Preparedness Directorate
Office of Grants and Training

Newsletter

The U.S. Department of Homeland Security, Preparedness Directorate, Office of Grants and Training (G&T) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders in performing their duties. The mission of the SAVER Program is to

- Provide impartial, practitioner relevant, and operationally oriented assessments and validations of emergency responder equipment.
- Provide information that enables decision-makers and responders to better select, procure, use, and maintain emergency responder equipment.
- Assess and validate the performance of products within a system, as well as systems within systems.
- Provide information and feedback to the user community through a well-maintained, Web-based database.

The SAVER Program established and is supported by a network of technical agents who perform the actual assessment and validation activities. Further, SAVER focuses primarily on two main questions for the emergency responder community, "What equipment is available?" and "How does it perform?"

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Recently Completed Projects

Ion Mobility Spectrometry (IMS) Chemical Detectors

Chemical detection is an essential component of emergency response. Equipment should detect harmful chemicals, correctly identify agents, and help define the area of exposure, as well as the source. Rapid detection is essential so that responders can recognize the threat of an immediately dangerous to life and health atmosphere. Knowing the affected area and extent of contamination in order to properly contain the situation is also important. Several documented chemical attacks have resulted in a number of emergency responder casualties which delayed the rescue process. For example, during the Tokyo subway sarin attack in 1995, it was estimated that between 5,000 – 6,000 people were exposed, 493 were admitted to area hospitals, and there were a total of 12 deaths. Of these totals, 135 emergency medical services (EMS) personnel suffered the effects of acute nerve agent exposure, and 33 were hospitalized. Effective early detection may help prevent catastrophes such as this.

Recognizing the importance of chemical detectors to the safety of emergency responders, the Center for Domestic Preparedness (CDP) conducted an assessment of IMS chemical detectors during the week of October 17 – 21, 2005. Eight responders who attended a CDP weapons of mass destruction (WMD) hazmat technician course were requested to serve as evaluators, and their focus was to assess the functionality and performance capabilities of the IMS chemical detectors. The following is a list of the assessed equipment.

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Recently Completed Projects (continued from page 1)

- Smiths Detection APD 2000
- Smiths Detection ICAM
- Draeger Safety Multi-IMS
- Bruker Daltonics RAID-M

The assessment report is now available on the SAVER Web site along with other documents pertaining to this project.

Closed Circuit Television (CCTV) Technology

CCTV systems have been on the market for over fifty years, existing primarily as commercial off-the-shelf products and technologies. They are integrated into a wide range of security systems for not only surveillance, but also for access control and for forensic use in determining the origins of criminal activity.

The CCTV Technology Handbook provides emergency responders, law enforcement, and security professionals with a reference on current CCTV technologies, capabilities, and limitations. The handbook provides a compendium of these technologies; explains the theory behind their development; and describes the components in a CCTV system. The technologies described in the handbook include cameras, lenses, transmission systems, monitors, multiplexers, and mounting options. A section of the handbook provides criteria considered when selecting a CCTV system. A glossary of CCTV terminology and commonly used acronyms are also included.

The CCTV Handbook is now available on the SAVER Web site.

Hydraulic Rescue Tool Systems (HRTS)

HRTS are essential to a community's emergency response services. Used by both fire services and police services, the systems are primarily used for extracting victims from vehicle accidents in which damage to the vehicle prevents access to the victim. Although the technology has been commonly used for many years, the systems are evolving and many options are available to emergency responders.

Texas A&M Engineering recently conducted a comparative assessment of six hydraulic rescue systems:

- Amkus Rescue Systems
- Champion Rescue Tools
- Holmatro Rescue Equipment
- Hurst Jaws of Life Rescue Systems
- Phoenix Rescue Equipment
- TNT Rescue Systems

As part of the SAVER assessment, four components of the systems were tested—the power units (including pumps and hoses), spreaders and chains, cutters, and rams.

The report is available to emergency responders on the SAVER Web site along with other reports pertaining to this project.

Radiation Detectors

Four TechNotes were recently added to the SAVER Web site. The TechNotes were produced through the efforts of SAVER technical agent, the Nevada Test Site. Radiation pagers, radiation portal monitors, radiation survey meters, and identifiers are covered in the TechNotes.

Each TechNote discusses the background, fundamentals, performance factors, applications, and limitations for its respective radiation detector.

Assessments in Progress

Portable Weather Stations

Response activities by firefighter, police, and other emergency response personnel are often hampered by a lack of accurate weather information. Portable weather stations (PWS) provide vital information to allow responders to conduct more accurate hazard analyses, which aid in determining safe response actions and in enhancing public safety.

The Center for Domestic Preparedness is currently assessing six PWS systems:

- Coastal Environmental WEATHERPAK 400 MTR
- RainWise HM-1 HazMat
- Climatronics TACMET II HazMat Station
- Columbia Pegasus-EX Fly Away Kit
- Columbia Orion Nomad
- Weatherhawk 916

The assessment report will be available to responders late summer 2006.

Night Vision Devices

There are three technologies used in night vision equipment: Image Intensifiers (I^2), Thermal Imaging Cameras (TICs), and High Performance Monochrome Cameras (HPMCs). In addition, Near Infrared (NIR) technology is used in conjunction with HPMCs and I^2 devices to enhance operational performance. The equipment requirements vary relative to the missions of the emergency responder. Fire, law enforcement, natural resources, and investigation services use TICs and I^2 devices. Engineering services only utilize TICs. HPMCs are generally used for video surveillance in the dark.

The Space and Naval Warfare Systems Center, Charleston is in the process of developing a handbook on night vision devices (NVD). The handbook will include sections on technology reviews, applications, considerations, and a glossary of NVD terms.

The handbook should be available on the SAVER Web site by fall of 2006.

Video Inspection Devices

Video inspection devices (VID) are used throughout the emergency response community and are an important tool in both day and night tactical and rescue applications. In seeking to meet a variety of applications, manufacturers have developed a variety of VID models with each model consisting of a number of system components.

Texas A&M Engineering is currently assessing nine VID:

- Allen-Vanguard SM1 Eagle Video Search Kit
- AngioLaz VisionStick
- Flexbar Snake Eye video inspection system
- Remington Technologies Eyeball R1
- Sandpiper Wireless Probescope video inspection system
- SearchSystems SearchCam 2000 victim locator system
- Tactical Electronics PCSS1 Pole Camera System
- TacView 2600 Camera System
- Zistos Task Force Rescue System

The assessment report will be available to responders early fall 2006.

Technical Agent Profile

Nevada Test Site

http://www.nv.doe.gov/nts/default.htm

A unique national resource, the Nevada Test Site is a massive outdoor laboratory and national experimental center that cannot be duplicated. Larger than the state of Rhode Island, approximately 1,375 square miles, the Nevada Test Site is one of the largest restricted access areas in the United States. The remote site is surrounded by thousands of additional acres of land withdrawn from the public domain for use as a protected wildlife range and for a military gunnery range, creating an unpopulated land area comprising some 5,470 square miles.

Established as the Atomic Energy Commission's on-continent proving ground, the Nevada Test Site has seen more than four decades of nuclear weapons testing. Since the nuclear weapons testing moratorium in 1992 and under the direction of the Department of Energy (DOE), test site use has diversified into many other programs such as hazardous chemical spill testing, emergency response training, conventional weapons testing, waste management, and environmental technology studies.

Emergency Responder Training

The Nevada Test Site is designated by the U.S. Department of Homeland Security (DHS) as the National Center for Combating Terrorism (NCCT) for responder preparation.

The Nevada Test Site's technical strengths and scientific infrastructure make it an important part of a global network of multi-user training, test, evaluation, and demonstration locations used in the war against terrorism. Training our nation's weapons of mass destruction (WMD) responders in a realistic WMD operational environment is critical to prepare responders both physically and psychologically for such an incident.

Counter Terrorism Operations Support (CTOS)

In June 1998, the Nevada Test Site became a member of the National Domestic Preparedness Consortium and an integral part of the U.S. Department of Justice Programs/Office for Domestic Preparedness to provide expertise and training to state and local emergency response communities. It is a partnership of several nationally recognized public universities, the U.S. Department of Justice, and the DOE that brings together a singular, coordinated, and integrated training program.

Bechtel Nevada's Counter Terrorism Operations Support Division oversees the training and prepares emergency response agencies to respond to possible terrorist use of WMD. Training courses and exercises at the Nevada Test Site's NCCT enable emergency responders, law enforcement, and military personnel to work side by side with science and intelligence professionals.

WMD/Counter terrorism training exercise at the Phoenix facility on the Nevada Test Site.
Photo courtesy of National Nuclear Security Administration / Nevada Site Office.

Radiological/Nuclear Countermeasures Test and Evaluation Complex (Rad/NucCTEC)

Rad/NucCTEC, scheduled to be operational in late 2006, will allow crucial security research to prevent radiological or nuclear materials that could be used as dirty bombs from entering the country. The evaluation of radiation sensors and detection systems are a few of the activities the complex will support.

The complex will consist of testing venues including replicas of primary and secondary inspection stations at a United States land border crossing; a testing facility to validate performance of systems in extreme environmental conditions; a high-speed roadway to evaluate the effectiveness of radiation sensors against vehicles carrying radiation sources moving at freeway speeds; an "active interrogation" facility which allows the evaluation of the latest detection technologies that have the capacity to intrusively interrogate trucks and/or shipping containers; and a sensor track to perform source passes at calibrated speeds.