software to provide improved detection capabilities and ease of detection by security personnel.

Explosives Detection





Nuclear Quadrupole Resonance for the Detection of Vehicle-Borne IEDs

GE Infrastructure, Security developed and is testing a prototype system using nuclear quadrupole resonance for the detection of bulk explosives in cars and trucks. The system gives qualitative information on potential threats and has successfully demonstrated explosives identification in laboratory experiments. Field trials will be conducted to evaluate the range of detectable threats in early 2009.

Contact Information

edsubgroup@tswg.gov

Improvised Device Defeat

Improvised Device Defeat

IDD

Membership

Intelligence Community

National Bomb Squad Commanders Advisory Board

State and Local Government
Fairfax County (VA) PD, MD State Police, MI State Police

U.S. Capitol Police

U.S. Department of Defense
USA (52nd Ord, EOD Tech Det), USAF (ACC, EOD Det 63), USMC (CBIRF, NAVEOTECHDIV-MCD), USN (NAVEODFLTLAU, NAVEOTECHDIV)

U.S. Department of Homeland Security
CBP, OBP, S&T, TSA (FAMS), USCG, USSS

U.S. Department of Justice
ATF, FBI, NIJ, USMS

Mission

Identify, prioritize, and execute research and development projects that satisfy interagency requirements to more safely and effectively render terrorist devices safe. Particular emphasis is placed on technologies to access, diagnose, and defeat terrorist improvised explosive devices (IEDs); improvised chemical, biological, radiological, and nuclear devices; and vehicle-borne improvised explosive devices (VBIEDs).

The Improvised Device Defeat (IDD) subgroup delivers advanced technologies, tools, and information to increase the operational capabilities of the U.S. military explosive ordnance disposal (EOD) community and Federal, State, and local bomb squads to defeat and neutralize terrorist devices. In collaboration with military, Federal, State, and local agencies, the IDD subgroup identifies and prioritizes multi-agency user requirements through joint working groups and thorough validation processes. Representatives from the Federal Bureau of Investigation's Bomb Data Center and the Department of Homeland Security's Office of Bombing Prevention co-chair the subgroup.

Focus Areas

The IDD subgroup focus areas reflect the joint priorities of military and civilian responders. During FY 2008, these focus areas were:

Access and Diagnostics

Develop advanced technologies for diagnostic analysis of IEDs in the areas of improved tools and equipment. Develop technologies to access and accurately locate and/or identify components and composition within an improvised terrorist device to facilitate timely response and device neutralization.

Defeat

Develop advanced technologies to defeat IEDs, VBIEDs, and improvised CBRN dispersal devices. Develop low-cost solutions that are readily available to the bomb squad community. Increase stand-off capabilities, reduce collateral damage, and provide EOD and bomb disposal technicians with precision disruption and disablement capabilities and techniques.

EOD Operational Tools

Develop improved tools and equipment to increase the safety and effectiveness of EOD and bomb technicians during a response. Enhance command and control and situational awareness. Improve tactical and personal protective equipment and other critical technologies to counter emergent explosive threats.

Improvised Device Defeat

Information Resources
Develop information resources and delivery systems for consolidated and expeditious threat intelligence collection, storage, and distribution to bomb disposal technicians for enhanced response capabilities. Provide equipment performance evaluations, database resources, operational response technology information, and automated information systems to communicate the most current tactical and operational response procedures.

Remote Controlled Vehicles and Tools
Improve the performance and reliability of robotic systems for the bomb technician. Develop advanced robotic platforms with improved manipulation capabilities, control systems, navigation technologies, payloads, and communications. Advance TSWG's Common System Architecture, the foundation of these systems, which for the first time enables all robotic components, regardless of the developer, to be "plug-and-play". Develop technologies that allow bomb technicians to conduct as much of their mission as possible by remote means.

Emerging Threats
Develop innovative solutions to address emerging threats involving a broad spectrum of operational needs of the military or State and local bomb squads against IEDs. Develop effective countermeasures to neutralize or defeat radio controlled IEDs (RCIEDs) and to provide safety to the bomb squad technician when conducting operations in close proximity to suspect RCIED devices. Identify and test effective solutions to detect, render safe, or neutralize improvised homemade explosives.

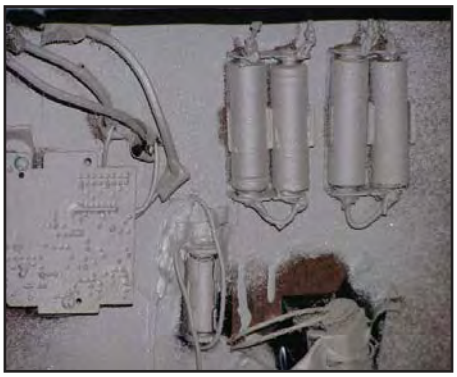
Selected Completed Projects

Rapid Access Neutralization Tool
To disrupt and disable the timing and power units of vehicle-borne improvised explosive devices (VBIEDs), Ideal Tool Company developed the Rapid Access Neutralization Tool (RANT), which is deployed robotically. The RANT system has been demonstrated at the Critical Incident Response Technology Seminars (CIRTS) events in Detroit, Houston, Phoenix, and Washington, DC to give bomb squad technicians first-hand experience in loading, deploying, and firing the RANT and seeing the effectiveness of this tool. Requests for additional information should be sent to iddsubgroup@tswg.gov.

Improvised Device Defeat

Multi-Purpose Collapsible EOD Tool Cart

The Multi-Purpose EOD Tool Cart developed by Bosik Technologies, assists the delivery of multiple items such as X-Ray equipment, chemical vapor detection, explosives vapor detection, large disruptive counter-measure charges (Mini-HEADD, SIDD, Aqua Max). Additionally, the cart will have the capability to adapt to aid in the remote as well as manual application of render-safe techniques and, if necessary, function as a gurney in the event of casualties. The cart is currently being evaluated by the Bloomington, Minneapolis Bomb Squad. This cart is also being demonstrated at the Critical Incident response Technology Seminars (CIRTS). Additional information is available at: http://www.Bosik.com.



Non-Explosive IED Defeat Tool

Civilian bomb technicians and military explosive ordnance disposal (EOD) technicians need better tools to safely and remotely disarm improvised explosive devices (IEDs) without using a dynamic explosive disruption tool. Battelle Memorial Institute and Ohio State University evaluated carbon nanotubes, fibers, and webs that could be injected into the body of an IED, thereby short-circuiting its electronics and/or draining current and power from its circuits and batteries before it can activate. The results of this study identified that carbon nanotube material was not the best solution to this problem. Test data showed that using paint containing 62% silver produced better results than the nanotube material. Requests for additional information should be sent to iddsubgroup@tswg.gov.

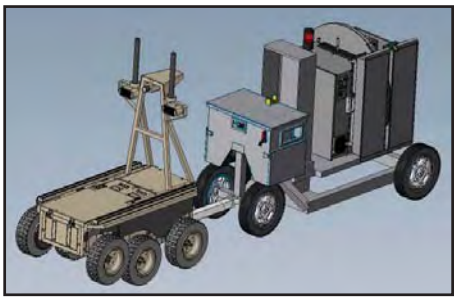
Power Hawk

The Power Hawk system was integrated onto an F6A robotic platform and introduced as a new tool that gains access to Vehicle Borne Improvised Explosive Devices (VBIEDs) by cutting and tearing into the load capacity of trucks and cars without the means of an explosive actuated tool. This tool gives the bomb squads another option when faced with an unknown vehicle in any major city and reduces the collateral damage that an explosively driven counter-charge could produce. The Power Hawk integration kit is available through Remotec. Requests for additional information should be sent to iddsubgroup@tswg.gov.

Improvised Device Defeat

Selected Current Projects

Single-Sided Imaging



The terrorist use of improvised explosive devices has increased each year since the War on Terror began. The terrorist networks have constantly changed their method of emplacing and concealing IEDs. This has caused an ever challenging task for the EOD technician to implement new tactics, techniques, and procedures to render these devices safe. The single-sided imaging system is a noninvasive X-ray imaging system that will be towed down-range to a suspected IED by an unmanned robotic platform for IED indentification from a safe, stand-off distance. The ultimate system will provide the EOD technician with internal images of the potential threat object displayed at the operator control unit of the robotic platform.

Remote Utility Conversion Kit

The Remote Utility Conversion Kit (RUCK) is a modified Kawaski Mule vehicle that can be controlled remotely to deploy a large disruptive countermeasure charge. The RUCK is a low-cost and potentially expendable delivery vehicle. It can be operated like the F6A robotic platform but will have a greater range of mobility and faster operating speed. The RUCK can also be converted back into its original purpose for everyday use as well. This flexibility gives the bomb squad technician an additional tool to neutralize and defeat the VBIED threat.

Contact Information

iddsubgroup@tswg.gov

Investigative Support & Forensics

Investigative Support & Forensics

Mission

Identify, prioritize, and execute research and development projects that satisfy interagency requirements for criminal investigation, law enforcement, and forensic technology applications in terrorism-related cases.

Membership

Environmental Protection Agency
NEIC

Federal Reserve Board

Intelligence Community

National Transportation Safety Board

State and Local Agencies
IL State Police, Long Beach (CA) PD, Los Angeles County (CA) Sheriff's Dept, MI State Police, South Pasadena (CA) PD

U.S. Capitol Police

U.S. Department of Agriculture

U.S. Department of Commerce
NIST (OLES)

U.S. Department of Defense
CIFA, DACA, DCFL, DCIS, PFPA, SOCOM, USA (CID, INSCOM), USAF (OSI), USMC (CID), USN (NCIS)

U.S. Department of Energy
HSS

U.S. Department of Homeland Security
FLETC, ICE (FDL, FPS), TSL, TSA (FAMS), USSS

U.S. Department of Justice
ATF, DEA, FBI, NIJ (NCFS, NFSTC), USMS

U.S. Department of State
S/CT

U.S. Department of Transportation
FAA

U.S. Department of the Treasury
IRS, OIG

U.S. Postal Inspection Service

ISF

The Investigative Support and Forensics (ISF) subgroup implements research and development projects that provide new capabilities to law enforcement personnel, forensic scientists, and intelligence operatives responsible for investigating and interdicting terrorist incidents. Projects conducted through this group have had a major impact on forensic investigations and intelligence operations throughout the law enforcement community. A representative from the U.S. Army Criminal Investigation Laboratory chairs the subgroup.

Focus Areas

The ISF subgroup focus areas reflect the prioritized requirements of the military and civilian law enforcement communities. During FY 2008, these focus areas were:

Crime Scene Response

Improve the quality of recognition, documentation, collection, and preservation of evidence as well as the safety of first responders at a scene. Train first responders and forensic examiners and improve their capabilities to process and record terrorist incident scenes for future prosecution. Support scientific and technical efforts not assigned to other ISF focus areas.

Electronic Evidence

Develop computer forensic hardware, software, decryption tools, and digital methods to investigate terrorism. Develop advanced methods to extract and enhance audio recordings and video images from surveillance sources. Identify computer systems and media used by terrorists and extract the maximum amount of evidence from them. Improve techniques for the analysis of electronic devices to obtain the most forensic information.

Explosive and Hazardous Materials Examination

Improve methods for assessing the size, construction, and composition of explosive devices or other energetic hazardous materials. Identify and analyze explosive residue and other trace evidence present at blast scenes, especially those requiring rapid protection and processing to preserve the evidentiary value. Develop advanced techniques for post-blast scene and evidence examinations.

Investigative Support & Forensics

Forensic Biochemistry

Develop analytical methods for biological evidence found at terrorist scenes to make identifications and extract the maximum information such as origin or age. Enhance the use of DNA or other person-specific identifiers to track, identify, or profile persons or other biological material. Use stable isotope ratios to determine the geographic origin of organic material.

Friction Ridge Analysis

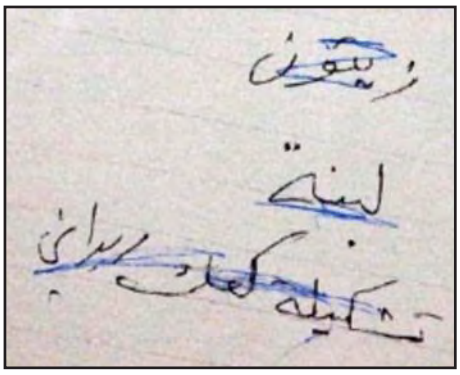
Improve latent print and related biometric techniques used in terrorism cases. Emphasize processes for automation of techniques that are tedious, expensive, non-portable, or reliant upon hazardous chemicals. Create better visualization and development of latent prints using lasers or more versatile and affordable reagents. Support better comprehension of latent prints and their molecular content as well as the scientific validation of fingerprint examinations.

Next-Generation Canines

Design, develop, and evaluate systems and methodologies that enable working canines and handlers to operate more effectively and efficiently. Enhance the ability of canines to perform functions such as explosives detection, tracking, patrolling, and attacking in an operational environment. Explore training tools, protocols, and technologies that support and enhance canine detection, including the development of new training aids that will enable more thorough exposure of canines to different types of scents. Design, develop, and evaluate methods to improve the capability to locate friendly personnel, reestablish contact with enemy combatants, and conduct reconnaissance of an area.

Questioned Document Examination

Develop advanced document and handwriting analysis techniques, devise standardized identification criteria, and establish a legal scientific basis for these examinations. Improve the techniques for investigating forgeries, counterfeit documents, disguised handwritings, and writing in different languages and character sets. Develop software to analyze questioned documents and match documents, authors, and document-generation hardware by handwriting analysis or pattern-recognition algorithms.



Surveillance and Information Gathering

Produce new and advanced surveillance and tracking techniques for law enforcement use. Develop better communication capabilities for tactical operations. Improve voice identification and speaker recognition capabilities. Advance interviewing techniques and technologies for credibility assessment. Advance credibility assessments, interviewing techniques, and technologies. Improve information gathering and analysis techniques through technology, social interaction methods, and training.

Investigative Support & Forensics

Selected Completed Projects

Steganography Decryption

Steganography, the art of hiding messages in other innocuous looking e-mails, images, or files, helps terrorists to communicate secretly. AccessData Corporation developed a powerful software tool that detects messages containing steganography, then isolates and decrypts the hidden message. Besides having advanced detection and decryption capabilities, the tool uses distributive network attack, a feature that harnesses the unused processing power of computers on a network to provide greater speed and decryption abilities. The system can decrypt nearly every known steganographic process and can analyze almost all types of files. It can also function on Microsoft, Linux, or Macintosh operating systems and servers. The software allows for the easy addition of new decryption processes as they are developed. This item is commercially available from the AccessData Web site at: http://www.accessdata.com/products.html.

Portable Ruggedized Cooled and Heated Canine Kennels

Operational canines perform for shorter periods of time and far less effectively in extreme temperatures than in moderate environmental conditions. Technical Products, Inc. developed a portable ruggedized cooled and heated dog kennel to maximize canines' performance and prevent health hazards such as heat stroke and cramps. The kennel's heating and cooling capability ensures the dogs maintain their proper core temperature before and after their operational use. The easily portable, lightweight equipment readily fits into military vehicles and provides physical protection as well. It operates from wall outlets, batteries, or vehicle electrical outlets and will withstand the tough demands of intense tactical environments. Requests for additional information should be sent to isfsubgroup@tswg.gov.

Two-way Multifunctional Encrypted Radio

During street or covert investigations and operations in dangerous, fast-changing environments law enforcement agents must be able to monitor undercover agents and response teams, quickly issue instructions, and receive situation reports. DTC Communications developed a sophisticated compact radio to handle such situations. The radio operates simultaneously on two channels, one that monitors a covert body wire transmitter, and a second that functions as a command channel for the response teams. The user can operate with digital encryption on any of 10 pre-programmed frequencies. It can record four to eight hours on either channel. Its small size, 5½ in. by 2½ in. by 1 in., makes it easily concealable during tactical operations. The radios come with several wireless accessories that provide alternate configurations for different tactical scenarios. Requests for additional information should be sent to DTC Communications at info@dtccom.com.

Investigative Support & Forensics

Compact Tactical Forensic Collection Kit

Terrorists and insurgents use computers, wireless devices, and advanced electronic equipment along with documents and other materials when engaging U.S. forces. These items create tremendous intelligence opportunities, if soldiers can quickly analyze them and exact their data. Blackbird Technologies developed a compact, rugged, powerful, all-in-one kit to exploit in real-time the information available from evidence while soldiers are still in combat zones and sensitive areas. The kit has a powerful central computer and a modular design to allow the use of many peripherals. Its capabilities include detection of chemical and biological agents, extraction from cell phones and PDAs, scanning and translation of documents, computer forensics, collection and transmission of biometric data, and digital photography. The rugged kit weighs less than 25 lbs and works from internal batteries and other common power sources. Requests for additional information should be sent to isfsubgroup@tswg.gov.

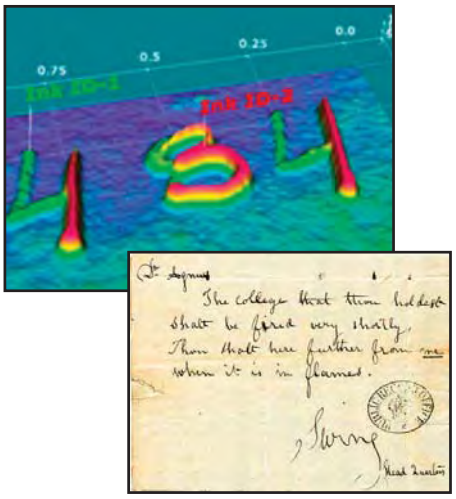
ISF

Selected Current Projects

Computer Log Collector

Although computer security measures have tremendously improved recently, hacking by terrorists and criminals remains a significant problem. Determining when, how, and to what extent someone has hacked a computer is difficult and time-consuming. 3rd Ring, Inc. developed a software tool that helps investigators collect the needed information in hacking incidents. A small thumb drive contains the entire software program and can attach to the USB port on any computer or server. Once connected, the tool can extract vast amounts of data and especially targets information related to the hacking. The tool is easy to use and consists of modules that can define and limit the specific data for collection. The thumb drive can also store and categorize all of the collected data. The information is then easily downloadable to other storage media.

Forensic Document Analysis



Forensic examinations of documents and handwriting are often crucial to the success of counterterrorism investigations. However, when presented as evidence in court, these analyses frequently undergo legal attacks for not having a sufficiently established scientific basis. Drexel University's Data Fusion Laboratory (DFL) is conducting thorough testing to further support the scientific foundation of several types of document exams. The DFL will test the reliability of the forensic document examiners (FDEs) to analyze disguised handwriting then compare it to those types of persons who serve on trial juries. The DFL will also test and determine the effects of the context of other evidence on the accuracy of conclusions by FDEs. The last phase of testing will measure the accuracy of FDEs when examining faxed documents that include the header.

Investigative Support & Forensics

Optimization of Human Scent

Human scent has increasingly been viewed as trace evidence in criminal investigations and shown to be a viable forensic tool to establish associations between individuals and crime scenes. Forensic teams collect scent from objects at crime scenes that perpetrators may have handled in order to collect this evidence. One type of evidence is collecting scent from objects. The collected scent allows canines used by law enforcement officers to connect suspects to the crime scene. Florida International University is currently developing and testing methods that will improve the performance and scientific defensibility of dog teams used for human scent identification. The intent is to optimize and evaluate the properties of the materials used for the collection of odor samples. This project includes both laboratory and field testing. Field trials will then assess the variances in performance of human scent identification canines with respect to using different types of absorbent materials.

Human Scent Collection System

To improve human scent collection for use by dog/handler teams, Battelle Memorial Institute is developing a human scent collection system (HSCS) that will enhance the capability to relocate friendly personnel, re-establish contact with enemy combatants, and conduct reconnaissance of an area. The HSCS will be a rugged, reliable, and compact system for canine handlers to collect human scent from evidence for future use. The HSCS will address the need for a device that can withstand the rigors of an operational field environment while also withstanding the scrutiny of the scientific legal community. The design concentrates on select technical issues, including cross-contamination, the ability to adequately clean the system between samples, user-friendliness, ruggedness, and sufficient training on the device. The performance of the HSCS will be validated in the laboratory and in the field through a variety of tests and operational assessments.

Contact Information

isfsubgroup@tswg.gov

Physical Security

Physical Security

Mission

Identify, prioritize, and execute research and development, testing, evaluation, and commercialization efforts that satisfy interagency requirements for physical security technology to protect personnel, vital equipment, and facilities against terrorist attacks.

The Physical Security (PS) subgroup identifies the physical security requirements of Federal, State and local agencies, both within the United States and abroad, and develops technologies to protect their personnel and property from terrorist attacks. The subgroup creates prototype hardware, software, and systems for technical and operational evaluation by user agencies. A Department of Defense representative from the Physical Security Equipment Action Group and a Department of Energy representative co-chair the subgroup.

Membership

Environmental Protection Agency
NHSRC

Federal Reserve Board

Intelligence Community

Nuclear Regulatory Commission

State and Local Agencies
Amtrak PD, L.A. JRIC, NYPD, Pierce County (WA) Sheriff's Dept

U.S. Capitol Police

U.S. Department of Agriculture
FS

U.S. Department of Commerce
NIST, NOAA

U.S. Department of Defense
ATSD (NCBD), CENTCOM, DARPA, DIA, DTRA, JCS, JIEDDO, NRO, NSA, OSD, PFPA, PSEAG, UCC, USA (AWG, CMLS, OPMG, PM-FPS, PM-G, RDECOM, REF, USACE), USAF (AFSFC, FPSS), USMC (MARCENT, MARCORSYSCOM, MCWL), USN (CNIC, CNO, NAVEODTECHDIV, NAVSEA, NCIS, NECC, NEDU, NSWC, ONR, SPAWAR)

U.S. Department of Energy
NNSA

U.S. Department of Homeland Security
CBP, ICE, S&T, TSA, USCG, USSS

U.S. Department of the Interior
BR

U.S. Department of Justice
BOP, DEA, FBI

U.S. Department of State
DS

U.S. Department of Transportation
FAA, RITA (Volpe Center)

U.S. Postal Inspection Service

U.S. Senate Sergeant at Arms

Focus Areas

The PS subgroup focus areas reflect the prioritized requirements of the physical protection community. During FY 2008, these focus areas were:

Entry-Point Screening and Access Controls

Develop multiple technologies and techniques to detect explosives, weapons, and other contraband on or in personnel, vehicles, vessels, cargo, and mail entering protected facilities. Increase detection rates, throughput, and safety through remote automation while reducing the reliance upon security forces to perform the screening process. Develop expeditionary access control for admissible personnel and vehicles; integrating identity management, radio frequency identification, license plate reading, automated image anomaly detection technology, and remote communications. Integrate multidisciplinary solutions to mitigate terrorist explosive and chemical attacks at entry control points.

Infrastructure Protection

Develop technological solutions for the protection and assurance of defense and public and private critical infrastructure systems vital to national and economic security. Prevent and mitigate threats to computer networks; standardize methodologies and decision aids for the analysis of elements to secure the nation's infrastructure, including power generation, utilities transmission, water supplies, and health services.

Intrusion Detection, Assessment, Delay, and Response

Develop improved intrusion-detection systems, video alarm assessment systems, specialized intrusion-delay barriers, and subsequent response capabilities for protecting outer perimeters, building perimeters, and key assets from terrorist attacks. Emphasize prototype security systems with fewer false alarms,

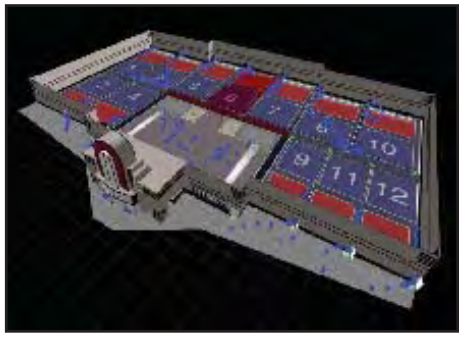
Physical Security

improved reliability, higher probability of detection and assessment, lower operation and maintenance costs, and improved response capabilities.

Maritime Security
Develop technologies to protect ships, boats, docking facilities, offshore platforms, shore-side loading facilities, power plants, bridges, and marine cables and pipelines from any form of terrorist attack, including underwater improvised explosives. Develop and test technologies to include manned or unmanned long- and short-range sensors for detection and tracking; physical barriers and stopping devices; underwater, surface, and air vehicles; weapons; armor; communications and command and control systems; life support; diving and underwater systems; and mammal systems. Conduct outreach events with interagency and international stakeholders to identify common needs and interests, solidify areas for information exchange, and establish technological initiatives that provide enhanced capability in maritime security.

Selected Completed Projects

Evacuation Planning Tool
The ability to simulate an evacuation of a public venue and perform potential threat scenarios improves VIP protection, public health, and military safety. To address this, Regal Decision Systems designed the Evacuation Planning Tool (EPT), a computer-based 3-D model for planning and analyzing major event security in advance. The EPT facilitates rapid construction and execution of simulated threat and response scenarios involving large groups of people in public venues. The scenarios allow users to plan and analyze resource requirements, security team deployments, evacuation options, and coordination of necessary law enforcement agencies. The EPT provides real-time visualization of pedestrian movements around and within major facilities, crowd behavior, and evacuation routes so that the optimal disposition of security officers and devices can be determined by use of statistical data.



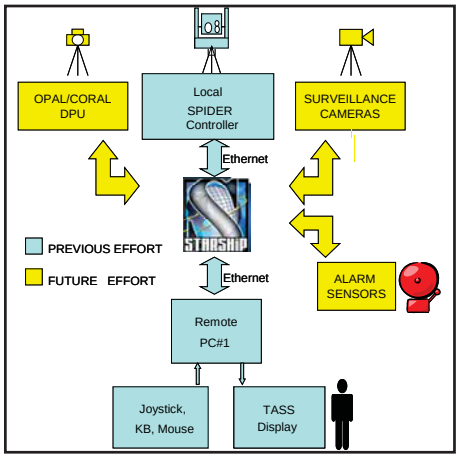
EPT users have the ability to assess civilian responses, facility operations, and security options related to a variety of disasters and threats in order to analyze and formulate evacuation strategies. This is especially useful for law enforcement, the military, and for event planners, especially for a National Special Security Event. Future work will expand capabilities to include evacuation of multiple buildings and increased population over a larger area (for example, an entire military installation). The EPT was employed at the Republican National Convention in August 2008. Additional information is available at http://www.regaldecision.com/RNC.html.

Physical Security

Potomac Basin Security Surveillance System

Within the National Capitol Region, one focus of security is the area of the central Potomac basin. The waterways throughout this area are open to the public and enable ready access to facilities in this area. The Naval Air Warfare Center (NAWC) designed the Potomac Basin Security Surveillance System (PBSSS) to allow facilities in the Potomac Basin to exchange surveillance and other security information. The PBSSS provides controlled data export to authorized external security organizations. The system comprises independent facility surveillance security systems at three primary sites, with independent command and control interfaces at each facility. The PBSSS also directs selected surveillance data outputs to authorized external security agencies. NAWC successfully installed and tested the system at Reagan National Airport. Integration with nearby military installations is currently underway and is being coordinated through the respective Services. Requests for additional information should be sent to pssubgroup@tswg.gov.

PS



Starship Interface

The ability to display a wide range of sensors, made by different manufacturers, on a common screen reduces the personnel required to man these systems. Technologies Engineering, Inc. originally developed the Starship interface to support the Stabilized Panoramic Automatic Intrusion Detection and Recognition System (SPIDER), but Starship has proven to be a valuable capability that can provide the interface link between a suite of deployed sensors and an existing command and control element. Starship also provides leadership with situational awareness of events transpiring at different locations across the area of concern. General Dynamics will use the Starship interface as the standard for future SPIDER software, and CTTSO will incorporate it into an entry control point system to link all sensor equipment back to the command and control center. Requests for additional information should be sent to pssubgroup@tswg.gov.

Selected Current Projects

Omni-Directional Flash and Launch Detection, Positioning, Classification, and Observation System

The threat of enemy snipers can lead to hesitation and loss of morale on the battlefield. To address this threat, the Defense Advanced Research Projects Agency is funding TSWG development of a long-range muzzle flash detection system of omni-directional infrared sensors, called MEGA. When configured onto a vehicle platform, MEGA will provide 360-degree imagery of its surroundings to detect, locate and classify weapon discharges. The information can then be communicated to other elements of the unit to target potential threats. With its long-range capabilities, MEGA will decrease the number of casualties by significantly increasing the response time of the troops.

Physical Security

Joint Airborne Network Security

The security of both commercial and military aviation networks is of considerable importance to the security of the transportation sector. Aviation security is a known high-profile target for terrorist organizations. Current aircraft systems architectures are introducing unprecedented use of broadcast networks connecting multiple aircraft systems, including flight control, display, avionics, engine, and cabin systems. Security vulnerabilities to the aircraft, which were not accounted for in past designs, may impact aircraft safety. TSWG is developing exercise scenarios that test system behavioral response to outside requests. The outcome will document the interactions between objects, the initiator and the system. This output will be then used to develop vignettes to demonstrate the potential consequences of exploitation of these vulnerabilities.

Diver Display Mask

As a result of Iraqi deployment and joint harbor security exercises lessons-learned, response personnel established the technical and operational need for an advanced diver display system capability. The display system needs to integrate with the U.S. Navy MK-20FFM (commercial AGA-Divator) dive mask to support specific combat search and rescue and maritime security missions. The Naval Surface Warfare Center is designing and developing an advanced prototype mask-mounted diver display system for specific interface with the Dual-Frequency Identification Sonar (DIDSON) hand-held instrument and the MK-20FFM dive mask. The improved interoperability and capabilities will provide divers the necessary upgrades to improve mission success and safety in future dive operations.

Contact Information

pssubgroup@tswg.gov

Surveillance, Collection, & Operations Support

DoD photo by Petty Officer 2nd Class Joan E. Kretschmer, U.S. Navy. (Released)

Surveillance, Collection, & Operations Support

Mission

Identify, prioritize, and execute research and development projects that satisfy interagency requirements supporting intelligence gathering and special operations directed against terrorist activities.

The Surveillance, Collection, and Operations Support (SCOS) subgroup identifies high-priority user requirements and special technology initiatives focused primarily on countering terrorism through offensive operations. SCOS R&D projects enhance U.S. intelligence capabilities to conduct retaliatory or preemptive operations and reduce the capabilities and support available to terrorists. A representative from the Intelligence Community chairs the subgroup.

Membership

Intelligence Community

U.S. Department of Defense
SOCOM

Focus Areas

The SCOS subgroup focus areas reflect the prioritized requirements of the Intelligence Community. During FY 2008, these focus areas were:

Traditional Surveillance

Improve the quality of intelligence collection. Develop and advance capabilities for the collection and enhancement of video, imagery, and audio surveillance.

Analytical Surveillance

Improve automated tools for terrorist identification using biometrics, pattern recognition, speech and speaker recognition, and information retrieval from multiple sources.

Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance

Develop and improve the capability to locate, identify, and track terrorists and terrorist activities. Support programs and initiatives critical to intelligence and law enforcement operations, such as tagging, tracking, and locating; special sensors; and clandestine communications.

Information Operations Support

Develop and improve tools to degrade, disrupt, deny, or destroy both analog and digital adversary information and information systems.

Program Highlights

SCOS projects are classified or highly sensitive. Program requirements, the success of projects, and specific capabilities cannot be discussed in an unclassified document.

Contact Information

scossubgroup@tswg.gov

Tactical Operations Support

Photo courtesy of DoD

Tactical Operations Support

Mission

Identify, prioritize, and execute research and development projects that enhance the capabilities of DoD and interagency special operations tactical teams engaged in identifying, attacking and eliminating terrorists. This includes the development of non-sensitive capabilities for State and local law enforcement agencies to combat domestic terrorism.

The Tactical Operations Support (TOS) subgroup provides technology solutions to assist "direct action" operational personnel in a variety of tactical missions and environments. Most often these solutions are in the form of rapidly prototyped and specialized equipment. Each material solution is specifically designed to provide enhanced mission effectiveness while assisting operational personnel in maintaining "situational awareness." A representative from the Department of Defense and a representative from the Department of Energy co-chair the subgroup.

Membership

National Tactical Officers Association

State and Local SWAT Teams

U.S. Department of Defense
SOCOM, USA, USMC

U.S. Department of Energy
HSS, NNSA

U.S. Department of Homeland Security
CBP (USBP), FEMA (US&R), TSA (FAMS), USCG, USSS

U.S. Department of Justice
ATF (SRT), FBI (BRF, HRT), USMS

U.S. Department of State
DS

Focus Areas

The TOS subgroup focus areas reflect the prioritized requirements of offensive counterterrorism forces. During FY 2008, these focus areas were:

Advanced Imaging Systems

Develop solutions that improve reduced-visibility imaging in all operating environments. Provide high-quality images under reduced-lighting conditions to enhance tactical forces' ability to operate more effectively.

Specialized Access Systems

Develop technologies that assist tactical assault forces in gaining rapid access to objectives, improve evaluation of tactical options, and support efficiency of operations, while providing added safety for personnel.

Chemical and Radiation Detectors

Develop chemical and radiological detection instruments that are specifically designed to support the tactical user in the field. Design systems that are smaller, lighter, robust, and more covert than conventional technologies. Coordinate these efforts with the CBRNC subgroup.

Offensive Systems

Develop equipment and capabilities that enhance the effectiveness of small offensive tactical teams engaged in specialized operations.

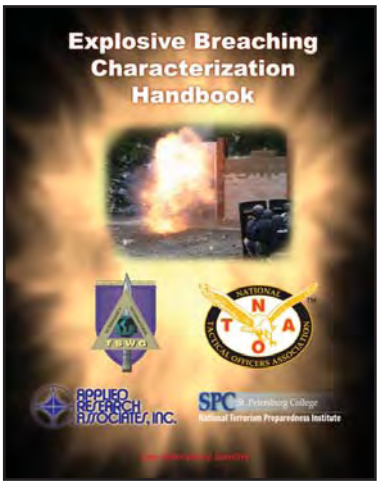
Tactical Communications Systems

Develop flexible communications capabilities specifically designed for tactical forces. Emphasize reducing the size of equipment, while improving operator mobility and efficiency.

Tactical Operations Support

Selected Completed Projects

Explosive Breaching Characterization Handbook



To provide a technical reference guide for use during explosive breaching training and operations, TSWG, along with Applied Research Associates, the National Tactical Officers Association, and the National Terrorism Preparedness Institute at St. Petersburg College, developed the Explosive Breaching Characterization Handbook. The Handbook provides information on targets, explosive breaching safety, breaching charge construction, and other technical data. The Breaching Handbook is For Official Use Only - Law Enforcement Sensitive. The guide is for use by Federal, State, and local law enforcement officers and military operators who have been professionally trained in explosive breaching. The Breaching Handbook is available from the Government Printing Office for approved personnel. Additional information on the publication is available at: http://www.cttso.gov/publications.html.

Selected Current Projects

Universal Communications Converter

Special operations forces need a field-employable converter that will allow them to receive and retransmit voice or data communications across disparate systems at the tactical level. This converter must be capable of operating on either secure or unsecured networks and sometimes on both simultaneously. The Universal Communications Converter will provide the capability to connect between military and civilian systems on either secure or unsecured networks. It will receive transmissions from multiple digital or analog sources, convert them to the appropriate format, and then route them to the designated receiver network. Deployed field operators are now able to take advantage of communications systems and networks available in their local area and, using their existing tactical communications devices, seamlessly connect to distant or local stations. In June 2008 Trident Systems delivered two prototype systems to the U.S. Army for testing and evaluation.

Combat Patient Monitoring System

To perform their role effectively combat medics must have real-time information on a patient's vital signs and be alerted to any life threatening situations. Currently fielded and available patient monitoring systems are designed primarily for hospital and ambulance use in non-combat environments. Zephyr Technology is developing a field deployable system that monitors, records and reports an individuals' vital signs and enhances the ability of combat medics to provide critical care during casualty staging and evacuation operations. The system will also have the capability to alert medical personnel of potential patient life threatening situations during patient transport in helicopters and vehicles when no light conditions exist.

Tactical Operations Support

Optical Voice and Data Communications for Tactical Forces
During operations tactical forces often need to operate in environments where standard radio-frequency (RF) communication use is restricted. To allow tactical forces to communicate effectively, Torrey Pines Logic is developing a set of interoperable optical voice and data communications devices for use during surveillance operations in urban and suburban environments. Additionally, these devices may also be employed in rural, wilderness, or maritime environments as part of any tactical operation. When in line of sight of each other, the optical systems, such as binoculars or sniper scopes, communicate using infrared light-emitting diodes across their respective fields of view. Optical voice and data communications provide an alternative to standard RF communications that are easily emplaced, secure and provide high-bandwidth connectivity yet have a low probability of detection/intercept when compared to standard RF systems.

Through-Wall Imaging
The Camero Xaver™ set of through-wall imaging systems is comprised of unique, multi-channel, ultra-wide band sensors that operate at very high bandwidth, enabling reliable detection and object resolution. The systems provide imaging through various types and thicknesses of wall construction and provide a user-friendly display that presents an unambiguous view of the tactical picture to the user. Camero, Inc. is developing enhanced graphical user interfaces (GUIs) for the stand-off three-dimensional Xaver™ 800 system and the tactical two-dimensional Xaver™ 400 system. The GUI enhancements will improve detection rates and increase situational awareness. The enhanced Xaver™ systems will improve a tactical force team's ability to perform surveillance operations, plan and execute pre-assault missions, conduct post assault screening (search for voids, people, or munition caches) as well as conduct search and rescue operations or resolve hostage situations.

TOS

Contact Information

tossubgroup@tswg.gov

Training Technology Development

U.S. Marine Corps photo by Cpl. Ryan Walker (RELEASED)

Training Technology Development

Mission

Identify, prioritize, and execute projects that satisfy interagency requirements for the development and delivery of combating-terrorism-related education, training, and mission performance support products and technologies.

The Training Technology Development (TTD) subgroup delivers training and training technologies to increase mission readiness and enhance operational capabilities in the combating-terrorism community. The strategy behind the mission is to analyze, design, develop, integrate, evaluate, and leverage distributed learning technologies to deliver high-quality training and education in the medium best suited to the users' needs and requirements. Representatives from the Department of Defense and the Department of Homeland Security co-chair the subgroup.

Membership

Intelligence Community

InterAgency Board

National Bomb Squad Commanders Advisory Board

National Tactical Officers Association

U.S. Department of Defense
JIEDDO, OUSD (P&R), PFPA, SOCOM, USA (JFKSWCS, NGB, RDECOM-STTC, TRADOC), USMC (TECOM)

U.S. Department of Energy
HQ

U.S. Department of Homeland Security
FLETC, OBP, S&T

U.S. Department of Justice
NIJ

U.S. Department of State
DS

Focus Areas

The TTD subgroup focus areas reflect the prioritized requirements of the military and civilian combating-terrorism communities. During FY 2008, these focus areas were:

Delivery Architectures

Develop new, advance emerging, and enhance existing learning, content, and knowledge management technologies. Develop software and hardware technologies, architectures, and infrastructures to deliver information, education, and training to combating-terrorism personnel. Emphasize ubiquitous and distributed computing to provide the basis for information and training technology interoperability, the standards needed to provide distributed, on-demand, customized training consistent with future computing infrastructure, and proven methods of effective individualized instruction and electronic performance support.

Advanced Training and Education

Develop programs of instruction, training packages, computer- and classroom-based combating-terrorism training courses. Develop the advanced tools, techniques, and guidelines required to analyze needs, develop solutions, and evaluate results. Analyze performance needs to identify applicable solutions. Integrate delivery technologies with combating-terrorism training materials to increase the quality, effectiveness, and accessibility of training.

Training and Information Aids and Devices

Develop job aids, training aids, performance improvement solutions, and training support devices to support mission performance and increase mission readiness. Develop pocket guides, flipbooks, and other aids for TSWG products and new areas of research in the combating-terrorism domain. Provide training simulants as aids in training exercises.

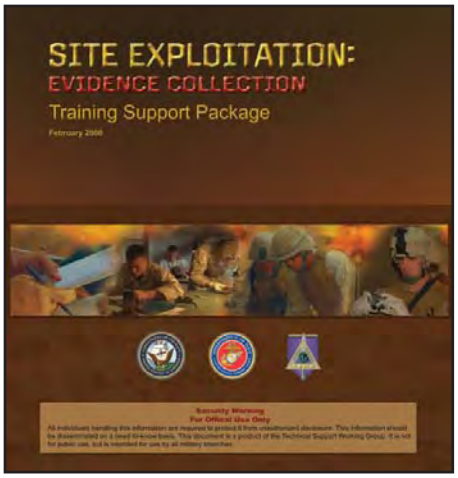
Training Technology Development

Models, Simulations, and Games

Develop interactive models, simulations, and games (MS&G), including, but not limited to: tabletop simulations, field exercise simulations, immersive virtual-learning environments, hands-on virtual reality, simulation models, and PC-based, three-dimensional and isometric simulations and games. Develop crowd models, adversarial behavior models, network-based simulations, mini-simulations on specific combating-terrorism related tasks. Incorporate beneficial game characteristics through the full range of game genres (i.e., strategy, first person tactical, massively multiplayer online game, role-playing, etc.). Develop tools, technologies, and techniques for improving MS&G design, development, and validation.

Selected Completed Projects

Site Exploitation: Evidence Collection Training Support Package



To effectively support Stability, Security, Transition, and Reconstruction operations, military and government personnel require training on proper evidence collection techniques to prosecute terrorists in overseas locations where courts may not recognize DNA and other types of more sophisticated evidence. In cooperation between the TTD Subgroup and the Investigative Support and Forensics Subgroup, the National Terrorism Preparedness Institute developed a Training Support Package (TSP) that addresses site exploitation topical areas ranging from site assessment and search techniques to tactical questioning and scene documentation. The TSP contains a train-the-trainer component along with PowerPoint presentations, supporting subject matter expert video demonstrations, printable student materials, and student evaluations for an instructor to prepare their students in both the classroom and hands on training environments. The TSP is available from the Government Printing Office, and product procurement information is available at http://www.cttso.gov/publications.html.

Adaptive Simulation Agents for Adversarial Behaviors

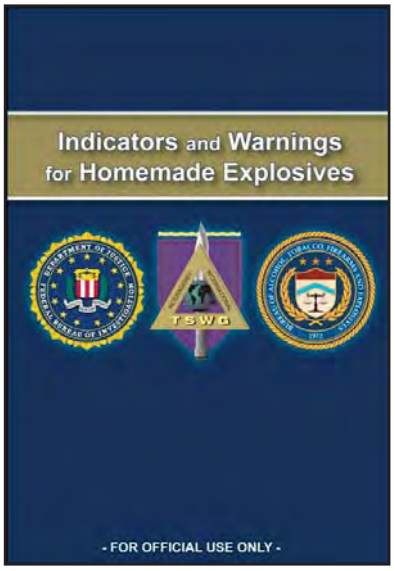
Current, large-scale, force-on-force constructive simulation systems do not sufficiently address asymmetrical warfare at the agent level. Today's war fighter is engaged in military operations on urban terrain and against an enemy that is adaptive in nature. In order to prepare individual war fighters, leaders, and staffs for asymmetrical threats and to apply operational lessons learned, the Government-Industry-Academia Simulation Lab designed and developed five adaptive and autonomous agent-based simulation characters for current and potential threats: Suicide Bomber, Sniper, IED Ambusher, Bomb Maker, and Change of Sides. The autonomous agents contain representative behaviors, rules, and effects, and enable future training systems to adaptively address operational needs based on current and emerging threats. The agents have been integrated

Training Technology Development

into the OneSAF Test Bed Semi-Automated Force and the On-Line Interactive Virtual Environment. Additional information is available by contacting the TTD Subgroup at ttdsubgroup@tswg.gov.

Vehicle Inspection Checklist Simulation and Updated Training Support Package

The quantity of explosives that can be transported in a vehicle and used in a VBIED pose serious problems for military and state/local responders. Therefore, it is essential that entry control point personnel who are tasked with screening vehicles know the components used in a VBIED and can recognize the signs and indicators of a VBIED. The National Terrorism Preparedness Institute developed two products to address the challenge of vehicle inspections. First, the Vehicle Inspection Checklist Simulation places screeners at a virtual checkpoint where they are required to analyze documentation and conduct an inspection of the vehicle. The interactive simulation forces screeners to critically analyze signs and indicators in order to identify possible caches. Second, the Updated Vehicle Inspection Checklist Training Support Package (TSP) provides updated (from the 2002 version) threat, employment, and tactics, techniques, and procedures for dealing with vehicle inspections. The TSP also contains updated videos and exercises on CD/DVDs. Requests for copies of the simulation should be sent to ttdsubgroup@tswg.gov. The TSP is available from the Government Printing Office, and product procurement information is available at http://www.cttso.gov/publications.html.



Indicators and Warnings for Homemade Explosives

Due to the ease in obtaining chemical components, homemade explosives (HMEs) are an increasing and serious threat that affects our military personnel and first responders. As part of the TSWG-coordinated HME working group, Applied Research Associates developed the Indicators and Warnings for Homemade Explosives guidebook. The guidebook is an 80-page, 5x7-inch, spiral-bound quick reference guide for the military, first responders, and Federal, State, and local government personnel. The guidebook provides awareness-level information that allows personnel to rapidly assess a situation for the presence of homemade explosives. The guidebook is available from the Government Printing Office, and product procurement information is available at http://www.cttso.gov/publications.html.

Training Technology Development

Collective Basic through Advanced Level Training for Bomb Technicians

Bomb squads must continually refine and enhance their capabilities in order to effectively target evolving threats. Applied Research Associates designed and developed Project COBALT, which provides quarterly training for unit-level bomb squads to collectively anticipate, recognize, and respond to threats. Project COBALT enables unit-level skills practice, response strategy preparation and refinement, and an increase in the overall knowledge required to manage and mitigate existing and emerging threats. The four quarterly training modules targeted the following emerging threat areas: Multiple IEDs, Homemade Explosives, Vehicle-borne IEDs, and Person-borne IEDs. Additionally, an electronic framework has been developed to facilitate rapid development of future exercise-based unit level bomb squad training. All four training modules have been delivered to State and local bomb squads. Requests for additional copies should be sent to ttdsubgroup@tswg.gov.

Cultural Awareness: Indonesia Training Support Package

Hostility against and lack of cooperation with U.S. Government personnel can be triggered by a cultural error committed by well-meaning personnel. Often, the person has not even been made aware that an error has occurred. In response, the military has realized that representatives need to have cultural awareness training as a critical defense against these errors. The National Terrorism Preparedness Institute designed and developed the Cultural Awareness: Indonesia Training Support Package (TSP). The TSP covers topics such as: definition and comparison of culture, government, economy, religions, people, social constructs, language, and mission critical data. The TSP is available from the Government Printing Office, and product procurement information is available at http://www.cttso.gov/publications.html.

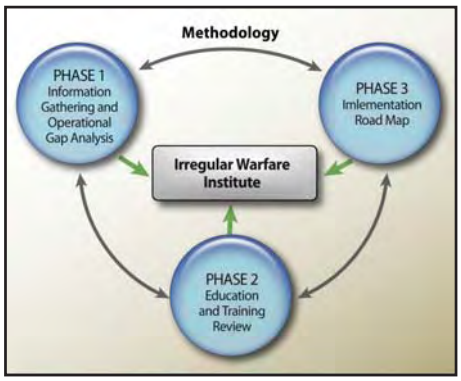
Selected Current Projects

Model Immersive Cultural Learning Environment

Increasing numbers of overseas operations require U.S. Government personnel to interact with native populations in their cultural settings. Previously, cultural competence was only available to a privileged few who studied abroad; however, in today's age of globalization, intercultural skills are a necessity for U.S. Government personnel. The University of Florida is designing, developing, implementing, and evaluating a model for an immersive cultural learning environment that provides war fighters, linguists, analysts, and language students with robust cultural awareness information and training. The project combines best practices from the 2-D Web with immersive interactions from Second Life, an online 3-D virtual world. Development of the environment will be completed in early

Training Technology Development

2009, and the evaluation will be completed by late 2009. Additional information can be found on the University of Florida project Web page at http://cero11.cise.ufl.edu/~webmaster/index.html.



Irregular Warfare Institute

Given current engagements, there is a need to address the education and training of personnel for worldwide engagement against non-state actors, non-obvious threat networks, and ideology tied to violent extremist religious beliefs. In a cooperative effort between the TTD Subgroup and the Irregular Warfare Support program, Strategic Analysis, Inc. is conducting an operational analysis of irregular warfare engagement operations and activities within the educational domain and identifying vectors of training and education that would support a unified (interagency) U.S. Government and international path forward. The future state vision of this effort is an irregular warfare training and education capability that leverages all applicable DoD and interagency training and education centers for distributed learning. The analysis, data collection, and gaps analysis report will be completed by early 2009.

Cop-on-the-Beat

The mission of our military in current areas of responsibility has gone beyond traditional combat to an increased need for improved security through the use of policing tactics. In order to respond effectively, military personnel must be trained in policing tactics, techniques, and procedures. Lockheed-Martin is designing and developing standardized instructor-led training as well as supporting online training to teach military personnel essential tactical skills associated with urban operations to include interacting with the local community, identifying the characteristics of terrorist behavior and terrorist organizations, interviewing and patrolling techniques, and intelligence reporting.

Contact Information

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VIP Protection

VIP Protection

Mission

Identify, prioritize, and execute research and development projects that satisfy interagency requirements to provide security enhancing technology solutions for VIPs and their protection details. Particular emphasis is placed on the development of advanced tools, techniques, and guidelines for the prevention and mitigation of terrorist attacks on personnel, vehicles, and infrastructure.

Membership

Intelligence Community

U.S. Capitol Police

U.S. Department of Commerce
NIST-OLES

U.S. Department of Defense
PFPA, SOCOM, USA (SSC, TARDEC), USN (NAVAIRSYSCOM, NCIS)

U.S. Department of Energy

U.S. Department of Homeland Security
TSA (FAMS), USSS (SSD, TSD)

U.S. Department of Housing and Urban Development

U.S. Department of Justice
NIJ, USMS

U.S. Department of State

U.S. Department of the Treasury
IRS

The VIP Protection (VIP) subgroup develops new equipment, reference tools, and standards to enhance the protection of VIPs. Projects focus on putting innovative tools such as automated information management systems; security systems, mobile surveillance systems, as well as personnel and vehicle protection equipment in the hands of those who are tasked with the safety of VIPs. The subgroup delivers new technologies to Military, Federal, State, and local law enforcement protection details. Representatives from the United States Secret Service and Department of Energy co-chair the subgroup.

Focus Areas

The VIP subgroup focus areas reflect the prioritized requirements of the personnel protection community. During FY 2008 these focus areas were:

Fixed Security

Develop technologies that enhance the protection of fixed facilities used by VIPs. Provide threat detection, defeat, and mitigation tools for a range of attack scenarios to include incoming missile threats. Develop surveillance and perimeter security systems that can be integrated with existing security architectures.

Individual Protection

Augment individual protection levels of VIPs and their protectors through the development of body armor, enhanced communications, and alert mechanisms. Enhance personal body armor by increasing ballistic protection, improving concealability, and reducing weight.

Information Resources

Develop reference materials, information management systems, and analytical tools to enhance preparation, facilitate decision-making, and improve incident response capabilities. Conduct equipment performance evaluations and feasibility studies. Evaluate performance of personnel protection equipment and assess feasibility for combating-terrorism missions.

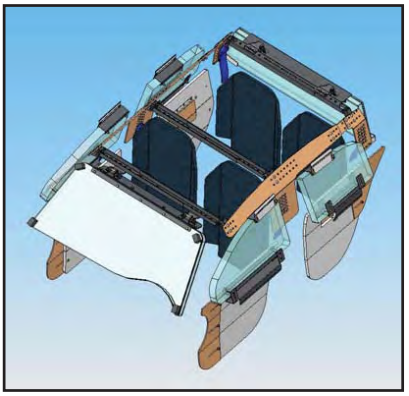
VIP Protection

Mobile Security

Enhance VIP protection while traveling away from the high-level security of a fixed installation. Develop surveillance and detection capabilities to increase protection of vehicles, aircraft, temporary living quarters, meeting venues, and public events. Develop armor solutions for enhanced ballistic and blast protection against current and emerging threats.

Selected Completed Projects

Field-Installable Inconspicuous Vehicle Armor Kit



U.S. military forces frequently use civilian vehicles during low-profile missions in hostile areas. Such vehicles offer no protection against small arms fire, prompting a requirement for an inconspicuous universal armor kit that provides occupants the greatest opportunity to survive a chance engagement involving hostile fire, break contact, and return to nearby friendly armed forces. HazTrain, Inc. teamed with Advanced Blast Protection, Inc. (formerly Labock Technologies, Inc.) to develop the Field-Installable Inconspicuous Vehicle Armor Kit (FIVAK), a versatile modular armor kit for rapid field installation in a variety of civilian vehicles including sedans and trucks. The armor kit comes with all required standard tools and can be installed by field personnel in less than four hours. FIVAK is inconspicuous from the outside of the vehicle and leaves no visible modifications to the vehicle interior once removed, thereby making the system applicable for use in rental cars. The complete FIVAK kit weights approximately 630 lbs and includes protection for the doors, seat backs, windows, tires, and critical engine components. The kit is packaged in Air Transport Association-approved cases to support commercial or military airlift. Requests for additional information should be addressed to vipsubgroup@tswg.gov.

Wireless Surveillance Earpiece

Government protective details are frequently required to provide VIP security in public areas. Traditional surveillance earpieces are connected to the receiving device via an indiscreet wire, potentially compromising the VIP's location. SAIC conducted a market assessment of available wireless earpieces using protective services requirements as metrics. The top five earpieces underwent a thorough lab and user evaluation. SAIC provided a final test report ranking how each earpiece against user identified performance requirements. The final report was delivered to Government agencies with protective details and will be used to support their future acquisition decisions. Requests for additional information should be addressed to vipsubgroup@tswg.gov.

VIP Protection

Advanced Body Armor Test Fixture

With the ever increasing need for higher levels of ballistic protection by military and law enforcement personnel comes an associated requirement for meaningful and practical armor testing procedures. Clay backing material has been used to perform these tests worldwide for many years, replicating the response of the human torso to behind armor blunt trauma. However, a more dynamically responsive tool was desired to better understand the injury mechanism. TSWG teamed with Defense Research Development Canada and Biokinetics to develop a torso rig test fixture that measures the dynamic deflections of non-penetrating ballistic impacts. This data is then correlated with injury models to assess the injury probability. The test fixture is currently being evaluated by the National Institute of Standards and Technology for possible inclusion in future body armor testing standards. Requests for additional information should be addressed to vipsubgroup@tswg.gov.

Selected Current Projects

Wireless Emergency Vehicle Kit

Security details must protect VIPs from threats while in transit between various locations. Currently, rental vehicles are converted into emergency vehicles using wired lights and sirens. As a result, the power cords are strewn inside the cabin, creating a safety issue for VIPs if they are required to enter or exit the vehicle quickly. Lewis Innovative Technologies, Inc. is developing a versatile, easy to install lightweight wireless system that provides a safe vehicle for VIPs and allows any vehicle to be quickly transitioned to a temporary emergency vehicle. The kit consists of four lights and a siren which can be powered on and off manually or via a small remote controller. The controller is also used to cycle through available flash patterns and siren tones. The components are interchangeable across kits with simple reprogramming via the remote controller. The kit is packaged in an airline approved carry on container for easy transportation.

Protective Services Portal

As the scope, scale, and number of agencies responsible for protective services for VIPs continues to expand, the need for consistency and interoperability across agencies with protective service missions has become more crucial. Platinum Solutions is developing a secure web-based application to guide users through the stages of operations plan development. The tool provides templates and best practices for developing operations plans that detail critical information regarding airports, hotels, event sites, nearby hospitals, motorcade routes, required safety equipment, and other necessary information. The application stores operations plans in a searchable database, with tiered access controls for authorized users. Attachments such as floor plans and photos of airports and hotels, or road maps can be stored with the operation plan for use during the assignment.

VIP Protection

Modular Surveillance Toolkit

While protecting VIPs traveling away from the high-level security of fixed installations, security details require various types of surveillance capabilities. Providing security details with the necessary surveillance tools to make human discovery at long distances increases the effectiveness of mitigating attacks. Patton Electronics is developing a small, adaptable modular surveillance toolkit that supports man-portable, vehicular and rooftop surveillance. The toolkit offers video and audio capture, local storage, and encrypted uplink to a remote command center via the cellular network. The modular surveillance toolkit for rooftop use is equipped with two pan/tilt/zoom controlled cameras and a secure digital high capacity card for data storage. The toolkit for vehicle surveillance has four cameras with pan/tilt/zoom control, covering all sides of the vehicle for greater situational awareness. It also includes a removable hard disk drive used for data storage. The system also provides GPS data on the vehicle so it can be tracked in real time with the vehicle video streaming.

Networked Advanced Vehicle Anti-Tamper and Alert System

Motor pool vehicles are often unattended for periods of time, leaving them subject to malicious tampering such as theft, rendering the vehicle or tactical response equipment inoperable, and planting a tracking or explosive device. Applied Research Associates, Inc. developed the Networked Advanced Vehicle Anti-Tamper and Alert System (NAVATA) to provide continuous tamper and alert security for unattended tactical vehicles used in DOE Protective Force operations. The system captures potential tamper events, provides warning, and enables post event analysis to evaluate the nature of the event thereby permitting the driver to make an informed decision whether or not to drive the vehicle. Work is currently underway to incorporate NAVATA into the DOE facilities security command and control system to create an integrated facilities and vehicle surveillance system. NAVATA is currently installed on HMMWV's and will be installed in other tactical vehicles such as the Advanced Concept Armored Vehicles and Bearcats.

Contact Information

vipsubgroup@tswg.gov

Explosive Ordnance Disposal/ Low-Intensity Conflict

Explosive Ordnance Disposal/ Low-Intensity Conflict

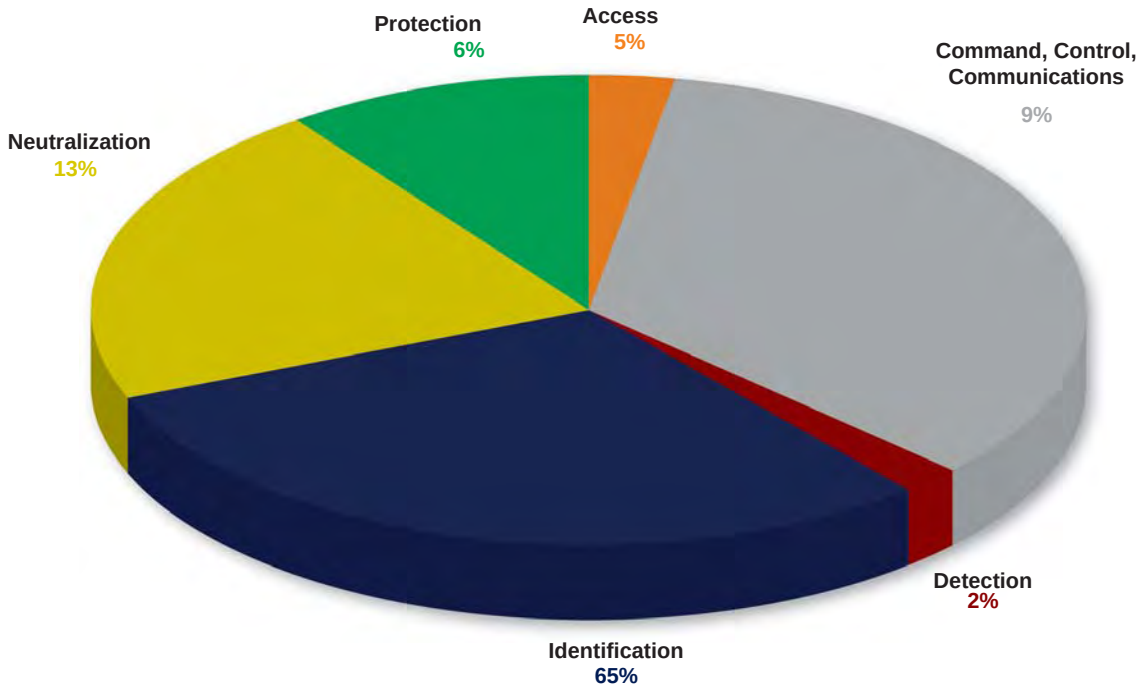
Mission and Organization

The Explosive Ordnance Disposal/Low-Intensity Conflict (EOD/LIC) program provides Joint Service EOD and Special Operations Forces with advanced technologies and mission-focused solutions required to address current and emerging threats presented by unconventional and asymmetric warfare. These communities annually submit prioritized requirements, which are then reviewed and approved by the Office of the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict.

Funding

In FY 2008 funding for EOD/LIC totaled over $7M. Funding breakdown for FY08 by focus area is shown below.

FY 2008 EOD/LIC Funding by Focus Area

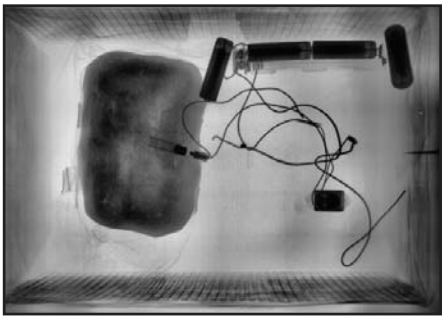


Explosive Ordnance Disposal/ Low-Intensity Conflict

Focus Areas

Access

Develop capabilities to safely approach, breach, or enter an area that has explosive threats intended to restrict the access of military personnel. Develop access technologies such as transportation systems; tools for opening containers, vehicles, and walls; and equipment for relocating ordnance to a safe area.



Detection

Determine the presence of unexploded ordnance (UXO) and establishes location with sufficient accuracy to enable access. Develop detection systems such as imaging systems; explosives sniffers; and nuclear, biological, and chemical sensors.

Command, Control, and Communications

Develop technology and software to enable military personnel to use command, control, and communications (C3) assets to scan, reconnoiter, gather, and store imagery and other digital data and to transmit these to command units and personnel over short distances. Advance and upgrade C3 systems such as radios, computers, personal digital assistants, displays, computer databases, and other software.

Neutralization

Eliminate explosive threats by destroying them or rendering them inoperable. Develop neutralization systems, including disrupters, rifles, counter-charges, and flails.

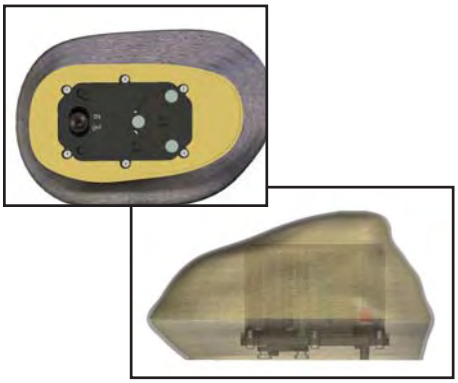
Identification

Determine the specific type and characteristics of UXO, IEDs, and other explosive threats. Determine the condition of UXO and the specific hazards associated with these threats. Promote knowledge of UXO, such as the specific type of ordnance, type and amount of explosive fill, blast and fragmentation radii, condition of the item, and existence of any hidden dangers.

Protection

Develop technologies for life support and protection of personnel from ballistic and explosive threats. Advance the development of armor systems for personnel, life support equipment, and manned vehicles for land, sea, or air.

Explosive Ordnance Disposal/ Low-Intensity Conflict



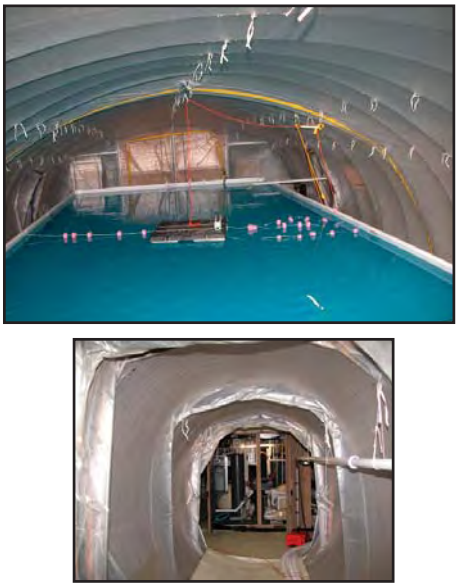
Selected Completed Projects

Ordnance Penalty Simulator

The Ordnance Penalty Simulator is a training aid developed by the Naval Surface Warfare Center that provides a realistic and objective means of evaluating the hands-on technical skills of EOD students and technicians. Through the use of sophisticated sensors, the system functions much like the fuzing systems of ordnance items that may be encountered in the field in order to simulate real-world ordnance hazards. The simulator transmits and receives raw data from each sensor. The computer translates, analyzes, and logs this data to provide objective feedback to both instructor and trainees. The system was evaluated by the EOD School House at Eglin Air Force Base and will be evaluated by additional activities in the near future. Requests for additional information should be sent to eodlic@eodlic.cttso.gov.

Micro Air Vehicle

Military EOD personnel require the ability to conduct remote reconnaissance of potentially hazardous areas beyond the reach of current ground robotic systems. Honeywell International developed a hover-capable, small aerial platform to conduct incident site reconnaissance in areas inaccessible to unmanned ground vehicles. The EOD community conducted a 90-day operational assessment in Iraq, where the platform proved its usefulness in providing area situational awareness and locating IEDs. Recommended changes from the assessment were incorporated into the EOD Block II micro air vehicle (MAV) configuration. The system transitioned to a program of record under PMA-263, Navy and Marine Corps – Small Tactical Unmanned Air Systems. PMA-263 will purchase additional systems for EOD use. Additional information on the MAV is available at: http://www.honeywell.com/mav.



Navy Marine Mammal Expeditionary Environmental Control Pen

During Operation Iraqi Freedom, the force protection MK 6 Marine Mammal System was deployed for an indefinite period in Bahrain. As such, the Space and Naval Warfare Systems Command (SPAWAR) needed a solution to sustain dolphins in an expeditionary environment. For phase one of the program, SPAWAR developed an in-water, climate-controlled enclosure to keep dolphins healthy and mission-capable. The system is modular for quick breakdown and has a small footprint for shipboard transport. Each system consists of one pen that can house up to four dolphins. The second phase of the effort developed a liner with air handling equipment to protect the dolphins and fleet personnel from chemical, biological, and radiological attacks. The Expeditionary Environmental Control Facility (EECF) will transition to a Program of Record under the Explosive Ordnance Disposal Program Office in late FY09 or early FY10. The EECF will become part of the Navy Marine Mammal Fleet Systems. Requests for additional information should be sent to eodlic@eodlic.cttso.gov.

Explosive Ordnance Disposal/ Low-Intensity Conflict

Robotic Tools

Explosive Ordnance Disposal operators need tools to enhance the capability of robots to help address the improvised explosive device threat. Robotic platforms used in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) have a limited capability for helping detect, access, and dispose of these threats. Through a joint effort with the Naval Explosive Ordnance Disposal Technology Division (NAVEODTECHDIV), EOD/LIC developed a tool delivery device, wire drag tool, and a fiber-optic tether assist tool for the Man-Transportable Robotic Platform (MTRS) MK 2 Talon. CTTSO sent 100 kits to OIF for operational evaluation. A robotic gripper tool assembly was also developed by NAVEODTECHDIV for the MTRS MK 1 PackBot® and MK 2 Talon® robotic platforms. The gripper tool assembly consists of a J-knife, rake/wire trace, and a spear. The use of these tools will move debris that may obscure the field of view, cut command wires, and cut through packages to minimize time on target. CTTSO delivered 180 of these kits to OIF and OEF for operational evaluation. Requests for additional information should be sent to eodlic@eodlic.cttso.gov.

Selected Current Projects

Modular Unmanned Surface Craft-Littoral

The modular unmanned surface craft-littoral (MUSCL) is a spin-off of EOD/LIC's Unmanned Reconnaissance Observation Craft, developed by the Naval Surface Warfare Center. The system is a modular, two-man-portable, self-propelled, unmanned surface craft that operates remotely or semi-autonomously. The MUSCL is also capable of running a pre-programmed mission using GPS navigation. The system carries a stabilized pan and tilt color camera and a forward-looking infrared camera and a fixed-mount driving camera coupled to an audio/video transmitter, with a communications system that has a range of approximately 5 miles, line-of-sight. A laptop computer is used to control MUSCL, as well as to display the information that the craft provides to the user. FalconView™ software is used for mission planning and for displaying the position and status of MUSCL. The MUSCL program will incorporate an illuminating device to assist with missions such as under-pier inspections and side-scanning sonar to identify potential underwater hazards. The system can travel up to 11.5 knots (21.3 km/hr) in the current configuration, with a target speed of 20 knots (37 km/hr) in the current development.

Explosive Ordnance Disposal/ Low-Intensity Conflict

11m Rigid Hull Inflatable Boat Launch and Recovery from LPD/LSD Stern Gate

Because 11m rigid-hull inflatable boats (RHIBs) are not compatible with stern gates standard to the ships, they are launched over the side of Landing Platform Dock and Landing Ship Dock ships. This method of launch and recovery is unsafe for loading and off-loading unmanned underwater vehicles and mammals. SPAWAR developed a safe and efficient method for launch and recovery that is specific to the 11m RHIB and is entirely mechanical. The system has a small footprint to minimize logistics for transportation and storage. During pier side testing, the RHIB successfully entered the trailer at different angles and locked onto the grasping device, securing the RHIB to the trailer. The system will be evaluated at sea for performance in various sea states.

Contact Information

eodlic@eodlic.cttso.gov

Irregular Warfare Support

Irregular Warfare Support

The Irregular Warfare Support (IWS) program develops adaptive and agile ways and means to support irregular warfare in the current and evolving strategic environments. IWS supports joint, interagency, and international partners who conduct irregular warfare through indirect and asymmetric approaches, though they may employ a full range of military and other capabilities, to erode an adversary's power, influence, and will. IWS solutions include material and nonmaterial operational analysis, concept development, and delivery of capabilities, to defeat the motivations, sanctuaries, and enterprises of targeted state and non-state actors.

Mission

IWS develops interagency capabilities and capacities for Information Age warfare.

Focus Areas

Force Application

Conduct research, operational analyses, capability design, and implementation support to better integrate the use of maneuver and engagement to create the effects necessary to achieve mission objectives. Provide General Purpose Forces, in conjunction with SOF, with sufficient capacity to train, advise, and assist foreign security forces; support foreign internal defense missions; and conduct counterinsurgency operations.

Battlespace Awareness

Conduct research, operational analyses, capability design, and implementation support to enable forces to understand dispositions and intentions as well as characteristics and conditions of the operational environment that bear on national and military decision-making.

Command and Control

Conduct research, operational analyses, capability design, and implementation support to better enable commanders or decision-makers to exercise authority and direction over assigned and attached forces in the accomplishment of a mission. Improve functionality through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations.

Irregular Warfare Support

Building Partnerships Capabilities

Conduct research, operational analyses, capability design, and implementation support in order to enable the Department to influence foreign partners, foreign competitors, adversary leaders, military forces, and relevant populations by developing and presenting information and conducting shaping activities to affect their perceptions, will, behavior, and/or capabilities. This includes research and development that supports the conduct of communication, shaping missions, and activities, but does not include kinetic operations or maneuver of forces for the purpose of influence.

Program Highlights

IWS programs are classified or highly sensitive. Program requirements, the success of programs, and specific program capabilities cannot be discussed in an unclassified document.

Contact Information

iws@iwsp.cttso.gov

Product Development & Delivery

U.S. Navy photo by Petty Officer 3rd Class Kathleen Gorby

Featured Project Updates

This section of the program review book provides updates of signifigance to past CTTSO projects that have previously been reported on as completed projects. The projects featured in this section have had significant operational improvements, have enjoyed particular commercial success, or have had other developments of note.

Electrostatic Decontamination System (CBRNC Subgroup)

Through TSWG's CBRNC subgroup, Clean Earth Technologies previously developed the Electrostatic Decontamination System (EDS), which provides safe and environmentally friendly decontamination and/or neutralization of chemical and bilogical threats. Most recently, EDS was deployed to the 2008 Republican National Convention as a response tool for the Civil Support Teams coordinating security for the event.

EDS has two liquid components, a chemical decontamination system (CDS), and a biological decontamination system (BDS). Over the past year, several U.S. Army facilities have been using the CDS for clean-up operations associated with disposal of chemical stockpiles. In DoD testing, CDS was found to perform 2½ times better at decontamination than existing systems. BDS has been tested by independent laboratories and was previously registered under EPA's Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Additional information is available at http://www.cleanearthtech.com/EDS.htm or by contacting cbrncsubgroup@tswg.gov.

Digital Automobile Image System (ISF Subgroup)

To aid in investigations and terrorist incidents involving automobiles, Southwest Research Institute produced the Digital Automobile Image System (DAIS). Fitting entirely on one DVD, DAIS provides a front, side, and rear-view image of nearly every make and model of motor vehicle commercially made from the mid-1980s to 2005. Investigators can search the database by vehicle category, body style, number of doors, and other characteristics. It can also produce photo line-ups and "Be On the Lookout"-type posters. Each law enforcement organization at the Federal, State, and local level received a copy of DAIS. Currently, Southwest Research institute is updating DAIS to include the makes and models that have come out since the last edition. The updated version will be available in early 2009 and distributed to each U.S. law enforcement agency.

Technology Transition

The TSWG charter identifies technology transition assistance throughout the development cycle as essential to supporting national combating terrorism objectives. CTTSO has formalized the technology transition process into every aspect of its R&D programs. CTTSO requires that every proposal received address technology transition as a principal task and that each new project include a technology transition plan. A dedicated technology transition manager works with CTTSO developers to prepare the plans and to address the issues associated with a successful transition to production, such as:

- Exploration of all applications and markets for the technology;
- Understanding and managing intellectual property (patents, trademarks, copyrights, trade secrets, and licensing; to include data and software rights and options);
- Market evaluations for Military, Federal, State, local, and commercial users;
- Environmental, safety, and health issues;
- Liability risk reduction and consideration of SAFETY Act Applications;
- Security and Export Control provisions;
- Regulatory restrictions to include electronic emissions, environmental, safety, health, transportation, and others;
- Test and evaluation planning and independent operational testing by users;
- Transition to production, including partnering, investment capital, licensing, and finding markets and distributors; and
- Operational suitability and operational support planning.

A number of administrative technology transition tools and methodologies are used to assist the developer with resolving issues, such as:

- Commercialization assessments and transition plan formats;
- Publication of handbooks and special primers;
- Non-disclosure agreements;
- Provisional patents versus full patents;
- Liability risk reduction techniques;
- Tailored license application forms and licensee/partner selection board assistance;
- Technical data and software package rights and management techniques;
- Federal Business Opportunity announcements;
- Licenses and Cooperative Research and Development Agreements (CRADAs).

The keys to accelerating the complicated process of moving many prototypes to production includes having a disciplined process, available assistance, and teamwork among project manager, technology transition manager, and developer. Additional information is available at the Technology Transition section of the CTTSO Web site, http://www.cttso.gov.

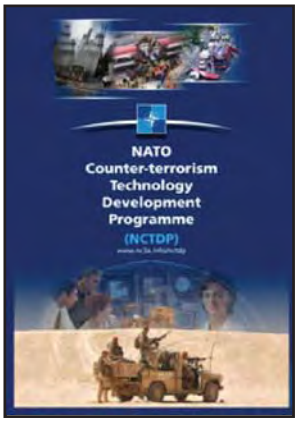
2008 Meetings & Conferences

The following is a list of selected meetings and conferences sponsored in whole or in major part by CTTSO in 2008.

Global Security Challenge

The Global Security Challenge (GSC) is an annual competition to find the most promising security start-up in the world to stimulate technological innovations that make airports, cities and enterprises safer without encroaching on civil liberties. The GSC is now in its third year, and this is the second year that TSWG has provided the prize for the winner. The GSC conducted three semi-final competitions in September in Singapore, Brussels, and Washington, DC. Six finalists were selected by judging panels with international representation from industry, venture capital and government.

The final round of competition was held in London in November 2008. The 2008 winner was TRX Systems (http://www.trxsystems.com), which received a $500,000 research contract from TSWG for 2009 to advance and test their technology. The GSC was supported by TSWG, the Department of Homeland Security, Smiths Detection, London Business School, ONR Global, Accenture, BAE Systems, PegasusBridge Fund, CapVista, Siemens, and Venture Business Research. The partner universities of the GSC include the University of Maryland, the National University of Singapore, the University of Kent Brussels School of International Studies, and the University College London Centre for Security and Crime Science. Additional information about the GSC can be found at: http://www.globalsecuritychallenge.com.



NATO Defence Against Terrorism Demonstration Series

To enhance CTTSO's ability to develop and transition technologies from anywhere on the globe to warfighters and first-responders, the International Institute for Homeland Security, Defense, and Restoration is supporting the NATO Defence Against Terrorism Programme of Work (DAT POW) Demonstration Series.

The NATO DAT POW Demonstration Series support is a significant step in increasing CTTSO's and NATO's ability to identify and test viable combating terrorism solutions from international sources. These demonstrations provide the venues and mechanisms by which CTTSO can specifically identify novel capabilities to satisfy interagency requirements. In support of this objective, the International Institute has contributed to NATO events across the DAT POW in Bourges, France; Eckernforde, Germany; Sardinia, Italy; Madrid, Spain; and Brussels, Belgium.

2008 Meetings & Conferences

Counter Tunnel Operations (February 2008)

Tunnels, cave complexes, and underground voids represent an asymmetric threat as avenues of approach. To address these threats, in FY08 the Physical Security subgroup organized a Counter Tunnel Operations Conference, which established a Counter Tunnel Operations Working Group. The Working Group first met in February 2008 to determine if a research and development program was necessary to address current operational needs and requirements. Attendees included representatives from the Unified Combatant Command, the Joint Staff, the Office of the Secretary of Defense, the Department of Homeland Security, the intelligence community, R&D agencies, and end users. Several agencies identified current projects related to counter tunnel operations, current requirements, and expectations. A follow-on meeting was held in June 2008, and the PS subgroup initiated a new focus area for FY 2009 to address this threat.

International Maritime Security Technology Workshop (May 2008)

U.S. Army photo by D. Myles Cullen/Released

Approximately 60 government officials from Australia, Canada, Singapore, the United Kingdom, and the United States attended the second International Maritime Security Technology Workshop in Vancouver, Canada in May 2008. The Workshop addressed maritime security issues and concerns, with a focus on technology solutions. The keynote speech addressed security concerns for the upcoming 2010 Winter Olympics. Breakout sessions focused on four main areas: Global Situational Awareness, Interdiction Operations, Surface Waterside Security, and Underwater Waterside Security.

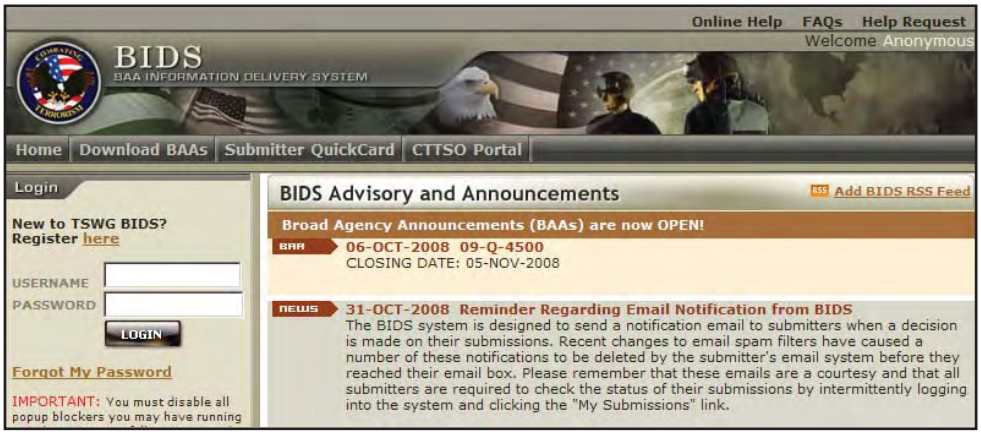
3rd National Conference on Environmental Sampling and Detection for Bio-Threat Agents (December 2008)

TSWG co-sponsored the 3rd National Conference on Environmental Sampling and Detection for Bio-Threat Agents in December 2008. This conference provided TSWG and its partners with a forum to highlight emerging technologies and methodologies in the area of biological sampling and detection. The conference included an exhibition and briefings of new technologies, protocols, and procedures from Federal, State, and local agencies, vendors, and commercial entities. Multiple seminars covered all aspects of sampling and detection, including protocols, summaries of actual events, and emerging technologies and issues. The conference was co-sponsored by DoD's Chemical Biological Medical Systems, Joint Project Manager for Biological Defense; TSWG; DHS; and EPA. The sessions and networking opportunities informed key personnel of the state of sampling and detection and will drive future research and development activities.

BAA Information Delivery System (BIDS)

The Broad Agency Announcement (BAA) Information Delivery System, better known as BIDS, works to support the CTTSO mission through the electronic publication of its annual BAAs. BAAs are the solicitation method of choice to bring the most urgent combating terrorism requirements forward for publication. CTTSO staff monitors BAA package instruction in light of submitter responses and feedback, and CTTSO implements improvements as needed each year to elucidate the submission process.

To ensure the widest possible distribution to potential submitters, BAAs can be downloaded at the BIDS Web site (http://www.bids.tswg.gov) and are also advertised at the Federal Business Opportunities Web site (http://www.fedbizopps.gov). In addition to conventional Government solicitation notices, the BIDS Web site provides a BIDS Advisory and Announcement area that posts BAA news, coming events, and partnering agency solicitations. In addition to the advisory, the RSS (really simple syndication) news feed allows interested users to receive real -time broadcast information at a local computer when connected to the Internet.



BIDS is a rich source of submitter information, providing small business outreach, online training, user forums for teaming opportunities, and most recently guidance for offerors proposing the use of human subjects in research. Overall BAA statistics are posted once the BAA closes.

BIDS not only functions as a response collection system, but also provides for submission evaluation and submitter notification. Submitter data is fully protected in a 128-bit point-to-point encrypted environment. Evaluators must comply with source selection data handling requirements and accept a nondisclosure agreement to access BIDS. In addition to the non-disclosure, evaluators must also certify that there is no conflict of interest before access is granted to any submissions. The evaluation process is monitored for timely notice to submitters with the typical response via automated e-notice complete within 90 days.

BIDS continues to serve as a leading solicitation process model for other Federal programs by providing a streamlined electronic solution to receive proposals, provide access for subject matter expert evaluation, process submissions through the approving authority, notify the submitter of status, and maintain a record of solicitation results.

CTTSO Portal Web Site
www.cttso.gov

In 2007, CTTSO introduced a portal Web page (www.cttso.gov) that works to centralize comprehensive program resources while maintaining the individual technical expertise of each sector.

Featured program elements on the internet to date include the Technical Support Working Group, Explosive Ordnance Disposal/Low-Intensity Conflict, and the Irregular Warfare Support programs. Each program maintains its own Web site and is easily accessed through the portal. Most recently, the TSWG site has been re-engineered to focus on the transition of available products to end users.

Portal visitors can freely navigate several information pages to learn about the CTTSO, or review business opportunities for product commercialization. Helping small businesses and nontraditional defense contractors to find opportunities and do business with the Government is one of several information focuses. A Technology Transition page is provided for CTTSO contract awardees to help in the transition to production or commercialization of products. Links to BIDS and other Government sites such as NATO and the Terrorism Research Center are also available. The Contract Award page details information on current performers, recent contract awards, and BAA statistical data.

CTTSO Forums, an access-controlled site for data sharing among mission area participants, is linked from the portal.

Appendix

U.S. Marine Corps photo by Cpl. Michael J O'Brien

2008 Membership

CTTSO membership and participation includes, but is not necessarily limited to, the agencies listed in the following pages.

Federal Agencies

U.S. Department of Defense

- Armed Forces Institute of Pathology
  - Office of the Armed Forces Medical Examiner
- Counterintelligence Field Activity
- Defense Academy for Credibility Assessment
- Defense Advanced Research Projects Agency
- Defense Computer Forensics Laboratory
- Defense Criminal Investigative Service
- Defense Intelligence Agency
- Defense Threat Reduction Agency
- Joint Chiefs of Staff
- Joint Improvised Explosive Device Defeat Organization
- Joint Warfare Analysis Center
- National Reconnaissance Office
- National Security Agency
- Office of the Deputy Assistant to the Secretary of Defense for Nuclear Matters
- Office of the Secretary of Defense
  - Office of the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict and Interdependent Capabilities
  - Office of the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense
  - Office of the Director of Defense Research and Engineering
  - Office of the Under Secretary of Defense for Personnel and Readiness
- Pentagon Force Protection Agency
- Physical Security Equipment Action Group
- Unified Combatant Commands
- U.S. Air Force
  - Air Combat Command
  - Air Force Civil Engineer Support Agency
  - Air Force Engineering and Services Center
  - Air Force Research Laboratory
  - Air Force Security Forces Center
  - Explosive Ordnance Disposal Detachment 63
  - Force Protection Systems Squadron
  - Office of Special Investigations
- U.S. Army
  - 20th Support Command (Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives)
  - 22nd Chemical Battalion (Technical Escort)
  - 52nd Ordnance Group
  - Armament Research, Development, and Engineering Center
  - Army Medical Department
  - Army Research Laboratory
  - Asymmetric Warfare Group
  - Chemical School
  - Communications Electronics Command
  - Corps of Engineers

2008 Membership

  - Protective Design Center
- Criminal Investigation Command
- Explosive Ordnance Disposal Technical Detachment
- Intelligence and Security Command
- Maneuver Support Center
- Medical Research and Materiel Command
- National Ground Intelligence Center
- National Guard Bureau
- Office of the Provost Marshal General
- Product Manager for Force Protection Systems
- Product Manager for Guardian
- Program Executive Office Soldier
- Rapid Equipping Force
- Research, Development, and Engineering Command
  - Edgewood Chemical Biological Center
  - Simulation and Training Technology Center
- Soldier Systems Center (Natick)
- Tank-Automotive and Armaments Command
- Training and Doctrine Command
- U.S. Army Institute of Surgical Research
- U.S. Army Aeromedical Research Laboratory

- U.S. Central Command
- U.S. Marine Corps
  - Chemical Biological Incident Response Force
  - Criminal Investigation Division
  - EOD Detachment
  - Marine Corps Central Command
  - Marine Corps Systems Command
  - Marine Corps Warfighting Laboratory
  - Naval Explosive Ordnance Disposal Technology Division, Marine Corps Division
  - Training and Education Command
- U.S. Navy
  - Bureau of Medicine and Surgery
  - Chief of Naval Operations
  - Commander Navy Installations Command
  - Naval Air Systems Command
  - Naval Air Warfare Center
  - Naval Criminal Investigative Service
  - Naval Explosive Ordnance Disposal Fleet Liaison Office
  - Naval Facilities Engineering Command
    - Naval Facilities Engineering Service Center
  - Naval Forces Central Command
  - Naval Health Research Center
  - Naval Research Laboratory
  - Naval Sea Systems Command
    - Naval Explosive Ordnance Disposal Technology Division
    - Naval Surface Warfare Center
  - Office of Naval Research
  - Space and Naval Warfare Systems Command
  - U.S. Naval Forces Europe
- U.S. Special Operations Command

Environmental Protection Agency

- Criminal Investigation Division

2008 MEMBERSHIP

- National Enforcement Investigations Center
- National Homeland Security Research Center

FEDERAL RESERVE BOARD

INTELLIGENCE COMMUNITY

INTERAGENCY BOARD FOR EQUIPMENT STANDARDIZATION AND INTEROPERABILITY

NUCLEAR REGULATORY COMMISSION

U.S. DEPARTMENT OF AGRICULTURE
- Animal and Plant Health Inspection Service
- Food Safety and Inspection Service

U.S. DEPARTMENT OF COMMERCE
- National Institute of Standards and Technology
  - Office of Law Enforcement Standards
- National Oceanic and Atmospheric Administration

U.S. DEPARTMENT OF ENERGY
- Headquarters
- National Nuclear Security Administration
- Office of Health, Safety, and Security

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
- Centers for Disease Control and Prevention
- Food and Drug Administration
- National Institute for Occupational Safety and Health

U.S. DEPARTMENT OF HOMELAND SECURITY
- Customs and Border Protection
- Federal Emergency Management Agency
  - Urban Search and Rescue
- Federal Law Enforcement Training Center
- Homeland Security Institute
- Immigration and Customs Enforcement
  - Federal Protective Service
  - Forensic Document Laboratory
- National Cyber Security Division
- Office for Bombing Prevention
- Science and Technology Directorate
  - Transportation Security Laboratory
- Transportation Security Administration
  - Federal Air Marshal Service
- U.S. Coast Guard
  - Research and Development Center
- U.S. Secret Service
  - Special Services Division
  - Technical Security Division

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

U.S. DEPARTMENT OF THE INTERIOR
- Bureau of Reclamation

U.S. DEPARTMENT OF JUSTICE
- Bureau of Alcohol, Tobacco, Firearms, and Explosives

2008 Membership

  - Special Response Team
- Drug Enforcement Administration
- Federal Bureau of Investigation
- Federal Bureau of Prisons
- National Institute of Justice
  - National Center for Forensic Science
  - National Forensic Science Technology Center
- U.S. Marshals Service

U.S. Department of State
- Bureau of Diplomatic Security
- Office of the Coordinator for Counterterrorism
- Overseas Buildings Operations

U.S. Department of Transportation
- Federal Aviation Administration
- Research and Innovative Technology Administration
  - Volpe National Transportation Systems Center

U.S. Department of the Treasury
- Internal Revenue Service
- Office of the Inspector General

U.S. Postal Inspection Service

White House
- Homeland Security Council
- Office of Science and Technology Policy

Legislative Branch

U.S. Capitol Police

U.S. Senate Sergeant at Arms

State and Local Agencies

Amtrak Police Department

Fairfax County (VA) Fire Department

Fairfax County (VA) Police Department

Fire Department of New York

Long Beach (CA) Police Department

Los Angeles County Sheriff's Department

Maryland State Police

Michigan State Police

New York City Mass Transit Authority

New York City Police Department

Port Authority of New York/New Jersey

Seattle (WA) Fire Department

South Pasadena (CA) Police Department

State and Local SWAT Teams

Non-Governmental Organizations

National Bomb Squad Commanders Advisory Board

National Tactical Officers Association

TSWG 2008 MEMBERSHIP BY SUBGROUP

BLAST EFFECTS AND MITIGATION

NATIONAL TACTICAL OFFICERS ASSOCIATION

U.S. DEPARTMENT OF DEFENSE

- Armed Forces Institute of Pathology
  - Office of the Armed Forces Medical Examiner
- Defense Threat Reduction Agency
- Joint Warfare Analysis Center
- National Tactical Officers Association
- U.S. Air Force
  - Air Force Research Laboratory
- U.S. Army
  - Army Research Laboratory
  - Corps of Engineers
    - Protective Design Center
  - Medical Research and Materiel Command
  - Program Executive Office Soldier
  - Soldier Systems Center (Natick)
  - U.S. Army Aeromedical Research Laboratory
  - U.S. Army Institute of Surgical Research
- U.S. Navy
  - Naval Facilities Engineering Command
  - Naval Health Research Center
  - Naval Sea Systems Command
  - Office of Naval Research

U.S. DEPARTMENT OF HOMELAND SECURITY

- Science and Technology Directorate
- Transportation Security Administration

U.S. DEPARTMENT OF JUSTICE

- Bureau of Alcohol, Tobacco, Firearms, and Explosives
- Federal Bureau of Investigation

U.S. DEPARTMENT OF STATE

- Bureau of Diplomatic Security

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES

ENVIRONMENTAL PROTECTION AGENCY

FEDERAL RESERVE BOARD

INTELLIGENCE COMMUNITY

INTERAGENCY BOARD FOR EQUIPMENT STANDARDIZATION AND INTEROPERABILITY

NUCLEAR REGULATORY COMMISSION

STATE AND LOCAL AGENCIES

- Fairfax County (VA) Fire Department
- Fire Department of New York
- New York City Police Department
- Seattle (WA) Fire Department

U.S. CAPITOL POLICE

U.S. DEPARTMENT OF AGRICULTURE

- Animal and Plant Health Inspection Service
- Food Safety and Inspection Service

U.S. DEPARTMENT OF COMMERCE

- National Institute of Standards and Technology

TSWG 2008 Membership by Subgroup

U.S. Department of Defense
- Defense Threat Reduction Agency
- Joint Chiefs of Staff
- Joint Improvised Explosive Device Defeat Organization
- National Security Agency
- Office of the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense
- Pentagon Force Protection Agency
- U.S. Air Force
  - Air Combat Command
- U.S. Army
  - 20th Support Command (Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives)
  - 22nd Chemical Battalion (Technical Escort)
  - Army Medical Department
  - Chemical School
  - Rapid Equipping Force
  - Research, Development, and Engineering Command
    - Edgewood Chemical Biological Center
  - Maneuver Support Center
  - National Ground Intelligence Center
- U.S. Marine Corps
  - Chemical Biological Incident Response Force
- U.S. Navy
  - Bureau of Medicine and Surgery
  - Naval Air Warfare Center
  - Naval Forces Central Command
  - Naval Surface Warfare Center
- U.S. Special Operations Command

U.S. Department of Energy
- Office of Health, Safety, and Security

U.S. Department of Health and Human Services
- Centers for Disease Control and Prevention
- Food and Drug Administration
- National Institute for Occupational Safety and Health

U.S. Department of Homeland Security
- Immigration and Customs Enforcement
  - Federal Protective Service
- Federal Emergency Management Agency
- Science and Technology Directorate
- Transportation Security Administration
- U.S. Coast Guard
- U.S. Secret Service

U.S. Department of Justice
- Federal Bureau of Investigation
- National Institute of Justice
- U.S. Marshals Service

U.S. Department of State
- Bureau of Diplomatic Security
- Office of the Coordinator for Counterterrorism
- Overseas Buildings Operations

U.S. Department of Transportation

TSWG 2008 MEMBERSHIP BY SUBGROUP

- Research and Innovative Technology Administration
  - Volpe National Transportation Systems Center

U.S. SENATE SERGEANT AT ARMS

WHITE HOUSE

- Homeland Security Council
- Office of Science and Technology Policy

EXPLOSIVES DETECTION

U.S. DEPARTMENT OF COMMERCE

- National Institute of Standards and Technology

U.S. DEPARTMENT OF DEFENSE

- Defense Intelligence Agency
- National Security Agency
- Joint Improvised Explosive Device Defeat Organization
- Pentagon Force Protection Agency
- U.S. Air Force
  - Air Force Engineering and Services Center
  - Air Force Research Laboratory
- U.S. Army
  - Research, Development, and Engineering Command
    - Edgewood Chemical Biological Center
- U.S. Marine Corps
  - EOD Detachment
- U.S. Navy
  - Naval Research Laboratory
  - Naval Sea Systems Command
    - Naval Explosive Ordnance Disposal Technology Division
    - Naval Surface Warfare Center

U.S. DEPARTMENT OF HOMELAND SECURITY

- Science and Technology Directorate
- Transportation Security Administration
- U.S. Coast Guard
- U.S. Secret Service

U.S. DEPARTMENT OF JUSTICE

- Bureau of Alcohol, Tobacco, Firearms, and Explosives

U.S. DEPARTMENT OF STATE

- Bureau of Diplomatic Security

IMPROVISED DEVICE DEFEAT

INTELLIGENCE COMMUNITY

NATIONAL BOMB SQUAD COMMANDERS ADVISORY BOARD

- Bloomington, Minnesota Police Department (Northern region)
- Houston, Texas Police Department (Southern region)
- Los Angeles, California Police Department (Western region)
- Philadelphia, Pennsylvania Police Department (Eastern region)

STATE AND LOCAL AGENCIES

- Fairfax County (VA) Police Department
- Maryland State Police
- Michigan State Police

U.S. CAPITOL POLICE

TSWG 2008 Membership by Subgroup

U.S. Department of Defense
- U.S. Air Force
  - Air Combat Command
  - EOD Detachment 63
- U.S. Army
- 52nd Ordnance Group
- EOD Technical Detachment
- U.S. Marine Corps
  - Chemical Biological Incident Response Force
  - Naval Explosive Ordnance Disposal Technology Division, Marine Corps Division
- U.S. Navy
  - Naval Explosive Ordnance Disposal Technology Division
  - EOD Fleet Liaison Office

U.S. Department of Homeland Security
- Customs and Border Protection
- Office for Bombing Prevention
- Science and Technology Directorate
- Transportation Security Administration
- U.S. Secret Service

U.S. Department of Justice
- Bureau of Alcohol, Tobacco, Firearms, and Explosives
- Federal Bureau of Investigation
- National Institute of Justice
- U.S. Marshals Service

Investigative Support and Forensics

Environmental Protection Agency
- National Enforcement Investigations Center

Federal Reserve Board

Intelligence Community

National Transportation Safety Board

State and Local Agencies
- Illinois State Police
- Long Beach (CA) Police Department
- Los Angeles County (CA) Sheriff's Department
- Michigan State Police
- South Pasadena (CA) Police Department

U.S. Capitol Police

U.S. Department of Commerce
- National Institute of Standards and Technology
  - Office of Law Enforcement Standards

U.S. Department of Defense
- Counterintelligence Field Activity
- Defense Academy for Credibility Assessment
- Defense Computer Forensics Laboratory
- Defense Criminal Investigative Service
- Pentagon Force Protection Agency
- U.S. Air Force
  - Office of Special Investigations
- U.S. Army

TSWG 2008 MEMBERSHIP BY SUBGROUP

  - – Criminal Investigation Command
  - – Intelligence and Security Command
- U.S. Marine Corps
  - – Criminal Investigation Division
- U.S. Navy
  - – Naval Criminal Investigative Service
- U.S. Special Operations Command

U.S. DEPARTMENT OF ENERGY
- Office of Health, Safety, and Security

U.S. DEPARTMENT OF HOMELAND SECURITY
- Federal Law Enforcement Training Center
- Immigration and Customs Enforcement
  - – Federal Protective Service
  - – Forensic Document Laboratory
- Science and Technology Directorate
  - – Transportation Security Laboratory
- Transportation Security Administration
  - – Federal Air Marshal Service
- U.S. Secret Service

U.S. DEPARTMENT OF JUSTICE
- Bureau of Alcohol, Tobacco, Firearms, and Explosives
- Drug Enforcement Administration
- Federal Bureau of Investigation
- National Institute of Justice
  - – National Center for Forensic Science
  - – National Forensic Science Technology Center
- U.S. Marshals Service

U.S. DEPARTMENT OF STATE
- Office of the Coordinator for Counterterrorism

U.S. DEPARTMENT OF TRANSPORTATION
- Federal Aviation Administration

U.S. DEPARTMENT OF THE TREASURY
- Office of the Inspector General
- Internal Revenue Service

U.S. POSTAL INSPECTION SERVICE

PHYSICAL SECURITY

ENVIRONMENTAL PROTECTION AGENCY

FEDERAL RESERVE BOARD

INTELLIGENCE COMMUNITY

NUCLEAR REGULATORY COMMISSION

STATE AND LOCAL AGENCIES
- Amtrak Police Department
- Los Angeles Joint Regional Intelligence Center
- New York City Police Department
- Pierce County (WA) Sheriff's Department

U.S. CAPITOL POLICE

U.S. DEPARTMENT OF AGRICULTURE
- Forest Service

TSWG 2008 Membership by Subgroup

U.S. Department of Commerce
- National Institute of Standards and Technology
- National Oceanic and Atmospheric Administration

U.S. Department of Defense
- Defense Advanced Research Projects Agency
- Defense Intelligence Agency
- Defense Threat Reduction Agency
- Joint Chiefs of Staff
- Joint Improvised Explosive Device Defeat Organization
- National Security Agency
- National Reconnaissance Office
- Office of the Secretary of Defense
- Pentagon Force Projection Agency
- Physical Security Equipment Action Group
- Unified Combatant Commands
- U.S. Air Force
  - Air Force Civil Engineer Support Agency
  - Office of Special Investigations
- U.S. Army
  - Armament Research, Development, and Engineering Center
  - Asymmetric Warfare Group
  - Chemical School
  - Corps of Engineers
  - Force Protection Systems Program Office
  - Office of the Provost Marshal General
  - Product Manager for Force Protection Systems
  - Product Manager for Guardian
  - Rapid Equipping Force
  - Research, Development, and Engineering Command
- U.S. Central Command
- U.S. Marine Corps
  - Marine Corps Central Command
  - Marine Corps Systems Command
  - Marine Corps Warfighting Laboratory
- U.S. Navy
  - Chief of Naval Operations
  - Commander Navy Installations Command
  - Naval Criminal Investigative Service
  - Naval Facilities Engineering Command
    - Naval Facilities Engineering Service Center
  - Naval Sea Systems Command
    - Naval Explosive Ordnance Disposal Technology Division
  - Navy Expeditionary Combat Command
  - Navy Experimental Diving Unit
  - Office of Naval Research
  - Space and Naval Warfare Systems Command

U.S. Department of Energy
- National Nuclear Security Administration
- Office of Health, Safety, and Security

U.S. Department of Homeland Security
- Federal Emergency Management Agency

TSWG 2008 Membership by Subgroup

- Customs and Border Protection
- Immigration and Customs Enforcement
- Science and Technology Directorate
- Transportation Security Administration
- U.S. Coast Guard
  - Research and Development Center
- U.S. Secret Service

U.S. Department of the Interior
- Bureau of Reclamation

U.S. Department of Justice
- Federal Bureau of Investigation
- Federal Bureau of Prisons

U.S. Department of State
- Bureau of Diplomatic Security

U.S. Department of Transportation

U.S. Postal Inspection Service

U.S. Senate Sergeant at Arms

Surveillance, Collection, and Operations Support

Intelligence Community

U.S. Department of Defense
- U.S. Special Operations Command

Tactical Operations Support

National Tactical Officers Association

State and Local SWAT Teams

U.S. Department of Defense
- U.S. Army
- U.S. Marine Corps
- U.S. Special Operations Command

U.S. Department of Energy
- National Nuclear Security Administration
- Office of Health, Safety, and Security

U.S. Department of Homeland Security
- Customs and Border Protection
- Federal Emergency Management Agency
  - Urban Search and Rescue
- Transportation Security Administration
  - Federal Air Marshal Service
- U.S. Coast Guard
- U.S. Secret Service

U.S. Department of Justice
- Bureau of Alcohol, Tobacco, Firearms, and Explosives
  - Special Response Team
- Federal Bureau of Investigation
  - Ballistic Research Facility
  - Hostage Rescue Team
- U.S. Marshals Service

U.S. Department of State
- Bureau of Diplomatic Security

TSWG 2008 Membership by Subgroup

Training Technology Development

Intelligence Community
InterAgency Board
National Bomb Squad Commanders Advisory Board
National Tactical Officers Association
U.S. Department of Agriculture
- Animal and Plant Health Inspection Service

U.S. Department of Defense
- Joint Improvised Explosive Device Defeat Organization
- Office of the Under Secretary of Defense for Personnel and Readiness
- Pentagon Force Protection Agency
- U.S. Army
  - John F. Kennedy Special Warfare Center and School
  - National Guard Bureau
  - Research, Development, and Engineering Command
    - Simulation and Training Technology Center
  - Training and Doctrine Command
- U.S. Marine Corps
  - Training and Education Command
- U.S. Special Operations Command

U.S. Department of Energy
- Headquarters

U.S. Department of Homeland Security
- Federal Law Enforcement Training Center
- Office for Bombing Prevention
- Science and Technology Directorate

U.S. Department of Justice
- National Institute of Justice

U.S. Department of State
- Bureau of Diplomatic Security

VIP Protection

Intelligence Community
U.S. Capitol Police
U.S. Department of Commerce
- National Institute of Standards and Technology
  - Office of Law Enforcement Standards

U.S. Department of Defense
- Pentagon Force Projection Agency
- U.S. Army
  - Soldier Systems Center (Natick)
  - Tank-Automotive and Armaments Command
- U.S. Navy
  - Naval Air Systems Command
  - Naval Criminal Investigative Service
- U.S. Special Operations Command

U.S. Department of Energy
U.S. Department of Homeland Security
- Transportation Security Administration
  - Federal Air Marshal Service

TSWG 2008 MEMBERSHIP BY SUBGROUP

- U.S. Secret Service
  - Special Services Division
  - Technical Security Division

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

U.S. DEPARTMENT OF JUSTICE

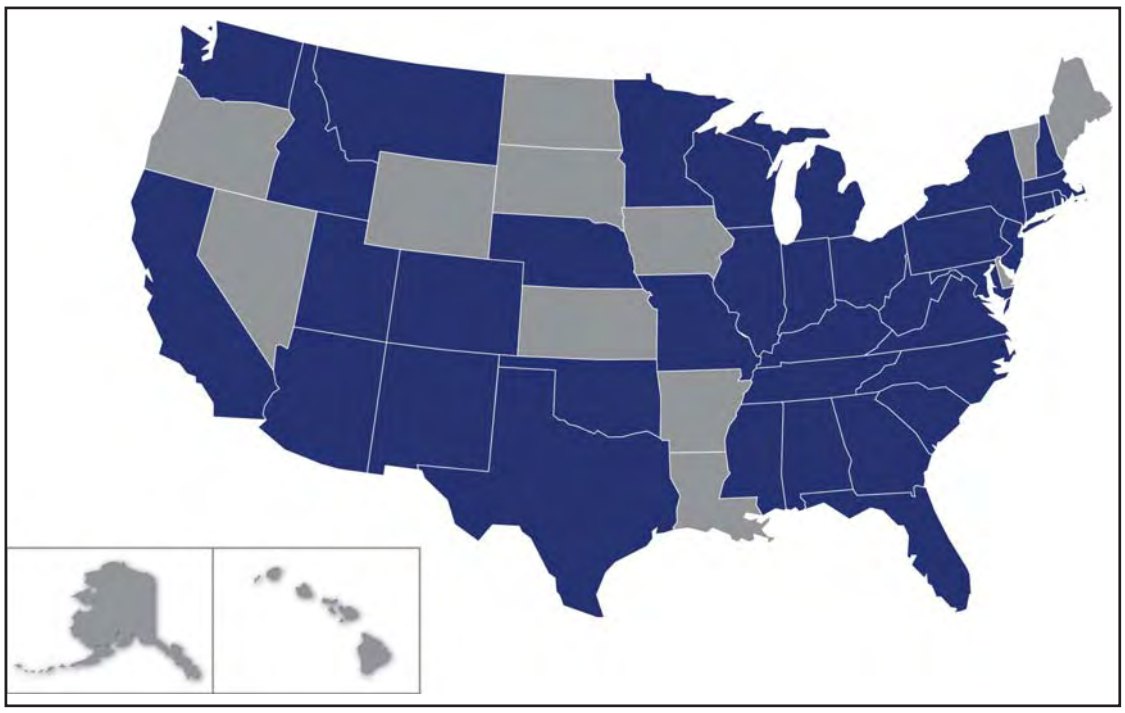
- National Institute of Justice
- U.S. Marshals Service

U.S. DEPARTMENT OF STATE

U.S. DEPARTMENT OF THE TREASURY

- Internal Revenue Service

2008 Performers



Alabama
Auburn University, Auburn
Defense Technology Solutions, LLC, Huntsville
Lewis Innovative Technologies, Inc, Moulton
U.S. Army AMRDEC, Redstone Arsenal

Arizona
Armorworks, Tempe
General Dynamics C4 Systems, Scottsdale
University of Arizona, Tucson

California
3rd Ring, Inc, Mammoth Lakes
AeroAstro, Inc., Littleton
Cantimer, Menlo Park
GE Infrastructure Security, San Diego
Intelligent Optical Systems, Inc., Torrance
Karagozian & Case, Burbank
L-3 Communication, San Diego
L-3 Communications Sonoma EO, Santa Rosa
L-3 Titan Group Linkabit Division, San Diego
Language Weaver, Inc., Marina del Rey
Lawrence Livermore National Laboratory, Livermore
NASA Ames Research Center, Moffett Field
Naval Air Warfare Center, China Lake
Perlegen Sciences, Inc., Mountain View

2008 Performers

QPC Fiber Optic, Inc., San Clemente
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Rapiscan Systems Neutronics and Advanced Technologies, Sunnyvale
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SensorWare Systems Inc, Arcadia
Smiths Detection, Pasadena
Space and Naval Surface Warfare Systems Command, San Diego
Spectrum San Diego, San Diego
Tactical Survey Group, San Bernardino
Teledyne Scientific & Imaging, LLC, Thousand Oaks
Torrey Pines Logic, Inc., San Diego
U. S. Marine Corps, Barstow
University of California San Diego
University of Southern California, Marina del Rey

Colorado

Applied Research Associates, Inc., Littleton
Colorado State University, Fort Collins
Law Enforcement Technologies, Inc., Colorado Springs
RadiantBlue Technologies, Inc., Colorado Springs

Connecticut

Applied Physical Sciences Corporation, New London
Nextgen Fiber Optics, LLC, Dayville
RETEC Group, New Haven
Summa Design, LLC, Montrose
United Technologies Research Center, Hartford

District of Columbia

BAE Systems Advanced Technologies, Inc.
Institute for Applied Science
International Association of Firefighters
Naval Research Laboratory

Florida

Applied Research Associates, Inc., North Florida Division, Panama City
Coda Octopus Inc, St Petersburg
Florida Film and Video, St. Petersburg
Florida International University, Miami
General Dynamics Ordnance and Tactical Systems, Orlando
Harris Corporation, Melbourne
L-3 Communications Link Simulation and Training, Orlando
Lightmaker Group, Ltd, Orlando
National Institute for Truth Verification, West Palm Beach
Naval Surface Warfare Center, Panama City
Project Manger for Instrumentation, Targets, and Threat Simulators, Orlando
Scanna MSC, Ltd., Sarasota
SR Technologies, Inc., Davie

2008 Performers

St. Petersburg College, National Terrorism Preparedness Institute, St. Petersburg
U.S. Air Force Research Laboratory, Tyndall Air Force Base, Panama City
U.S. Air Force Special Operations School, Irregular Warfare Division, Eglin Air Force Base
U.S. Army Research, Development, & Engineering Command Simulation & Training Technology Center, Orlando
University of Central Florida, Orlando
University of Florida, Gainesville
U.S. Army Program Executive Office for Simulation, Training, and Instrumentation, Orlando

Georgia
Emory University, Atlanta
Georgia Tech Research Institute, Atlanta

Idaho
Idaho National Laboratory, Idaho Falls
proSWAT, Inc., Meridian

Illinois
Argonne National Laboratory, Argonne
Nanosphere, Inc., Northbrook
University of Illinois at Urbana-Champaign

Indiana
Naval Surface Warfare Center, Crane Div, Crane
Raytheon Technical Servies Company
University of Notre Dame, Notre Dame
Vohne Liche Kennels Canine Security, LLC, Denver

Kentucky
Special Operations Forces Support Activity, Lexington

Maryland
CeLight, Inc., Silver Spring
Eagan, McAllister Associates, Inc., Lexington Park
EAI Corporation, Abingdon
Edgewood Chemical Biological Center, Aberdeen Proving Ground
G3 Technologies, Inc., Columbia
GEOMET Technologies, Inc., Germantown
National Institute of Standards and Technology, Gaithersburg
National Oceanographic and Atmospheric Administration, Silver Spring
Naval Air Warfare Center, Patuxent River
Naval Explosive Ordnance Disposal Technology Division, Indian Head
Naval Surface Warfare Center, Carderock
Naval Surface Warfare Center, Indian Head
Patton Electronics, Gaithersburg
Red Cell Associates, Annapolis
Regal Decision Systems, Inc., Belcamp
SimQuest, LLC, Silver Spring
Tektron Micro Electronics, Inc., Hanover
Tidewater Machine Company, White Plains

2008 PERFORMERS

TRX Systems, Inc., Lanham
U.S. Army Aberdeen Test Center, Aberdeen Proving Ground
U.S. Army Research Lab, Aberdeen Proving Ground
W.L. Gore, Elkton
Zeus Technology Systems, Inc., Hanover

MASSACHUSETTS

American Science and Engineering, Inc., Billerica
Artisent, Inc., Boston
BBN Technologies, Cambridge
Black I Robotics
Charles Stark Draper Laboratory, Inc., Cambridge
Excellims Corporation, Maynard
FLIR Systems, Inc., North Billerica
Foster-Miller, Inc., Waltham
GE Homeland Protection, Wilmington
iRobot, Burlington
L-3 CyTerra Corporation, Woburn
National Security Innovations, Inc., West Yarmouth
Noble Peak, Wakefield
Raytheon, Marlborough
Reveal Imaging Technologies, Bedford
Pulmatrix, Inc., Cambridge
Surmet Corp., Burlington
Technical Products, Inc., Ayer
Tufts University, Medford
U.S. Army, Natick RD&E Center, Natick
Vanu, Inc., Cambridge
Visidyne, Inc., Burlington
Volpe National Transportation Systems Center, Cambridge

MICHIGAN

Quantum Signal, LLC, Ann Arbor

MINNESOTA

Agile Defense, LLC, Hopkins
MTS Systems Corporation, Eden Prairie
University of Minnesota at Minneapolis

MISSISSIPPI

Camgian Microsystems, Starkville
Mississippi State University, Starkville
U.S. Army Engineering Research and Development Center, Vicksburg

MISSOURI

Clean Earth Technologies, LLC, Earth City
Essex PB&R Corporation, St. Louis
Midwest Research Institute, Kansas City
University of Missouri at Rolla

2008 Performers

Washington University, St. Louis

Montana
Veridical Research and Design, Bozeman

Nebraska
U.S. Army Corps of Engineers, Protective Design Center, Omaha

New Hampshire
BAE Systems, Nashua
DTC Communications, Inc., Nashua
Globe Manufacturing Company, Pittsfield
Insight Technology, Inc., Londonderry
StockerYale, Inc., Salem
Warwick Mills, New Ipswich
Wilcox Industries Corporation, Portsmouth

New Jersey
JeBen Photonics, Inc., Denville
Sarnoff Corporation, Princeton
Structured Materials Industries, Piscataway

New Mexico
Applied Research Associates, Inc., Albuquerque
Honeywell Aerospace Electronic Systems, Albuquerque
Los Alamos National Laboratory, Los Alamos
MesoSystems Technology, Inc., Albuquerque
National Assessment Group, Albuquerque
National Assessment Group, Kirtlnad Air Force Base
New Mexico Institute of Mining & Technology, Energetic Materials Research and Testing Center, Socorro
Sandia National Laboratories, Albuquerque
Stolar Research Corporation, Raton

New York
Calspan-UB Research Center, Inc., Buffalo
Esensors, Inc., Amherst
GE Global Research, Niskayuna
Material Intelligence, New York
Northrop Grumman Corporation, Bethpage
Plug Power, Latham
Sentigen Holding Corp., New York
Syracuse Research Corporation, North Syracuse
Tactronics, LLC, Westhampton Beach
Weidlinger Associates, Inc., New York

North Carolina
Appealing Products, Inc., Raleigh
BGP, Inc., Raleigh
Blackwater Security, Moyock

2008 PERFORMERS

Emerging Technology Support, LLC, Mooresville
General Dynamics Armament & Technical Products, Inc., Charlotte
North Carolina State University, Textile Protection and Comfort Center, Raleigh
Signalscape, Inc., Cary
Tactical Support Equipment, Inc., Fayetteville
University of North Carolina, Chapel Hill
XinRay Systems, Research Triangle Park
Xintek Inc., Research Triangle Park

OHIO
Battelle Memorial Institute, Columbus
Lion Apparel, Dayton
Northeastern Ohio Universities College of Medicine, Rootstown
Total Fire Group/Morning Pride Manufacturing, Dayton
University of Dayton Research Institute, Dayton

OKLAHOMA
ICx Nomadics, Stillwater
Southwest Research Institute, Midwest City
Tinker Air Force Base

PENNSYLVANIA
Carnegie Mellon University, Pittsburgh
Drexel University Data Fusion Laboratory, Philadelphia
DRS Laurel Technologies, Johnstown
Dynamic Defense Materials, LLC, Boothwyn
National Institute for Occupational Safety & Health, National Personal Protective Technology Laboratory, Pittsburgh
Pennsylvania State University, University Park
Saint Joseph's University, Early Responders Distance Learning Center, Philadelphia

RHODE ISLAND
Naval Underwater Warfare Center, Newport
University of Rhode Island, Narragansett

SOUTH CAROLINA
Savannah River National Laboratory, Aiken

TENNESSEE
Animax Designs, Inc., Nashville
Remotec U.S., Clinton
Oak Ridge National Laboratory, Oak Ridge
Universal Strategy Group, Inc., Mt. Pleasant

TEXAS
Applied Research Associates, Inc., San Antonio
International Personal Protection, Austin
L-3 Communications Titan Group, San Antonio
Lockheed Martin Missile and Fire Control, Dallas

2008 Performers

OI Analytical, College Station
Signature Science, LLC, Austin
Southwest Foundation for Biomedical Research, San Antonio
Southwest Research Institute, San Antonio
Texas Agricultural Experiment Station, Bryan
University of Houston, Houston
University of Texas at Austin
University of Texas at Dallas, Richardson

Utah

AccessData Corporation, Lindon
IsoForensics Inc., Salt Lake City

Virginia

ASET International Services Corporation, Arlington
A-T Solutions, Inc., Fredericksburg
Avir, LLC, Charlottesville
Battelle Memorial Institute, Arlington
Blackbird Technologies, Herndon
Booz Allen Hamilton, Maclean
Camero, Inc., Vienna
Corporation for National Research Initiatives, Reston
Courage Services, Inc., McLean
Digital Signal Corporation, Alexandria
Gatekeeper, Inc., Reston
Harbinger Technologies Group, McLean
Hazard Management Solutions, Inc., Arlington
Institute for Applied Science, Reston
Institute for Physical Sciences, Maclean
International Association of Fire Chiefs, Fairfax
L-3 Communications Titan Group, Reston
Lockheed Martin, Arlington
McQ, Inc., Fredericksburg
Multi-Threaded, Inc., Herndon
National Media Services, Front Royal
Naval Surface Warfare Center, Virginia Beach
Naval Surface Warfare Center, Dahlgren
NexGen Communications, LLC, Dulles
Night Vision and Electronic Sensor Laboratory, Fort Belvoir
Old Dominion University, Norfolk
Planning Systems, Inc., Reston
Platinum Solutions, Inc., Reston
Potomac Institute for Policy Studies, Arlington
Prime Research, LC, Blacksburg
R4 Communications, Maclean
S4 Tech, Reston
SET Associates, Arlington
Sparta, Inc., Centreville
Stratech Systems, Inc., Maclean

2008 PERFORMERS

Strategic Analysis, Inc., Arlington
System Planning Corporation, Arlington
Technology Development Group, Inc., Leesburg
Trident Systems, Inc., Fairfax, VA
U.S. Civilian Research & Development Foundation, Arlington
U.S. Industry Coalition, Arlington
University of Virginia, Charlottesville

WASHINGTON
Advanced Interactive Systems, Seattle
Boeing, Seattle
Cascade Designs, Inc., Seattle
Isotron Corporation, Seattle
MesoSystems Technology, Inc., Kennewick
Pacific Northwest National Labs, Richland
Specialty Products, Inc., Lakewood

WEST VIRGINIA
Eyemarker Systems, Inc., Morgantown
West Virginia High Technology Consortium Foundation, Fairmont
West Virginia University, Morgantown

WISCONSIN
Interspiro, Inc., Pleasant Prairie

INTERNATIONAL

AUSTRALIA
Appen Pty Ltd., Chatswood, New South Wales
Australian Borders and Customs
Australian Federal Police, Canberra

CANADA
Allen-Vanguard Protective Technologies, Ltd., Ottawa, Ontario
Argon Security Technologies, Inc., Port Moody, British Columbia
Ballard Power Systems, Burnaby, British Columbia
Bosik Technologies, Ltd., Ottawa, Ontario
Canadian Border Services Agency, Ottawa, Ontario
Canadian Commercial Corporation, Ottawa, Ontario
Defence Research and Development Canada, Suffield
Defence Research and Development Canada, Valcartier, Quebec
Mining Resources Engineering, Ltd., Kingston, Ontario
Optosecurity, Inc., Quebec City, Quebec
Royal Canadian Mounted Police, Ottawa, Ontario
Smiths Detection, Mississauga, Ontario

FRANCE
University of Rennes, Brittany

2008 Performers

Germany
Siemens Medical Solutions, Vacuum Technology, Erlangen

Israel
Controp Precision Technologies, Ltd., Hod Hasharon
Elbit Systems, Haifa
Electro-Optics Industries, Ltd, Rehovat
Israel Institute for Biological Research, Ness-Ziona
Israel National Police, Jerusalem
Ministry of Defense, Tel Aviv
MTeye Security, Rosh Haayin
ODF Optronics Ltd., Tel-Aviv
Rafael Armament Development Authority, Ltd., Haifa
SOREQ, Tel Aviv

New Zealand
Zephyr Technology Limited, Auckland

Singapore
Defence Science and Technology Agency
Nanyang Technological University

Switzerland
Institute de Police Scientifique Ecole des Sciences Criminelles, Lausannes-Dorigny

United Kingdom
Defence Science and Technology Laboratories, Fort Halstead, Kent
Dyna Systems, LLC. London
Explora Security, LLC. London
Hazard Management Solutions, Ltd., Faringdon, Oxfordshire
MBDA, Bristol
Ministry of Defence, London
QinetiQ, Ltd., Farnborough, Hampshire
Systems, Communications, & Networks, Ltd., Blandford Forum, Dorset

Glossary of Acronyms

A

ACC	Air Combat Command
AFESC	Air Force Engineering and Services Center
AFIP	Armed Forces Institute of Pathology
AFRL	Air Force Research Lab
AFSFC	Air Force Security Forces Center
AMEDD Department	Army Medical
ARL	Army Research Laboratory
ASD	Assistant Secretary of Defense
ASD (SO/LIC & IC)	Assistant Secretary of Defense for Special Operations/Low-Intensity Conflict and Interdependent Capabilities
ATF	Bureau of Alcohol, Tobacco, Firearms, and Explosives

B

BAA	Broad Agency Announcement
BIDS	BAA Information Delivery System
BUMED	Bureau of Medicine and Surgery
BX	Blast Effects and Mitigation

C

C3	Command, Control, and Communications
CA	California
CB	Chemical and/or Biological
CBIRF	Chemical Biological Incident Response Force
CBRN	Chemical, Biological, Radiological, and Nuclear
CBRNC	Chemical, Biological, Radiological, and Nuclear Countermeasures
CBRNE	Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives
CDC	Centers for Disease Control and Prevention
CENTCOM	U.S. Central Command
CID	Criminal Investigation Division (U.S. EPA)
CID	Criminal Investigation Command (U.S. Army)
CIFA	Counterintelligence Field Activity
CML Bn(TE)	Chemical Battalion (Tech Escort)
CMLS	Chemical School
CRADA	Cooperative Research and Development Agreement
CTTSO	Combating Terrorism Technical Support Office

D

DACA	Defense Academy for Credibility Assessment
DATSD (CBD)	Office of the Deputy Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense
DCFL	Defense Computer Forensics Laboratory
DDRE	Office of the Director of Defense Research & Engineering
DEA	Drug Enforcement Administration
DHS	Department of Homeland Security
DIA	Defense Intelligence Agency
DNA	Deoxyribonucleic Acid
DoD	Department of Defense

Glossary of Acronyms

DOE	Department of Energy
DOJ	Department of Justice
DOS	Department of State
DS	Bureau of Diplomatic Security
DTRA	Defense Threat Reduction Agency

E

ECBC	Edgewood Chemical Biological Center
ECP	Entry Control Point
ED	Explosives Detection
EECF	Expeditionary Environmental Control Facility
EMRTC	Energetic Materials Research and Testing Center
EOD	Explosive Ordnance Disposal
EOD Tech Det	Explosive Ordnance Disposal Technical Detachment
EOD/LIC	Explosive Ordnance Disposal/Low-Intensity Conflict
EPA	Environmental Protection Agency

F

FAA	Federal Aviation Administration
FAMS	Federal Air Marshal Service
FBI	Federal Bureau of Investigation
FBOP	Federal Bureau of Prisons
FDA	Food and Drug Administration
FDL	Forensic Document Laboratory
FEMA	Federal Emergency Management Agency
FIVAK	Field-Installable Inconspicuous Vehicle Armor Kit
FPS	Federal Protective Service
FPSS	Force Protection Systems Squadron
FSIS	Food Safety and Inspection Service
FY	Fiscal Year

G

GWOT	Global War on Terror

H

HAZMAT	Hazardous Material
HME	Homemade Explosives
HMMWV	High-Mobility Multipurpose Wheeled Vehicle
HQ	Headquarters
HRT	Hostage Rescue Team
HSC	Homeland Security Council
HSCB	Human Social, Cultural, and Behavior Modeling
HSCS	Human Scent Collection System
HSS	Office of Health, Safety, and Security

I

IC	Intelligence Community
ICE	Immigration and Customs Enforcement
IDD	Improvised Device Defeat

Glossary of Acronyms

IED	Improvised Explosive Device
IG/T	Interdepartmental Group on Terrorism
INSCOM	Intelligence and Security Command
IRS	Internal Revenue Service
ISF	Investigative Support and Forensics
IWG/CT	Interagency Working Group on Counterterrorism
IWS	Irregular Warfare Support

J

JCS	Joint Chiefs of Staff
JIEDDO	Joint Improvised Explosive Device Defeat Organization
JWAC	Joint Warfare Analysis Center

L

L.A.	Los Angeles

M

MANSCEN	Maneuver Support Center
MAV	Micro Air Vehicle
MCD	Marine Corps Detachment
MD	Maryland
MI	Michigan
MRMC	Medical Research and Materiel Command
MTRS	Man-Transportable Robotic Platform
MUSCL	Modular Unmanned Surface Craft-Littoral

N

NATO	North Atlantic Treaty Organization
NAVATA	Networked Advanced Vehicle Anti-Tamper and Alert System
NAVCENT	Naval Forces Central Command
NAVEODFLTLAU	Naval Explosive Ordnance Disposal Fleet Liaison Office
NAVEODTECHDIV	Naval Explosive Ordnance Disposal Technology
NAVFAC	Naval Facilities Engineering Command
NAVSEA	Naval Sea Systems Command
NAWC	Naval Air Warfare Center
NCFS	National Center for Forensic Science
NCIS	Naval Criminal Investigative Service
NEIC	National Enforcement Investigations Center
NFPA	National Fire Protection Association
NFSTC	National Forensic Science Technology Center
NGIC	National Ground Intelligence Center
NHRC	Naval Health Research Center
NIJ	National Institute of Justice
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
NNSA	National Nuclear Security Administration
NRL	Naval Research Laboratory
NSA	National Security Agency
NSWC	Naval Surface Warfare Center

Glossary of Acronyms

NTOA	National Tactical Officers Association

O

OAFME	Office of the Armed Forces Medical Examiner
OBO	Overseas Buildings Operations
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OIG	Office of the Inspector General
OLES	Office of Law Enforcement Standards
ONR	Office of Naval Research
OSI	Ocular Scanning Instrument
OSI	Office of Special Investigations
OUSD (P&R)	Office of the Under Secretary of Defense for Personnel and Readiness

P

PCR	Polymerase Chain Reaction
PD	Police Department
PDA	Personal Digital Assistant
PDC	Protective Design Center
PEO	Program Executive Office
PEO-SEQ	Program Executive Office Soldier Equipment
PFPA	Pentagon Force Protection Agency
PM-FPS	Product Manager for Force Protection Systems
PM-G	Product Manager for Guardian
PPE	Personal Protective Equipment
PS	Physical Security
PVC	Polyvinyl Chloride

R

R&D	Research and Development
RANT	Rapid Access Neutralization Tool
RCIED	Radio-Controlled Improvised Explosive Device
RCV	Remote Controlled Vehicle
RCVOA	Remote-Controlled Vehicle Operational Assessment
RDD	Radiological Dispersion Device
RDECOM	Research, Development, and Engineering Command
RF	Radio Frequency
RFW	Radio-Frequency Weapon
RHIB	Rigid-Hull Inflatable Boats
RSS	Really Simple Syndication

S

S/CT	Department of State Office of the Coordinator for Counterterrorism
S&T	Science and Technology
SAFETY Act	Support Anti-Terrorism by Fostering Effective Technologies Act of 2002
SAVER	System Assessment and Validation for Emergency Responders
SCOS	Surveillance, Collection, and Operations Support

Glossary of Acronyms

SERVANT	Sense and Report Vehicle Anti-Tamper
SME	Subject Matter Expert
SO/LIC & IC	Special Operations/Low-Intensity Conflict and Interdependent Capabilities
SOCOM	U.S. Special Operations Command
SPAWAR	Space and Naval Warfare Systems Command
SPIDER	Stabilized Panoramic Automatic Intrusion Detection and Recognition System
SSC	Soldier Systems Center (Natick)
SSD	Special Services Division
SWAT	Special Weapons and Tactics
SWM	Surface Wound Mapping

T

TACOM	Tank-Automotive and Armaments Command
TIC	Toxic Industrial Chemical
TOS	Tactical Operations Support
TRADOC	Training and Doctrine Command
TSA	Transportation Security Administration
TSD	Technical Security Division
TSP	Training Support Package
TSWG	Technical Support Working Group
TTD	Training Technology Development

U

USA	United States Army
USACE	United States Army Corps of Engineers
USAARL	United States Army Aeromedical Research Laboratory
USAF	United States Air Force
USAISR	United States Army Institute of Surgical Research
USCG	United States Coast Guard
USMC	United States Marine Corps
USMS	United States Marshals Service
USN	United States Navy
USSS	United States Secret Service
UXO	Unexploded Ordnance

V

VA	Virginia
VBIED	Vehicle-Borne Improvised Explosive Device
VIC	Vehicle Inspection Checklist
VIP	Very Important Person

W

WA	Washington


COMBATING
TERRORISM


Explosive Ordnance Disposal / Low-Intensity Conflict
DEPARTMENT OF DEFENSE


Irregular Warfare Support
IWS
Tenere Terrorum


INTERAGENCY
INTERNATIONAL
TSWG